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INFLATION AS RESTRUCTURING

A Theoretical and Empirical Account of the U.S. Experience

By

JONATHAN NITZAN

Department of Economics
McGill University, Montreal
October 1992

A Thesis Submitted to the Faculty of Graduate Studies and Research
in Partial Fulfilment of the Requirements of the Degree of Doctor of Philosophy

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ABSTRACT

The thesis offers a new framework for inflation as a process of restructuring. Contrary to existing theories of inflation, which tend to take structure and institutions as *given* for the purpose of analysis, we argue that inflation could be understood only in terms of ongoing structural and institutional *change*. In the modern context of large-scale business enterprise, inflationary restructuring arises as an integral part of capital accumulation. On the aggregate level, inflation appears as stagflation, with the expansion of pecuniary values in the 'business' sphere depending on the strategic limitation of productive activity in the 'industrial' realm. This stagflationary interaction between 'business' and 'industry' is, in turn, linked (on the disaggregate level) to the dynamic formation and reformation of 'distributional coalitions' and the process of aggregate concentration. An empirical analysis of the U.S. experience between the early 1950s and the late 1980s reveals two regimes of inflationary restructuring: the first, which lasted until 1970, involved rapid increases in aggregate concentration with relatively modest stagflation, whereas the second, post-1970 regime consisted of stable (or even declining) concentration amidst severe stagflation.

RESUMÉ

La these propose une nouvelle approche vis-a-vis de l'inflation en tant que processus de restructuration. Contrairement aux theories existantes sur l'inflation, qui ont tendance à considérer structure et institutions comme *données* dans le but d'analyse, nous pensons que l'inflation ne peut être comprise qu'en termes de *changement* structurel et intitutionel continu. Dans le contexte moderne d'entreprises à grande échelle, la retructuration inflationaire se dresse comme une partie integrale de l'accumulation de capital. Au niveau global, l'inflation se présente comme la stagflation, avec l'expansion des valeurs pécunières dans le domaine des affaires dépendante de la limitation stratégique de l'activité productive dans le domaine industriel. Cette interaction stagflationaire entre affaires et industrie est à son tour liée à la formation et à la reformation dynamique de 'coalitions de distribution' ainsi qu'au processus de concentration globale. Une analyse empirique de l'experience américaine entre le début des années 50 et la fin des années 80, révèle deux régimes de restructuration inflationaire: le premier, qui dura jusqu'en 1970, inclut des augmentations rapides dans la concentration globale avec une stagflation relativement modeste, alors que le second, après 1970, est composé de modestes avances dans la concentration au milieu d'une sérieuse stagflation.

To Geneviève and Elvire

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CHAPTER 1

INTRODUCTION

The purpose of this thesis is to examine inflation as a process of *restructuring*. Every inflation theory is based on some explicit or implicit assumptions regarding the underlying structure of economic and social institutions, but the common methodological presumption is that structure is an 'exogenous' variable. Although the organization of consumption, production, trade, ownership and authority are continuously changing, and although these transformations are sometimes cited as potential causes for inflation, it is nevertheless customary to treat structural changes as if they were independent of the inflation process itself. As a consequence, the usual presumption is that, *for the purpose of inflation analysis*, economic structures and institutions could be taken as given.

Our principal goal throughout this work is to question the validity of this commonly-shared conviction. We shall argue not only that the socio-economic structure could not be taken as given, but that structural change is the very essence of the inflation process. Furthermore, instead of perceiving inflation and structural change as two interrelated but separate variables, we would contend that they are in fact two sides of the same dynamic process. Rephrasing Milton Friedman's famous dictum, we claim that *inflation is always and everywhere a phenomenon of structural change*. This is the main contribution of our thesis.

The necessity of continuous structural change stems from the very meaning of social structure. If we follow the historical interpretation of Lewis Mumford in his *Myth of the Machine* (1967; 1970), the evolution of modern 'civilization' after it first emerged in the third millennia B.C. was marked by the cannons of *power*. Following the appearance of divine kingship in Egypt and Mesopotamia, economic institutions were increasingly dominated by the related urge to conquer nature and dominate other human beings. Contrary to the docile static traits of neolithic cultures, the power orientation of 'civilized' societies made them prone to dynamic change. Indeed, the institutions of power are largely inconsistent

with a stationary structure: power means a *quest* for power, a desire to *alter* techniques and *augment* authority. Power, in other words, is not merely a state but also a process, which implies that any power-based economic structure is necessarily a dynamic one.

The first question, then, is how can we treat the dynamic process of inflation as if it originates from a static structure? The answer to this question, we submit, is related to the utilitarian bases of modern economic thinking: economists often think about economic problems in terms of 'welfare' rather than 'power.' Note that the fundamental economic categories of 'commodity,' 'price,' 'gross national product,' 'prosperity,' 'investment,' 'consumption,' 'economic policy' and alike, are geared mainly to the question of 'well-being.' The common denominator underlying these categories is *utility* and their measurement is firmly rooted (though only in principle) in the hedonic calculus of pleasure and pain. The issues of power, authority, coercion and persuasion are not absent from the economic framework, of course, but they are largely external to the central question of welfare. Indeed, unlike utility, the concept of 'power' is rarely quantified in economics and is all but missing from the basic economic categories such as those listed above.

The distinction between utilitarian notions and power-based structures bears on inflation theory. A hedonic world view is consistent with a static structural framework. In a society driven by utility-seeking individuals, structural change appears as coincidental or instrumental, but not as an end in itself. Inflation in this framework could still be affected by structures and institutions, but it does not influence them in turn -- at least not in any significant way. To use the common aphorism, inflation is structurally 'neutral.' A power-oriented society, on the other hand, could be conceived only in terms of continuous restructuring since this is the very essence of power seeking. If the prime engine of capitalist civilization is not utility maximization but the quest for power over nature and man, we may no longer retain the 'neutrality' assumption. From this latter viewpoint, inflation should be conceived in terms of ceaseless structural change.

In light of this distinction, we propose in this work to examine the relationship between structure and inflation from two different perspectives. In the first part (chapters 2 to 5), we deal with inflation

and structure, focusing on the common approach which sees inflation and economic structure as related but mutually-distinct conceptual entities. In the second part (chapters 6 to 9), we suggest an alternative point of view for inflation *as* restructuring, in which inflation and structural change are perceived as two sides of the same dynamic process.

The difference between a static hedonic-based approach and a dynamic power-based perspective manifests itself in a number of interrelated ways. (1) By focusing on given structures, the first framework for inflation is naturally disposed toward the method of equilibrium analysis. The second approach, on the other hand, starts from the fundamental premise of continuous restructuring in which neither equilibrium nor disequilibrium are very useful concepts. (2) In the first approach, it is customary to classify structures as a hierarchy of 'imperfections,' or departures from an *a*-historical hedonic society, ranging from the 'natural' voluntary state of perfect competition to the coercive 'distortion' of monopoly power. From the second viewpoint, however, the basic emphasis is not on the distinction between competition and monopoly, but rather on the dynamic interaction between cooperation and conflict as the fundamental duality of modern economic institutions. (3) Where the first perspective distinguishes between the 'real' magnitudes of the material world and the 'nominal' categories of the monetary domain, the second approach includes both of them within the double-sided reality of 'business' and 'industry.' In this latter framework, the domain of money, credit and debt is as real as the domain of production and consumption, whereas the sphere of commodities is no less pecuniary than that of banking institutions and monetary policy. (4) Given its focus on welfare, the first approach takes the individual actor as its basic building bloc. The second perspective, on the other hand, emphasizes the primacy of power, thus placing the coalition and collective action at the centre of attention. (5) Whereas the former framework emphasizes passive reaction to exogenous events within a given structure, the latter approach accentuates deliberate initiatives which constantly seek to alter the existing order.

We begin to explore these issues in Chapter 2, where we deal with mainstream macroeconomic approaches to inflation. Much of this literature is related to the disintegration of the Phillips Curve trade-off between inflation and unemployment, and its methodology is characterized by a series of forced departures from neoclassical tenets. Although capitalism has been plagued by both inflation and

unemployment since the 16th century, from the *analytical* perspective of mainstream macroeconomics, their combination appears as an exceptional deviation from the natural state of things. Starting from the assumption of utility maximization in the context of a perfectly competitive equilibrium, the concurrence of inflation and unemployment is then seen as the unfortunate consequence of assorted 'imperfections' and 'distortions' which create temporary 'disequilibria.' There are structural imperfections, such as union power, government intervention, and oligopoly which prevent full employment and price stability; there are informational imperfections which confuse rational actors to invest in unemployment despite the inflationary boom; there are expectational imperfections which create a comedy of errors in which the market fools its own participants, having them raise their prices despite a lack of demand; there are institutional imperfections which create habits and inertia and break the fundamental link between scarcity and price movements; and finally, there are exogenous forces which menace the economic system and upset its stable, mutually-beneficial, equilibrium.

This constant resort to 'imperfections' and 'rigidities' points to a fundamental weakness in the macroeconomic treatment of inflation and stagflation. The forced reference to real structures, to power relations, and to historical (as opposed to equilibrating) change, appears as a necessary methodological evil. These features are treated not as part of the 'economic system,' but rather as exogenous constraints imposed on that system. Stagflation, in other words, appears as an anomaly which can be rationalized only by extra-economic causes and, as a result, the 'success' of mainstream models at explaining the shifting Phillips Curve becomes a sign for their own deficiency.

Not surprisingly, then, attempts to examine the broader structural roots of inflation and stagflation were conceived as challenges to the microeconomic foundations of the neoclassical synthesis. The bases for these initiatives were laid already during the Great Depression of the 1930s, when many economists began to question received notions about price behaviour and business behaviour. In Chapter 3, we turn to assess the methodological debate surrounding these issues. The challenge to conventional neoclassical thinking emanated first from the discovery of 'administered prices,' and then from suggestions that businessmen followed 'markup' pricing. The claims that concentrated industries had relatively inflexible prices and that modern industrial firms were not necessarily driven by the

maxims of profit maximization were disheartening for the marginalists, but they were also problematic for those who sought to anchor macroeconomics in a more realistic view of industrial organization. The possibility that modern corporations were not trying to optimize some objective profit function inserted an invisible wedge into the price-making process. While the businessman might be following some standard pricing procedure, for the economist these procedures appeared rather arbitrary, leaving him or her unable to predict the resulting outcome. Thus, by emphasizing the importance of structure for actual pricing, the empirical literature on business behaviour in fact acted to undermine the methodological basis of price theory itself.

These problems have been largely ignored in the market-structure approach to inflation which we examine in Chapter 4. The modern dual structure of competition and oligopoly, together with the two ethics of market prices and markup pricing, proved a convenient starting point for alternative explanations of post-war inflation. Whereas the neoclassical synthesis was constrained by the fundamental tenets of optimizing behaviour, the resort since the 1930s to non-maximizing assumptions created an endless number of possible inflation theories. Much of the ensuing literature has been concerned with identifying the 'proper' markup formula and the temporal interaction between its various components. Most theories involve some variation of cost smoothing with fixed profit markup, but there are also those which emphasize the inflationary role of changing profit margins. Because of their more realistic point of departure, the studies in this area offer important insights which are often lacking from standard macroeconomic models. Yet, despite these advances, the market-structure approach to inflation is still limited in certain important ways.

Firstly, much like the neoclassical view, structural theories, too, are based on ideal types for corporate behaviour. The main goal of such theories is to explain the impact of alternative economic structures and institutions on inflation and stagflation, but since the crucial link between these variables is still the individual economic actor, it becomes necessary that such actor follow *stable* rules of conduct. In this sense, emancipating the modern corporation from its universal fixation on profit maximization is merely a pretext for locking it back into more convenient but equally rigid and arbitrary behaviourial assumptions. Ultimately, both the macroeconomic and structural literature treat the economic agent as

a *passive responder*, an *intermediary* between exogenous shocks and endogenous adjustments. In the final analysis, both approaches lead to the same inevitable question: If everyone is merely reacting, where are the social and economic changes coming from?

Of course, this question rarely arises since, as we already noted, most writers tend to assume that, for the purpose of analysis, structure could be taken as given. Indeed, the second similarity between mainstream and structural inflation theories is their common resort to the concepts and methods of equilibrium analysis. In economics, the notion of equilibrium has two principal interpretations: stability and desirability.[1] In terms of stability, equilibrium usually means that, in the absence of exogenous shocks, the endogenous variables of the system have no tendency to change. With desirability, equilibrium denotes the 'chosen' position of economic agents; it is where they wish to be, given their exogenously-imposed constraints. Mainstream macroeconomics makes extensive use of both of these interpretations, but so does the structural literature. According to this latter school, economic agents are not necessarily bound by profit maximization and perfect competition, but their behaviour still follows *predetermined* rules of conduct and they operate within a *given* structure. As a result, the market-structure literature, too, is alien to the process of structural change. In our opinion, this common resort to equilibrium is fundamentally flawed. The focus on stability as the state to which the system tends to converge already repudiates the primacy of historical change, whereas the notion of desirability removes the very motivation for initiating such change. Indeed, would human beings develop a language, material technology and social institutions if they were already in equilibrium? Would they go to war or come to peace from such a state? Could science emerge from the paralysing convenience of self-fulfilment? Would content breed a quest to conquer nature and man? With this in mind, can we still assume that the economic relationships behind inflation and stagflation are nevertheless stable? In this context, even the notion of disequilibrium is misleading because, as a *deviation* from equilibrium, it already presupposes the primacy of stability and stationarity.

The related notions of passive reaction and static structure which characterize most inflation theories are linked to a fundamental preoccupation with utility and well-being. Analyzing the effect of

[1] See for example Asimakopulos (1978, pp. 42-4).

socio-economic structures on prices and inflation is rarely an end in itself. Eventually, it is a basis for answering a more rudimentary question, namely, the bearing of inflation on the price of utility, or 'living' as Griliches (1971) prefers to put it. At first sight, this may seem as a rather narrow interpretation of economic theory. How could one identify welfare and utility as the common denominator of *all* inflation theories, when every political economist since Marx seems to stress social relations and institutions as the *ultimate* subject of inquiry? Is it not true that, while neoclassical economics focuses mainly on utility (or 'use value'), Marxian and institutional economics are concerned primarily with social structures (or 'exchange value')? And if we identify the power orientation of political economy as the basic starting point of structural inflation theories, should we not conclude that these theories are fundamentally different from their mainstream counterparts? The answer is yes and no!

Although the market-structure literature may formulate its *questions* in terms of economic power and social institutions, its *empirical categories* are very close to those used by mainstream neoclassical economics. In the case of inflation theory, this distinction is most obvious when we go back to the very definition of inflation. The phenomenon of inflation is defined as a broad change in the prices of commodities and, while the macroeconomic and structural analyses explain the inflationary process from different theoretical perspectives, they *measure* it in much the same way: from both perspectives, the underlying emphasis is on *commodities as articles of utility*. Even in the Marxian scheme, where the world of commodities is seen as a 'mirror' for social relations, quantities are still measured in terms of 'use values' (note that 'exchange values' are denominated in units of 'unskilled labour' and those could be calculated and expressed only in the utilitarian terms of functional production and hedonic consumption). In other words, the basic categories for inflation analysis -- even when such analysis is focused on the structure of power -- are counted in material rather than social terms.

The significance and implications of this claim are examined in Chapter 5. Here we argue that, because of their hedonic basis, standard price and quantity indices (such as the Consumer Price Index, or GNP measured in 'constant dollars') are in fact biased in favour of neoclassical theories for inflation. In other words, we suggest that the very measurement of inflation is already predisposed toward a particular set of explanations and may thus be inadequate for other, competing theories. As it turns

out, the use of existing indices presupposes a society of free, utility-maximizing individuals, organized in a perfectly competitive framework and prevailing in a continuous state of equilibrium. Whenever these assumptions are not fulfilled, that is, whenever inflation occurs in the context of antagonistic groups, power conflicts and historical change, the indices become partially or wholly inadequate. Thus, if we want to integrate such concepts into our *explanation* of inflation, we must also incorporate them into our *definition* of inflation. Instead of measuring the *changing price of hedonic pleasure*, we may want the concept of inflation to reflect the *changing structure of social power.*

With this in mind, we then turn to the second part of our work, where we offer a new approach for inflation as a dynamic process of structural change. The overall historical and analytical framework for this approach is set in Chapter 6. We begin with a critical interpretation of Thorstein Veblen and Mancur Olson, whose separate writings offer a convenient starting point for our analysis. Building on Veblen's fundamental distinction between 'business' and 'industry' and Olson's taxonomy for 'collective action' and 'distributional coalitions,' we suggest that, in the modern context of large-scale business enterprise, price inflation tends to appear together with industrial stagnation and that both phenomena are linked to the process of capital accumulation and the dynamic restructuring of business power.

According to Veblen, the evolution of mature capitalism since the end of 19th century could be best understood as a dynamic conflict between the universal goals of industry and the differential principles of business enterprise. The material sphere of industrial production depends on cooperation, coordination, integration and standardization, whereas the pecuniary realm of business power hinges on competition, friction and mutual injury. The distribution of income is a pecuniary phenomenon achieved though the subjugation of industrial activity to business ends. Specifically, since business ownership is an extra-industrial activity, business income could be generated only by limiting industrial activity to 'what the market could bear at profitable prices.' Now, as long as the market expanded faster than industrial capacity, as was the case in the United States until the late 19th century, the conflict between industry and business remained dormant. From the early 20th century onward, however, the growth of productivity started to surpass the growth of population, creating a chronic predicament of excess capacity. To survive under this new order, business enterprise had to actively curtail industrial capacity

and that necessitated collective action. The main vehicle for such action was the ongoing process of corporate amalgamation or, to use Olson's terminology, the progressive accumulation of distributional coalitions. Furthermore, since the formation and reformation of business coalitions occurs through the accumulation of capital -- that is, through the pecuniary capitalization of earning capacity -- the whole process was not only stagnationary, but also inflationary.

Starting from this perspective, our basic hypothesis is that, in a 'mature' capitalist context of rapid technological change and limited population growth, the dynamic interaction between business and industry appears as a double-sided process. On the *disaggregate* level there is ceaseless business reorganization, with continuous changes in corporate concentration and in the structure of corporate coalitions, while on the *aggregate* level the consequences of this restructuring appear in the form of asset inflation and industrial stagnation. In other words, we suggest that macroeconomic stagflation and the restructuring of business institutions are two sides of the same process of modern capitalist development.

Our first step toward examining this broad hypothesis is to develop a new inflation index. In Chapter 7, we argue that inflation could be interpreted in two distinct ways. In conventional usage, the noun inflation is used to denote a general rise in commodity prices. However, this same process of price changes could also be viewed as a dynamic interaction between the business and industry spheres of economic activity. To understand this duality, note that every broad 'multiprice' index P also has a 'value-quantity' approximation, given by the ratio between the overall money value V and the overall material quantity Q of the underlying commodity basket. Consequently, if we define inflation as the rate of change of P, we could also approximate it by the difference between the rates of change of V and Q.

Although the standard 'multiprice' and 'value-quantity' interpretations for a price index are mathematically equivalent, their implications for inflation analysis are radically different. From the standard 'multiprice' perspective, inflation is defined as a process of price changes and that definition is independent of the underlying process of restructuring. From a 'value-quantity' point of view, on the other hand, the very definition of inflation is already rooted in the structural processes which bring that inflation about: variations in the overall value of the basket are determined in the business sphere, while

changes in its overall quantity reflect developments in the industrial sphere.

Given our basic hypothesis on the structural roots of inflation, we suggest that price changes are only a corollary of the more fundamental interaction between business and industry. Thus, instead of focusing on standard, single-variable indices which measure the rate of change of prices, we propose a new type of double-variable indices which contrast the rate of change of a broad 'business-sphere' variable (such as nominal GNP or corporate sales), with the rate of change of a general 'industry-sphere' variable (like output or employment). While the common indices are still useful for a wide range of applications, it is only by decomposing the inflationary process into its business and industrial aspects, that we can start exploring its structural causes.

In Chapter 8, we turn to these structural features, linking inflation with the process of aggregate concentration. Starting from the business-industry representation for inflation, we argue that changes in each of these spheres are affected by the separate developments occurring in the core of large companies and in the periphery of smaller firms. Thus, in a given universe of corporations, the overall rate of change of sales in the business sphere and the overall rate of change of employment in the industrial sphere will be determined by the underlying rates of change occurring in the subgroups of large and small firms. At the same time, the relative changes of sales and employment in each subgroup will also affect the distributive shares of that subgroup in the aggregate sales and employment for the corporate universe. In other words, the inflationary interaction between business and industry is driven by the same structural forces affecting the process of aggregate concentration for sales and employment!

We examine this process of inflationary restructuring with data pertaining to the U.S. manufacturing and mining sector between the early 1950s and late 1980s. Our empirical analysis addresses several important questions: How did the business-industry interaction develop in the core of large corporations as opposed to the periphery of smaller firms? What were the relative contributions of each group to the overall rate of manufacturing and mining inflation? Was the relationship between inflation and aggregate concentration systematic or random? If the restructuring was systematic, what was its nature and how did it change over time? The data suggest that post-war inflation was indeed

associated with systematic corporate restructuring. The relatively low inflation of 1950s and 1960s arose from a combination of low inflation in the periphery of small firms, coupled with even lower rates in core of large corporations. Underlying this differential performance were systematic changes in distributive shares, involving rising aggregate concentration for corporate sales and even faster increases in the aggregate concentration for employment. The period of the 1970s and 1980s was fundamentally different. Inflation was now much higher and was accompanied by serious stagnation. This new experience was associated with a reversal in the relative contributions. The core was now leading with higher rates of inflation accomplished by a combination of stable rate of aggregate concentration for sales and a falling aggregate concentration for employment.

What generated the low inflation and rising aggregate concentration of the 1950s and 1960s, and why did we have higher inflation together with stable or declining aggregate concentration in the 1970s and 1980s? Were inflation and restructuring driven by the same cause? What was it? In Chapter 9, we root inflationary restructuring in the basic process of capital accumulation. Following our analysis in Chapter 6, we begin by arguing that, in the modern context of large-scale business enterprise, the guiding principle of big business is *differential pecuniary accumulation*. Corporate performance is measured in *nominal* terms and its ultimate yardstick is the pace of capital accumulation *relative to other firms*. In seeking to accumulate faster than the average, the large firms can follow two main strategies. They can either expand their differential *breadth* of accumulation in the industrial sphere by augmenting productive capacity and employment faster than the average, or else they can try to increase their differential *depth* of accumulation in business sphere by raising their net profit per employee faster than other companies. Each of these paths is associated with a different business strategy. The first depends mainly on the pace of mergers and acquisitions, specifically on the rate at which smaller firms are amalgamated into their larger counterparts. The second strategy, on the other hand, hinges on inflationary process, particularly on the ability of large firms to exceed the average rate of inflation. A theoretical and empirical analysis of these relationships leads us to conclude that, in the context of large-scale business enterprise, there is an intimate link between the macroeconomic dynamics of inflation and stagnation on the one hand, and the distributional path chosen by the large corporate coalitions on the other. Successful merger-driven expansions in their differential breadth of accumulation

induce the large firms to maintain moderate rates of inflation, which is probably what happened during the 1950s and 1960s. A decline in merger activity, on the other hand, drives them to try and increase their differential rate of accumulation *via* inflation, which in turn creates an inflationary spiral accompanied by industrial stagnation. This latter scenario helps explain the historical experience of the 1970s and 1980s.

* * *

The theoretical arguments and empirical evidence provided in this thesis strongly suggest that the macroeconomic experience of inflation and stagnation is interwoven with the fundamental structural processes of capital accumulation and corporate concentration. The nature of this interaction, however, is *historical* and that has far-reaching implications for our empirical research programme. The basic starting point in this work is that economic processes are to a large extent qualitative and hence 'non-stationary' in nature. In our opinion, stagflation emerges from the dynamic *transformation* of a power-oriented society, so its causes and appearance could not be arrested into a stable econometric model. Since the stationary, *a*-historic premise of such models goes counter to the historical singularity of structural change, we have deliberately chosen not to use any econometric estimation and testing and limit ourselves to the careful analysis of tables and graphs.

In this light, it is also important to qualify the scope of our theoretical claims and empirical findings. While the process of inflationary restructuring is neither new, nor limited to a particular society, it is necessary to emphasize that our thesis was developed with the modern U.S. experience in mind. Our specific framework was for a 'mature' capitalist economy, characterized by a large domestic market, expanding foreign trade and growing integration within a rapidly-changing world market, and it is only in this kind of setting that our method and conclusion may have a certain claim for generality.

PART ONE

INFLATION AND STRUCTURE

CHAPTER 2

MACROECONOMIC PERSPECTIVES ON INFLATION AND UNEMPLOYMENT

Modern macroeconomic theories for inflation and unemployment have evolved in a dual love-hate relationship with the Phillips Curve. The notion that there exists a stable inverse relationship between inflation and the rate of unemployment -- dubbed as the Phillips Curve after the original work by Phillips (1958) -- was assimilated into macroeconomic models during the 1960s. The theoretical relationship was supported by observations stretching over close to a century, yet, as soon as macroeconomists put their new discovery into use, the Phillips Curve seemed to break down! During the late 1950s, when Phillips published his original article on the British experience, many macroeconomists in the United States were perplexed by the persistence of inflation in the midst of recession. Later, during the 1960s, inflation in most advanced capitalist economies accelerated with no apparent decline in the rate of unemployment. Finally, since the mid 1970s, after a dramatic rise in both inflation and unemployment, the two variables began to moved together, in an open defiance of the Phillips Curve.

The gradual emergence of stagflation and the progressive breakdown of the Phillips-Curve relationship presented mainstream macroeconomics with the most serious challenge since the Second World War. Macroeconomists launched a series of bitter attacks on the Phillips Curve, yet their criticism sought to modify, not nullify. Behind the theoretical Phillips Curve lay strong neoclassical convictions regarding the working of supply and demand. Although macroeconomics abstracted from the structure of underlying markets, the negative association between inflation and unemployment seemed to indicate that perfect competition was a useful assumption in the study of broad aggregates. The basic relationship between inflation and unemployment was simply too significant to discard. As a result, most macroeconomic challenges to the Phillips Curve have been half-hearted: they 'augmented' the elementary relationship with auxiliary factors.

By the early 1990s, after three decades of theoretical challenges, macroeconomic theories for inflation and unemployment still dominate the collective consciousness of economists and policy makers alike. In this sense, the struggle to save the Phillips Curve has been successful. Yet the achievement came at considerable cost. Amendments to Phillips Curve were never quite sufficient and additional modifications were constantly called for in order to accommodate changing realities. This repeated 'augmentation' of the Phillips Curve injured the apparent integrity of macroeconomics. The most serious damage, however, was caused by the nature of modifications. In order to explain the breakdown of the Phillips Curve, macroeconomists resorted to adversities such as 'disequilibria,' structural and informational 'imperfections,' and external 'shocks' delivered from outside the macroeconomic system. In other words, they abandoned the cardinal belief in equilibrium and perfect competition which previously characterized the 'neoclassical synthesis.'

In this chapter we deal with some of the key contributions to the macroeconomic literature on inflation and unemployment. Our aim is not to provide a comprehensive or even a partial survey. Instead, we focus our attention on fundamental methodological issues which arise as macroeconomists leave the ideal neoclassical domain of perfect competition and equilibrium and venture into alternative terrain. The first and second sections deal with the original Phillips Curve and its theoretical foundations. In the third section, we move from the labour market into the macroeconomic arena. The fourth section deals with the notion of structural imperfections. The fifth and sixth sections examine the integration of expectations and the natural rate of unemployment into the Phillips-Curve framework. In the seventh section, we appraise the rational-expectations framework. The eight section evaluates the effect of institutional instability on stagflation and, in the ninth section, we explore the notion of supply shocks.

2.1 The Original Phillips Curve

In 1958, A.W. Phillips published a careful empirical study examining the relation between unemployment and wage inflation in the United Kingdom over a period extending from 1861 to 1957. First he fitted a nonlinear function, negatively relating wage inflation to the rate of unemployment between 1861 and 1913 and then he demonstrated how this function could explain the relationship for

the subsequent period between 1913 and 1957. The stylized, stable relationship suggested that a 5.5 percent for unemployment was associated with zero wage inflation. When unemployment was above this threshold, there was a modest decline in nominal wages. On the other hand, when unemployment was below 5.5 percent, the rate of wage inflation increased rapidly.[1] Phillips also identified counter-clockwise 'loops' of data observations around the stylized fitted function. These loops indicated that when the rate of unemployment was falling, wage inflation exceeded the value given by the function and when unemployment was growing, the rate of change of wages was lower than values predicted by the function.

Phillips' results were assimilated quickly, partly because they provided strong confirmation for the working of competitive market forces, particularly for the way prices adjusted to 'excess demand' or 'excess supply.' The tentative theoretical hypothesis for this adjustment process is stated explicitly in Phillips' opening passage (1958, p. 283):

> When the demand for a commodity or service is high relative to the supply of it we expect the price to rise, the rate of the rise being greater the greater the excess demand. Conversely when the demand is low relatively to the supply we expect the price to fall, the rate of the fall being greater the greater the deficiency of demand. It seems plausible that this principle should operate as one of the factors determining the rate of change of money wage rates, which are the price of labour services.

Hence, it follows that if the rate of unemployment and its first derivative are taken as two independent proxies for 'excess supply' in the labour market, both should be negatively related to the rate of change in money wages. The rate of unemployment could explain wage inflation along the negatively-sloped Phillips Curve and the rate of change in unemployment would account for the counter-clockwise loops around it.

Most of the early literature that followed Phillips' original study emphasized this stylized relationship between wage inflation and unemployment but the Phillips Curve was significant also for what it failed to explain. In fact, Phillips took great pain to explain every *deviation* from the stylized loop. His explanations are interesting because they point to structural elements that are inconsistent with

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[1] Phillips (1958, p. 290) fitted the following function to his data:

$\log (w + a) = \log b + c \log U$,

where w denoted the rate of change of wage rates and U measured the percentage unemployment. The estimated values for the parameters were 0.9 for a, 9.638 for b and 1.394 for c.

the assumption of perfect competition in labour and commodity markets. Several examples could be cited to illustrate this point. In the upswing between 1893 and 1896, for instance, wage rates rose more slowly than usual, a development that Phillips (p. 292) attributed to the rapid growth of employers' federations and the consequent rise in employers' resistance to trade-union demands. Similarly, the regular relationship was again disturbed in 1912, presumably by strike activity of union members in the coal-mining industry (*ibid.*). Another observation was the progressive narrowing of the cyclical loops between 1861 and 1909. Phillips (pp. 292-93) explained this in two ways; first, by the proliferation of wage-indexation and, second, by increasing time lags in the response of wage changes to changes in the level of unemployment. The significance of these lags, he argued, increased with the historical extension of collective bargaining and arbitration. Another illustration (pp. 293-94) points to the dramatic decline of wages in 1921 and 1922 (22.2 and 19.1 percent, respectively) which exceeded by far the moderate decreases suggested by the fitted curve. Phillips attributed much of these declines to automatic cost-of-living adjustments triggered by substantial decreases of import prices in those years. Finally, the observations for the 1948-1957 period appeared to generate a *reverse* loop, which Phillips (pp. 297-98) again explained by a lagged adjustment of wage rates to unemployment.

There is a common feature in these realistic supplementary explanations. Employers' federations, trade unions, collective bargaining, arbitrations, wage-indexation and lagged adjustments can be perceived as 'institutional rigidities' that *distort* the functioning of a *laissez faire* market system. In this sense, by recognizing such institutional realities, Phillips anticipated the subsequent dilemma that later macroeconomists often faced when they tried to relate the Phillips Curve to a changing world. The cost of being able to explain rising inflation (and, subsequently, stagflation) involved sacrificing the theoretical 'ideal' of perfect competition as its pristine simplicity was increasingly tainted by various realistic social and institutional 'distortions.'

2.2 From Disequilibrium to Equilibrium

The theoretical underpinning for Phillips' empirical findings was developed by Lipsey (1960). 'The usual argument,' writes Lipsey (p. 13), 'merely states that when there is excess demand . . . wage

rates will rise, while when there is excess supply . . . wages will fall. Nothing is said about the speed at which the adjustment takes place.' In other words, a theoretical framework where disequilibrium generates equilibrating forces is incomplete unless we specify a dynamic 'adjustment mechanism' to explain the *speed* at which the system moves toward equilibrium. Phillips indeed suggested that wage inflation was positively correlated with the magnitude of excess demand but, according to Lipsey (p. 2), he had not provided a 'model of market behaviour' that explained this relationship. Hence, in order to eliminate the potential for serious misinterpretation, the model underlying the Phillips Curve must be 'fully specified' (Lipsey, p. 12). In light of his emphasis on rigorous specification it is interesting to note that Lipsey does not specify the underlying market structure for his own model. Instead, he writes:

> We shall consider this relationship, first, for a single market, and then for the whole economy . . . We might analyze the market for *any* commodity since the argument at this stage is quite *general*. Since, however, the subject of the present article is the labour market we shall use the terminology appropriate to that market. (pp. 12-3, emphases added)

The use of such ambiguous language is unhelpful for it is hard to imagine a 'general' model for price adjustment that can be applied to 'any' market structure. The emphasis Lipsey puts on the role of 'excess supply' and 'excess demand' suggests that his own model may be applicable to perfect competition but is probably inadequate for other structures.[2]

The model for the single market contains three basic relations. One is the 'adjustment mechanism' which specifies the rate of change of wages as a linear function of the relative excess demand for labour:

$$(1) \qquad w = \alpha \, [(d - s) \, / \, s] \, ,$$

where w denotes the rate of change of wages, α is a fixed coefficient, d is the demand for labour and s is the supply of labour. The second relation is a curvilinear, negative function linking the rate of unemployment with the relative excess demand:

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[2] In monopoly and monopolistic competition, there is no unique supply curve (supply depends on demand conditions) and, in oligopoly, the meaning of both supply and demand curves is ambiguous. Under these conditions there is no clear definition for *excess* supply or demand.

(2) $U = f_1 [(d - s) / s]$,

Equation (2) merely describes the relationship between the rate of unemployment and relative excess demand and it has no causal implications. When the market is in equilibrium (no excess demand or supply), there is only 'frictional unemployment,' with number of vacancies being just equal to the number of unemployed workers. When excess supply develops, unemployment increases linearly, while an increase in excess demand is associated with a curvilinear fall in unemployment (as excess demand increases, the fall in unemployment becomes progressively smaller because unemployment cannot become negative). The third relationship is the 'adjustment function' which is derived by combining equations (1) and (2):

(3) $w = \alpha f_2 (U)$.

This last equation is, of course, the standard Phillips Curve. It is interesting to examine the methodology employed in developing this model because some of its features reappear in subsequent macroeconomic theories of inflation and stagflation. Two aspects are worth noting: the central role assigned to non-observable variables, and the view that markets continuously move toward equilibrium. We consider each of these elements in turn.

According to Lipsey, the first problem for analysis stems from the continuous shifts of demand and supply curves, movements which make difficult the identification of these individual curves. Fortunately, he argues, this is not an unsurmountable obstacle for, in order to obtain Equation (1), it is 'only necessary to *know* demand and supply' at the existing market price and other points on curves can be ignored (p. 13, emphasis added). Note that even with this qualification, one may still ask the practical question as to how we could discover these two magnitudes. The theoretical analysis is cast in terms of supply and demand; that is, in terms of *desires*, or plans to sell and buy labour services. These

are psychological tendencies, not observable market outcomes. In this light it is unclear how could we solve the problem by limiting ourselves to the existing market price.[3]

Reliance on non-observable magnitudes introduces a strong axiomatic element into the analysis. Lipsey (p. 13) asserts that in order to *observe* the linear relation illustrated in Equation (1), 'it is necessary only that there be an unchanging *adjustment mechanism* in the market.' Unfortunately, even within Lipsey's own framework, this is only a necessary and not a sufficient condition, for in order to observe this relation we must first be able to observe the 'excess demand' variable. This is not always possible, admits Lipsey, but for practical not conceptual reasons. In his opinion, the difference between the number of unfilled vacancies and the number of unemployed workers could provide a 'reasonable *direct measurement* of excess demand' but, unfortunately, vacancy data are seldom available and even when they are available these data might be seriously flawed. As a practical solution, Lipsey suggests we relate excess demand only to unemployment (rather than to the difference between vacancies and unemployment). The solution is not very helpful, however, because Lipsey ignores the conceptual challenge altogether. His 'empirical' definition for supply and demand in the labour market is specified in terms of actual market outcomes rather than in terms of hypothetical desires. The quantity supplied is assumed to be equal to the sum of recorded employment and unemployment, while the quantity demanded is assumed to be equal to the sum of actual employment and vacancies. Hence, the difference between observed unemployment and vacancies is equal to 'excess demand' *by definition*. In this light, reliance on unemployment figures for want of vacancies data does not solve anything for it merely inserts an axiomatic link -- a negative curvilinear function between observable unemployment and non-observable excess demand -- in the theoretical chain.

The existence of these axiomatic elements weakens the scientific status of Lipsey's theory. One reason for developing this theory in the first place is that

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[3] One could argue that 'quantity supplied' and 'quantity demanded' are observable when the existing market price is an equilibrium one because, when we define equilibrium as a 'chosen position,' we assert that the actual outcome is identical to the desired one. (See Asimakopulos, 1978, p. 43.) This reasoning, however, is quite misleading. Equilibrium here is defined in reference to desires and not the other way around, and unless we could *first* observe those desires we could not know that the market is indeed in equilibrium!

> if the relation ceases to hold, or changes, and we have no model to explain it, we can only say 'the relation has ceased to hold' or 'the relation has changed' and we will have learned nothing more than this. If we have a model explaining the relationship, we will know the conditions under which the relation is expected to remain unchanged. Then, if a change occurs, the model will predict *why* this has happened and this prediction will give rise to further tests from which we can learn. (Lipsey, p. 12)

Yet, can we really expect this model to tell us why the Phillips Curve changes? Consider, for instance, Lipsey's discussion of the impact that unions may have on the Phillips Curve (p. 17). In his opinion, unions may change the adjustment mechanism specified in Equation (1); for example, by making wage increases more responsive to excess demand and less responsive to excess supply. If this happens, the Phillips Curve itself should change. However, when we observe such a change in the empirical Phillips Curve, how can we know it originated from the influence of *unions* on the adjustment mechanism? For that purpose, any number of factors may affect the adjustment mechanism but we have no way of observing these effects because the adjustment mechanism itself remains defined only in terms of non-observable elements. Note that Equation (2) is also non-observable due to the presence of the excess demand variable. This introduces the further complication of not being able to associate changes in the empirical Phillips Curve with changes to either Equation (1) or Equation (2).

The second central feature of Lipsey's model is the emphasis on equilibrium. The labour market is subject to 'external' forces which shift demand and supply functions and create disequilibria. Fortunately, disequilibrium positions are inherently transient because the 'internal' forces, namely the 'laws of supply and demand' and the 'adjustment mechanism,' drive the system toward equilibrium. Wage inflation is the process by which stability is restored and, hence, even when wage inflation persists over lengthy periods of time, ultimately it is a *temporary* phenomenon -- it will disappear once equilibrium has been re-established.

The Phillips-Curve framework was rapidly incorporated into the mainstream of macroeconomics but this assimilation occurred amid criticism and consequent amendments. Attacks on the early Phillips Curve proceeded along two lines, both related to market 'imperfections.' One group of macroeconomists emphasized the significance of institutional rigidities in economic structure, while another analyzed the impact of imperfect information. We deal with these aspects in the following five sections.

2.3 Perfect Competition?

While Phillips (1958) and Lipsey (1960) focused their attention on the labour market, Samuelson and Solow (1960) suggested a macroeconomic framework by modifying the earlier formulation of the Phillips Curve. Instead of relating unemployment and *wage* inflation, the curve now linked unemployment with the overall *price* inflation. This 'modified Phillips Curve,' roughly estimated on the basis of 25 years of American data, was suggested by Samuelson and Solow (p. 192) as a 'menu of choice between different degrees of unemployment and price stability.' The relationship was considered to be significant because it appeared to be stable. This 'tradeoff relationship' suggested that the consequences of unemployment in terms of inflation (and vice versa) were *predetermined* and the politician had only to chose the desired combination that minimized social hardship (or maximized political gains).

While subsequent analysis of the Phillips Curve was concerned chiefly with such policy implications, much less attention was initially paid to the shift from wage to price inflation. Samuelson and Solow did not explain this transition explicitly and its rationale was only implicit in their article. Succeeding interpretations (for instance, Klein, 1967) used the assumption of a constant markup to explain this switch from wage to price. According to this later view, firms set their unit price as a *constant* markup over unit wage cost, so price inflation was just equal to wage inflation minus the growth in workers' productivity. Because productivity growth was relatively stable, price inflation could be interpreted as a relatively stable, linear function of wage inflation. In other words, you could move form the original to the modified Phillips-Curve equation simply by replacing wage inflation by price inflation on the lefthand side and subtracting productivity growth from the righthand side.

Of course, markup pricing was inconsistent with a rigid competitive model where prices respond to excess demand and supply. Indeed Samuelson and Solow argued that we must distinguish between the mechanism of demand-pull inflation which operated through competitive forces and cost-push inflation associated with 'market imperfections.' In its essentials, wrote Samuelson and Solow (p. 178), the demand-pull theory for inflation was based on the *a priori* presumption that real variables (real

outputs, inputs and relative prices for goods and factors) were determined by a set of competitive equations which were 'independent of the absolute level of prices.' The latter is determined by the money supply or, more broadly, by the overall level of money expenditures. This rigid neoclassical 'dichotomy' between the processes which determined real as opposed to nominal variables,

> would require that wages fall whenever there is unemployment of labor and that prices fall whenever excess capacity exists in the sense that marginal cost of the output that firms sell is less than the prices they receive. (p. 180)

Adherents of this position, wrote Samuelson and Solow (p. 177), were puzzled by the inflationary experience occurring between 1955 and 1958 in the United States. During that period, prices increased despite a growing overcapacity, slack labour markets, slow real growth and no apparent great buoyancy in overall demand. This historical episode was inconsistent with the conclusions of a strict competitive model so institutional friction and rigidities of the cost-push perspective gained a greater recognition:

> Some holders of this view attribute the push to wage boosts engineered unilaterally by strong unions. But others give as much or more weight to the co-operative action of all sellers -- organized and unorganized labor, semimonopolistic managements, oligopolistic sellers in imperfect commodity markets -- who raise prices and costs in an attempt by each to maintain or raise his share of national income, and who among themselves, by trying to get more than 100 per cent of the available output, create 'seller's inflation.' (p. 181)

Samuelson and Solow accepted the significance of these features and noted that

> to explain possible cost-push inflation, it would seem more economical from the very beginning to recognize that imperfect competition is the *essence of the problem* and drop the perfect competition assumptions. (emphasis added)

The introduction of a more realistic world-view into the macroeconomic framework enables Samuelson and Solow to use markup pricing as an implicit assumption for their modified Phillips Curve. The problem is that their modification requires that firms not only follow markup pricing, but also that the markup be *stable*, for otherwise, the modified curve need not remain fixed. Such instability will obviously destroy the explanatory power of the modified Phillips Curve and nullify its policy implications. On the other hand, the assumption of a fixed markup implies that Samuelson and Solow can partially conciliate demand-pull and cost-push theories: even when prices are 'pushed' by economic sellers in an imperfectly competitive world, stability of the *realized* markup indicates that, eventually, only the absolute costs and prices have risen while their relative levels remained unchanged. In other words, sellers' inflation does not cause a redistribution of sellers' incomes. Surely, this does not mean that

cost-push inflation is unrelated to 'real' variables as demand-pull theorists may argue. On the contrary, even with a fixed realized markup, reducing inflation has considerable costs in terms of unemployment and unused capacity. On this, Samuelson and Solow (p. 191) wrote:

> [I]f a mild demand repression checked cost and prices not at all or only mildly, so that considerable unemployment would have to be engineered before the price level updrift could be prevented, the cost push hypothesis would have received its most important confirmation.

Hence, the implication of the modified Phillips Curve that price stability requires a 'high' rate of unemployment is partly a result of social struggle between sellers in an imperfect world. But the struggle culminates not in redistribution *between* the different sellers but rather in the emergence of a cruel tradeoff between rising prices or curtailed output for society *as a whole*.

2.4 An Aggregate View of Market 'Imperfections'

During the 1960s, several researchers sought to encompass structural 'imperfections' into their empirical macroeconomic framework of the Phillips Curve. An early contributor to this literature was Perry (1966). His approach deserves a close examination because it was later adopted and extended by other writers, particularly in the National Bureau of Economic Research. Perry argues that the simple Phillips-Curve model where wage- inflation is explained by the single variable of unemployment is too restrictive. In the context of perfect competition, unemployment is a sufficient explanatory variable because '[a]ll economic forces must act on either the demand for or supply of labor, and their effect is already measured by unemployment' (p. 22), but in modern economies that are far from the 'competitive ideal,' wage inflation is affected by additional factors that must be considered. Hence, in a more realistic framework, writes Perry (p. 23),

> [e]ither the theory of adjustment must be modified or the assumption of perfect competition dropped. In fact, both can be done comfortably in the problem at hand with some confidence that we will be moving toward a more accurate specification of wage-determining process. . . . A model that acknowledges these points should yield more useful results, although it will necessarily represent a somewhat looser theoretical abstraction than the competitive one.

The question, of course, is what institutional features should be included to improve the simple Phillips-Curve relationship and how should they be modeled? Perry's answer to this question is

ambiguous. Initially he asserts that

> [t]he most realistic picture of the wage-setting institutions in manufacturing as a whole would undoubtedly include the *whole spectrum of degrees of market power.* In a few cases, the purely competitive model . . . might apply. At the other extreme, some wage bargains would be made under conditions virtual bilateral monopoly. In between would be various combinations of strong and weak labor bargaining units facing employers with different degrees of monopoly power in their product markets and monopsony power as hirers of labor. (p. 23, emphasis added)

But then such structural aspects are too difficult to deal with and Perry recants, quietly returning to the convenient world of aggregates:

> A theory explaining the behaviour of aggregate wages could not hope to encompass specifically all the different microeconomic theories of wage behaviour associated with these cases. But it need not do so to be effective for the present purpose. The problem *may* be intrinsically a macroeconomic one in the sense that the appropriate variables to explain changes in the general wage level may be *aggregate* ones, with any hypotheses about behavioral underpinnings at a microeconomic level affording no additional information. (*ibid.*, emphases added)

In other words, the industrial system suffers from a great many 'imperfections' but this should not introduce great theoretical and empirical hurdles. We can always assume either that the complex dynamics of 'monopoly power' are largely irrelevant to our question, or that the pertinent aspects of these dynamics *may* be reduced to movements of several 'aggregate' variables. In other words, market 'imperfections' need not be analyzed when they can be ignored or aggregated.

Wages in manufacturing industries are commonly set within a system of collective bargaining and, according to Perry (p. 50), this process for wage-determination can be adequately analyzed with the following aggregate equation:

$$(1) \qquad w_t = \beta_0 + \beta_1 U_t^{-1} + \beta_2 p_{t-1} + \beta_3 R_{t-1} + \beta_4 \Delta R_t + e_t ,$$

where w is the rate of change in money wages, U is the rate of unemployment, p is the rate of change of the cost of living (the CPI), R is the rate of profit on equity, ΔR is the change in the rate of profit, e is an error term and $\{\beta_i\}$ are fixed coefficients that need to be estimated.

What is the rationale behind Equation (1)? Perry argues that the rate of unemployment should be included in every realistic model because even under collective bargaining, excess supply still has a

negative effect on wage inflation. The three other aggregate variable -- increases in the cost of living, the rate of profit and the change in the rate of profit -- capture institutional imperfections introduced by collective bargaining. Higher values for such variables tend to strengthen the bargaining position of employees and soften the objection of employers toward workers' demands and, hence, each of these variables is expected to be positively related to wage inflation. Perry estimates the parameters of Equation (1) separately for durable-goods and nondurable-goods industries, as well as for the manufacturing sector as a whole, and finds that indeed they all have the expected signs and are different from zero at conventional significance levels.

This model, Perry argues, differs from earlier works which explored the impact 'structural' variables had on wage inflation. Those studies were deficient because, unlike his own model, they examined the isolated influence of each factor instead of their simultaneous effect.[4] In the context of a *multi*-variable model like that of Perry, one cannot interpret the empirical Phillips Curve between wage inflation and the rate of unemployment as a fixed relationship. Instead, it should be viewed as a *mutatis mutandis* locus of points taken from a *family* of curves. The position of each individual Phillips Curve depends on the other factors at play, namely, on the magnitudes of the last three carriers in Equation (1) and the values of their associated parameters.

Perry uses his model in order to explore the different possible relationships between the rate of unemployment, wage inflation and price inflation. For that purpose he assumes that we live in a 'stationary state' where the rate of profit is fixed (namely, $R_t = R_{t-1}$ and hence ΔR is zero), the rate of price inflation is fixed (namely, $p_t = p_{t-1}$), and the rate of productivity increases (ρ) is fixed (namely, $\rho_t = \rho_{t-1}$), and he further assumes that the price level (the CPI) is determined as a fixed markup over direct cost. With these postulates he then shows that wage inflation (w) and price inflation (p) each depend on the rate of unemployment (U), the rate of increase in productivity (ρ) and the rate of profit (R) as specified by the following equations:

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[4] The earlier studies cited by Perry include Dicks-Mireaux and Dow (1959), Klein and Ball (1959), Bowen (1960) and Bathia (1962).

(2) $$w_t = \alpha_0 + \alpha_1 U_t^{-1} - \alpha_2 \rho_t + \alpha_3 R_t ,$$

(3) $$p_t = \alpha_0 + \alpha_1 U_t^{-1} - (1 + \alpha_2) \rho_t + \alpha_3 R_t ,$$

where $\alpha_i = \beta_i / (1 - \beta_2)$.[5]

If we use coefficient estimates from Equation (1) to assign values to each α_i in equations (1) and (2), we have enough information to assess the empirical implication of the model. The relationships among the different variables are given by the partial derivatives of each equation and Perry concentrates his attention on the basic Phillips-Curve relation between inflation and unemployment. Since the rate of growth of productivity is assumed to be fixed, the position of the Phillips Curve depends on the rate of profit. Note that price inflation is equal (by definition) to the difference between wage inflation and productivity growth. This enables Perry to use the same Phillips Curve to relate unemployment to *both* wage inflation and price inflation, with the difference between them being the fixed rate of productivity growth. Perry illustrates his approach by showing how lower rates of profit improve the tradeoff (causing lower unemployment for each level of inflation), and how higher rates of growth of productivity lead to both an improved tradeoff and lower price inflation associated with any rate of wage inflation (pp. 62-3).

The analysis indicates that policy makers may have more flexibility than initially assumed by Samuelson and Solow (1960). They can be satisfied with an existing inflation-unemployment tradeoff but they can also attempt to improve it. According to Perry (ch. 5), this can be done by affecting the variables or coefficients in equations (2) and (3). For example, governments can reduce corporate tax-rates or accelerate depreciation schedules in order to maintain existing cash-flows with a lower pre-tax rate of profit, or they can try to encourage productivity growth. They can also change the

[5] Under the stationary-state assumption, lagged values for the carriers in Equation (1) could be replaced by current values and the ΔR variable could be dropped. The assumption that prices are set with a fixed markup formula indicates that we can obtain Equation (2) by first substituting $w_t - \rho_t$ for p_t in Equation (1) and then solving for w_t. Similarly, Equation (3) can be derived by first substituting $p_t + \rho_t$ for w_t in Equation (2) and then solving for p_t.

institutional structure of wage and price determination by reducing the monopoly power of unions and firms, or by trying to persuade the general public toward a greater restraint.

Perry's model suffers from several shortcomings which arise because he acknowledges the significance of economic structure but then fails to deal with it effectively. First, the wage equations does not seem to reflect market 'imperfections' in any clear way. As we argued earlier, the observed rate of unemployment is not necessarily equivalent to the non-observable values for excess demand and, hence, there is room for other variables in explaining wage inflation even under perfect competition.

Second, Perry's explanation for price inflation is not constructed as a testable hypothesis but is rather based on the simple assumption that the aggregate price level is determined as a *fixed* markup over cost. Unfortunately, this assumption seems unwarranted for both theoretical and empirical reasons. The standard theory of the firm usually emphasizes the *ultimate* goal of maximizing return on investment. In this context, the markup is either an insignificant corollary of profit maximization or a means toward this end, but there is no reason to assume it is constant.[6] It seems only plausible for changes in the rate of profit to affect the markup. Indeed, why should firms be willing to grant larger wage increases that lower their markup when their rate of profit increases, but not attempt to raise their markup after the rate of profit falls? The empirical data for most capitalist economies clearly indicate that markups of price over prime-cost fluctuate through time. Under these conditions, why would one still insist on a fixed-markup assumption? Perry provides no explicit answer to this question but notes that it is the 'neutral standard' (p. 64). In other words, by assuming a fixed markup we imply that inflation has no effect on income distribution (it is 'neutral' in this sense) and a serious complication is resolved before it even arises. Unfortunately, these methodological manoeuvres are quite costly because they invalidate most of Perry's conclusions about the Phillips Curve tradeoff. His model indicates that

[6] In the model for perfect competition, firms are price takers not price makers. When the market price changes they alter their output in order to equate the new price with their marginal cost, but this also causes the average markup to change. In the long run, perfectly competitive firms reallocate their capital and production to follow the highest rate of profit and this often implies changes in the average markup. The standard model for monopoly also suggests that the markup changes with demand conditions when the monopolist equates marginal revenue and cost. For oligopolies, the results are more ambiguous; when oligopolies compete, interdependency between them may lead to any one of an infinite number of possible markup levels, whereas when they cooperate, they may set and alter the markup according to some arbitrary 'target' rate of return.

the root of price inflation is in the wage determination process, but that may be true only if we accept his assumption for fixed markup pricing. Otherwise, in the absence of a testable hypothesis about the markup, the pricing equation is incomplete and, hence, the Phillips-Curve tradeoff between unemployment and price inflation is unstable.[7]

A third problem concerns Perry's assumption that 'aggregate relationships exist' (p. 57). He agrees that wage determination in different industries may rely on different factors linked by different functional relationships, but argues that they can be safely ignored from a macroeconomic perspective. This assumption is unwarranted and may lead to misleading empirical results. For example, Perry (pp. 30-1) stipulates that 1/4th of all wage contracts are negotiated in each quarter, so the annual arithmetic average of wage inflation is a function of annual arithmetic averages for the carriers in Equation (1). This assertion has no empirical basis and, as Rowley and Wilton (1974) demonstrate, the particular distribution of wage settlements through the year has a dramatic effect on the sign of estimated coefficients, their magnitude and their associated levels of significance. Accounting for other aspects of heterogeneity (such as types or industrial activity or corporate size) will only introduce further instability into Perry's model.

The fourth problem we deal with is the assumption that underlying relationships between the variables are stable. Perry begins his dissertation by disassociating himself from the stable model for perfect competition and ventures toward a greater recognition of structural 'imperfections.' He concludes his analysis by arguing that the government can try to affect the Phillips-Curve tradeoff by altering the underlying economic structure. However, if the government can affect institutional patterns of wages, prices and profits why should we assume that these patterns are stable to begin with? For example, to have a stable Phillips-Curve relationship we need to have a stable rate of profit and Perry's use of only four different rates (10.0, 10.8, 11.8 and 12.5 percent) may give the incorrect impression that this rate

[7] This potential instability is heightened when Perry (p. 64) agrees that '[a]ctual price behavior may not conform to this standard' and discusses the possible implications of deviations from a fixed markup. For instance, when half of all prices increase 'autonomously' by 2 percent (independently of changes in cost and productivity), the position and slope of the Phillips-Curve between unemployment and inflation are altered. The problem, as Perry (p. 68) admits, is that this result is only *hypothetical* and 'has no empirical foundation.'

is indeed stable. According to Figure 3.7 (p. 48) however, the rate of profit during the 1948-62 period fluctuated between 8 and 16 percent! Unfortunately, the rate of profit in Perry's model is 'exogenously given' and, hence, such temporal fluctuations make it hard to predict inflation and unemployment, or design policy to improve the tradeoff between them.[8] The source of instability is not limited to the rate of profit. The parameters in Equation (2) and (3) are also determined exogenously by the underlying institutional structure and Perry does not explain why they should remain stable over time. These comments indicate that in order to analyze the effects of institutional structures on aggregate unemployment and inflation, we must first carefully analyze these structures, something that Perry failed to do.

The study by Perry suggested that there was not one but many potential 'Phillips Curves,' each corresponding to a particular set of institutional parameters. These underlying parameters were presumed to be relatively stable and, unless the government affected their values, the tradeoff between inflation and unemployment could remain stable over a substantial period of time. This idea of stability was not unanimously accepted. Several mainstream macroeconomists argued that indeed there were many potential Phillips Curve, though the reason for this multiplicity was to be found in informational, not structural 'imperfections.' Furthermore, while there were many possible Phillips Curves, all of them were inherently unstable.

2.5 Expectations: Economic Agents Strike Back

From the early 1960s, many developed capitalist economies began to experience rising rates of inflation with little or no decline in the rate of unemployment. This was a significant development because it put into question the time-honoured link between scarcity and price movements. Was it possible for prices and wages to be independent of excess supply or demand? According to Friedman (1968) and Phelps (1968) the answer was negative but the reason was not 'structural imperfections.' Phelps (p. 678) argued that most existing explanations for wage movements (like that of Perry)

[8] In his discussion of the dynamic properties of his model, Perry specifies an equation for changes in the rate of profit but does not explain the rate of profit itself (pp. 90-2).

contained countless independent variables in numerous combinations and it was difficult to choose among the different models because they often lacked any clear rationale. Instead, he suggested we move toward a 'unified and empirically applicable theory of money-wage dynamics,' where individual markets were competitive but economic outcomes were still 'distorted' because the flow of *information* was imperfect.

According to Friedman and Phelps, the vertical Phillips Curve did not constitute an anomaly in economic theory simply because the very construction of this curve involved a basic confusion: unemployment depended on *real*, not *nominal* wages and prices. The nuisance for economic theory, wrote Friedman in his Noble Lecture (1977, p. 12), was that nominal and real values need not move together:

> Low unemployment would, indeed, mean pressure for a higher real wage -- but real wages could be higher even if nominal wages were lower, provided that prices were still lower. Similarly, high unemployment would, indeed, mean pressure for a lower real wage -- but real wages could be lower, even if nominal wages were higher, provided prices were still higher.

So why did earlier observations indicate that the Phillips Curve was negatively sloped? Friedman and Phelps answered this question by making the curve a special case within a broader theoretical framework. The argument of the two theorists was similar and we focus mainly on the work by Friedman (1968; 1977).

Because information regarding employment opportunities and the availability of workers is costly (Stigler, 1961; 1962b) and because workers possess specific human capital (Becker, 1964), employees and employers enter into explicit or implicit *long-term* contracts. Although both sides seek to denominate their agreement in real terms, most labour contracts are signed in nominal dollars.[9] Consequently, the real wage over the life of the contract depends on an *unknown* future price level. Under these conditions, the desired nominal wage rate is set equal to the product of the desired real wage and the *expected* price index. The hallmark of the new theory, then, is this emphasis on price expectations formed by economic agents. If agents are always successful in correctly anticipating future

[9] Some collective agreements incorporate a COLA clause but the relative significance of such contracts has often been limited. Contracts can also be 'reopened' in special circumstances.

prices, the realized real wage is always equal the desired one. Since in this case the real wage is independent of inflation, it follows that the rate of unemployment -- which responds only to the real wage -- is also independent of inflation. Inflation ceases to be neutral, however, when economic agents err in their predictions. When price changes are unanticipated, the realized real wage differs from the desired real wage that is embodied in labour contracts, and until these long-term contracts expire, employment and unemployment deviate from their equilibrium relationship with real wages.

Why do errors in expectations lead to a tradeoff between inflation and unemployment? According to Friedman (1977, p. 13), the answer could be found by examining how both workers and employers *misinterpret* the effect of an unanticipated change in market conditions. For example, when the growth rate of nominal aggregate demand increases unexpectedly, each producer feels this increase primarily through rising demand for his own commodity. Although there is an overall expansion, the single producer myopically misinterprets it as an improvement in his own relative position. He believes that his own prices will be rising faster than the overall price level and, hence, is willing to raise the wage rate to attract additional workers. Workers fall in a similar trap when they believe that their wages increase faster than prices in general. As a result,

> a rise in nominal wages may be perceived by workers as a rise in real wages and hence call forth an increased supply, at the same time that it is perceived by employers as a fall in real wages and hence calls forth an increased offer of jobs. (*ibid.*)

For the economy as a whole the net result is a new position with lower unemployment and higher wages and prices. In other words, the economy moves up and to the left on the graph for the Phillips Curve. But this new situation is inherently unstable because it is based on an open 'lie.' If nominal demand continues to grow at its new higher pace, producers and workers will eventually realize they have been fooled by the market. The price for their own commodity is indeed rising but so too are all other prices and, hence, the *real* price for their commodity may not change at all! With this new, correct information, unemployment becomes artificially low. As agents adjust their expectations and revise their contracts to reflect the new rate of inflation, the Phillips Curve itself moves upward. The curve will stabilize in its new higher position when all contracts embody the new rate of inflation. When this happens, the economy will return to its original, 'natural rate of unemployment':

> At any moment of time, there is some level of unemployment which has the property that it is consistent with equilibrium in the structure of *real* wage rates . . . The 'natural rate of unemployment,' in other words, is the level that would be ground out by the

> Walrasian system of general equilibrium equations, provided there is embedded in them the actual structural characteristics of the labor and commodity markets, including market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labor availability, the costs of mobility, and so on. (Friedman, 1968, p. 8)

Hence, the Phillips-Curve tradeoff is only a temporary relation based on the element of surprise. The authorities can use this tradeoff to reduce unemployment below its 'natural rate' only because they can fool all the people some of the time. But such efforts are self-defeating because no one can fool all the people all of the time. Eventually, economic agents will strike back, forcing policy-makers to cope with the original level of unemployment coupled with a *higher* rate of inflation. In the long run, there is no tradeoff and the Phillips Curve is vertical. Unemployment can thus be kept below its natural rate only at the cost of *accelerating* inflation.

The roots of inflation, then, are not 'imperfections' in the market structure. Such imperfections, to the extent they exist, affect mainly the natural rate of unemployment and beyond this influence, the market operates largely as a perfectly competitive system. Variations in demand and supply for factors or products can change only relative prices, so the source of *overall* price increases must be exogenous increases in available means of payment. Inflation is *caused* by expansionary demand policies when governments try to keep unemployment at an artificially low level, but it is *perpetuated* through expectations. In other words, inflation persists because agents expect it to persist.

Several features in this expectation-adjusted Phillips Curve are worth noting and deserve close examination. First, Friedman (1977, p. 12) emphasizes that 'only surprises matter.' It is the surprise of *unanticipated* inflation which confuses economic agents and causes them to misinterpret their relative situation. Friedman (1977, p. 13) explains that both workers and their employers 'are likely to adjust more slowly their perception of prices in general -- because it is more costly to acquire information about that -- than their perception of the price of the particular good they produce.' But this appears contrary to common experience. In practice, overall price indexes are published monthly and announced in the printed and electronic media. The cost of finding out what is the overall rate of inflation is surely redundant, especially considering the crucial significance of this information for the formation of

long-term contracts. Furthermore, in a perfectly competitive market, sellers and buyers are assumed to be 'price takers,' so why should they believe that their own price rises faster than prices of other market participants? Clearly, such a collective error cannot stem from a perfectly competitive framework.

Second, it is not clear why a rise (decline) in the rate of expansion of nominal aggregate demand *must* lead to an increase (decrease) in the rate of inflation. Friedman (1977, p. 13) asserts that when aggregate demand increases, commodity prices rise (or are expected to rise) and producers raise their wage offers to workers. This may be a likely outcome if we assume that commodity and labour markets operate at 'full' capacity and employment to begin with, but there is very little reason to expect prices and wages to rise when capacity utilization is 'very' low and unemployment is 'excessively' high. Of course, if the increase in demand growth is sufficiently large, bottlenecks may eventually be reached and, as we approach the 'natural' rate of unemployment, prices and wages may start to rise. In this light, the expectation-adjusted Phillips Curve involves a circular argument: an increase in the growth of nominal aggregate demand cannot cause a permanent reduction in unemployment because unemployment is *already* at its permanent 'natural' rate! If the economy indeed operates as a perfectly competitive Walrasian system, then excess nominal demand could lead only to rising prices as the neoclassical dichotomy asserts. But under such assumptions, the expectation-augmented Phillips Curve cannot be used to *prove* that there is no long-run tradeoff since this was already *assumed*. Friedman's expectation theory then merely asserts how the 'real' economy supposedly shields itself from the influence of 'monetary' forces.

Third, the assertion by Friedman (1977, p. 12, emphases added) that if 'everyone *anticipated* that prices would rise at, say 20 per cent a year, then this anticipation would be *embodied* in future wage (and other) contracts,' is impossible to prove. Friedman argues that 'real wages would then behave precisely as they would if everyone anticipated no price rise, and there would be no reason for the 20 per cent rate of inflation to be associated with a different level of unemployment than a zero rate.' This could be a meaningful assertion for a hypothetical economy where the real wage is equal, by definition, to both the marginal product of labour and the marginal disutility of work. In such an economy the real wage is clearly independent of the overall rate of inflation, but reality is slightly more complicated than

this fictitious world. In practice, the marginal values for productivity and utility are not observable and there is a continuous dispute between employers and employees on the 'appropriate' level for real factor prices. The determinants of real wages are quite 'arbitrary' and may involve elements of 'power.' There is no basis for an *a priori* assumption that factors such as 'bargaining strength' are independent of inflation, even when this inflation is fully anticipated by all sides. Furthermore, even if we ignore these difficulties, the statement by Friedman is still irrefutable because in practice we cannot distinguish between anticipated and unanticipated inflation.

To illustrate these predicaments, consider the following hypothetical example. Suppose General Motors and the United Auto Workers' union agreed for a nominal wage increase of 25 percent over the term of the contract and, suppose further, that the actual rate of inflation over that period was 20 percent. Could we test the proposition that this rate of inflation was in fact 'fully embodied' in the contract? To do that we must know whether or not both sides had the *same* anticipation for inflation, whether or not they expected this rate to be 20 percent, and whether or not the negotiations proceeded in 'real terms,' independently of these expectations. Unless we have all of this information, the neutrality proposition cannot be proven.

Fourth, the introduction of additional non-observable variables further diminishes the scientific character of the Phillips Curve framework. Friedman (1968, p. 10) quite openly admits that we *cannot* know what the natural rate is. 'Unfortunately,' he writes 'we have as yet devised no method to estimate accurately and readily the natural rate of either interest or unemployment.' A further complication is introduced when Friedman asserts that the natural rate of unemployment is not fixed and 'will itself change from time to time.' Under these assumptions, where the 'natural rate' is an invisible moving target, the hypothesis of a vertical long run Phillips Curve cannot be refuted. For instance, suppose that the government increases the pace of growth of nominal aggregate demand and, some time later, unemployment declines and inflation rises. Proponents of the natural-rate hypothesis can argue that the fall in unemployment was in fact a reduction in the natural rate itself and, hence, government policy was merely inflationary, precisely as predicted by the theory. This reasoning raises one simple but disturbing question: what empirical observation will be *inconsistent* with the natural-rate theory? The argument is

'flawless' simply because it cannot be empirically refuted! So unless we can specify the conditions under which this hypothesis *fails*, the natural-rate framework must be viewed as a mere tautology. Some macroeconomists such as Gordon (1985) and Fortin (1989), for instance, have attempted to estimate the natural rate of unemployment from regression analyses based on the expectation-adjusted Phillips Curve. Such estimates cannot be used to test the natural-rate hypothesis for inflation because the latter was already assumed to be valid when the estimates were derived.

Expectations create another serious problem for measurement because, like demand and supply, they also cannot be observed directly. If expectations and, hence, changes in expectations cannot be observed, how could we test the hypothesis that such adjustments cause the Phillips Curve to shift? Many economists attempted to tackle the problem by simply substituting *specifications* for *observations* but, unfortunately, they only replaced one problem with another. For example, suppose we impose an adaptive expectation mechanism on market prices and discover it has a substantial explanatory power. Can we conclude on the basis of such evidence that prices are determined by adaptive expectations of *market participants*? The answer to this question is negative because the statistical framework contains observations on prices but not on expectations. In fact, we never demonstrated that economic agents form adaptive expectations (or any other expectations), or that they act on the basis of such expectations. For that matter, current prices are 'determined' by past prices and market participants play no explicit role in the model!

The fifth and final issue concerns the 'neutrality' proposition associated with the expectation-augmented Phillips Curve. The statement by Friedman that demand policy cannot have a permanent 'real' effect on the economy has been challenged by several macroeconomists,[10] but their criticism refers mainly to the final impact and ignores the initial nature of the policy itself. Consider what happens when the government increases its demand for goods and services by raising military spending, for instance. Most of the new orders will typically go to a group of 50 or 100 corporations which, in turn, will subcontract some of the work to a few hundred additional firms. The remaining companies in the economy will be excluded from this initial injection of spending. Or consider the direct

[10] See Buiter (1980, pp. 39-40) for a summary statement on such criticism.

effect of open market operations by the central bank. In the United States, government bonds are not evenly distributed between households in the economy but rather are concentrated mainly in the hands of large institutional investors. An attempt of the central bank to increase the money supply by buying bonds requires that the bank bid up their prices. So the immediate beneficiaries of this monetary expansion are the large institutional investors while other economic agents remain unaffected. Clearly, the direct effect of such macroeconomic policies is to alter the existing distribution of income, assets, production and relative prices between market participants. In fact, it is hard to think of a single macroeconomic policy which does *not* have such initial 'real' effects on the economy.

To summarize, the expectation-adjusted Phillips Curve and the related natural-rate hypothesis are based on some rigid explicit or implicit assumptions regarding economic structure and scientific methodology. The economy is assumed to operate 'as if' it was a Walrasian competitive system where agents responds to 'real' stimulus and are impartial to 'nominal' ones. When macroeconomic demand policies are executed, their initial effect is assumed to be evenly distributed among all economic agents, so as not to upset the original 'real' structure of the market. An increase in the pace of aggregate demand growth causes inflation to accelerate because markets already operate at full capacity and employment. Information about aggregate price and inflation indices is available at no cost, but price-taking sellers and buyers are nevertheless confused by this initial turn of events and fail to realize that prices around them rise as fast as the price of their own commodity. As a result, they increase their supply and demand for products and factors and cause the overall level of unemployment to fall below its natural rate. Ultimately, agents discover their collective error and seek to reduce demand and supply as soon as their long term-contracts expire. This causes a gradual upward shift in the Phillips Curve reflecting the adjustment of expectations and contracts to the new level of inflation. When the adjustment is complete, the economy returns to its original, 'real' Walrasian equilibrium but with a higher rate of inflation. Unfortunately, this process of adjustment cannot be tracked down because both expectations and the natural rate of unemployment are not observable.

2.6 In Quest for Information: The Unemployed as an Investor

Although the 'natural' rate of unemployment could not be observed empirically, many economists still felt it was a crucial concept which deserved rigorous theoretical elaboration. The first systematic discussion on the topic appeared in an important collection of articles edited by Phelps in 1970 and titled *Microeconomic Foundations of Employment and Inflation Theory*. In the introduction, Phelps (1970, pp. 4-5) talked about a major theoretical breakthrough in the making:

> The theoretical departure that is common to these otherwise neoclassical papers is their removal of the Walrasian postulate of complete information, . . . [and] . . . With the postulate of perfect information removed, the way is at last open to formal study of general disequilibrium.

With this minor 'informational' amendment, the persistence of unemployment was no longer to be perceived as a condemnation of capitalism and an embarrassment to neoclassical theory. Instead, unemployment became a *desirable* aspect of economic activity and an integral part of conventional theory.

To set a framework for the new microfoundations, Phelps (1970, p. 6) describes our economy as a collection of islands. Competition on each individual island is impeccable:

> [L]abor is technically homogeneous in production functions and indifferent among the many heterogeneous jobs of producing a variety of products. Producers on each island are in pure competition in the labor and product markets. Each morning, on each island, workers 'shape up' for an auction that determines the market-clearing money wage and employment level.

Unfortunately, the virtues of such system are distorted because the flow of information between different islands in the archipelago is not free. According to Alchian (1970, p. 29), information is a commodity like any other and, as such, it is subject to standard economic laws of production and cost:

> Dissemination and acquisition (i.e., the production) of information conforms to the ordinary laws of costs of production: faster dissemination, or acquisition costs more . . . [and] . . . Like any other production activity, specialization in information is efficient. Gathering and dissemination information about goods or about oneself is in some circumstances more efficiently done while the good or person is not employed, and thus able to specialize (i.e., while specializing) in the production of information.

Phelps' archipelago economy presents no exception to these postulated rules. Presumably there are no modern means of communication (such as telephone, newspapers or telex) between the islands and, hence, workers who want to know more about job offers must 'specialize' in gathering this information

by rowing from island to island:

> To learn the wage paid on an adjacent island, the worker must spend the day travelling to that island to sample its wage instead of spending the day at work. (Phelps, 1970, p. 6)

In this context, unemployed workers rowing between the islands are not seeking 'jobs' but 'job information.' According to Alchian (1970, p. 30):

> Jobs are always easily available. Timely information about the pay, working conditions, and life expectancy of all available jobs is not cheap. In a sense, *this* kind of unemployment is self-employment in information collection.

Since jobs are always available, worker are under no pressure to accept any particular offer. Instead, the choice of employment is based on a careful optimization strategy. Like any other investor, a typical worker in the archipelago tries to maximize the present value of his investment, namely, of his labour power. Under certain circumstances, this worker may find it highly advantageous to withdraw the services of his commodity. Such unemployment then constitutes a form of investment activity. In his taxonomy for different types of unemployment, Phelps (1972, p. 3) candidly suggests to categorize the motives for unemployment 'much as economists are used to classify people's motive for holding money.' He argues that when workers avoid the workplace they are involve in one or more of the following forms of unemployment: 'search unemployment,' 'precautionary unemployment' (or 'wait unemployment'), 'speculative unemployment,' or 'queue unemployment.' Let us briefly examine each of these concepts.

At any point in time, a labourer has a certain perception about the distribution of wage rates in the archipelago. On the basis of this perception, he formulates what Holt (1970a, p. 96) designates as the 'wage aspiration level.' A worker with strong entrepreneurial drives who finds current wage offers to be below his own aspiration may chose not to work and instead row between the islands and sample different job offers. By 'searching,' the unemployed worker produces information necessary to update his perception of the wage distribution and his associated wage-aspiration level. Of course, the search is costly, mainly because the worker does not earn money while searching. When a current wage offer exceeds the difference between the wage aspiration level and the cost of continued 'searching,' the search is called off and the worker accepts the job offer.

A worker who wants to follow a more 'precautionary' investment strategy has a second alternative: he can specialize in 'waiting.' Gordon and Hynes (1970) for example, approach this strategy as an inventory management problem which they first apply to landlords and then, with an equal vigour, to workers. The owner of an apartment building commonly leases his apartments for a fixed period of a year. This landlord can always lease his vacant apartments at a low rent, but then he runs the risk of not being able to rent them at a higher price later, if demand picks up. The worker faces much the same problem because Gordon and Hynes make the (unrealistic) assumption that labour contracts are also binding for a fixed period of time. Under such conditions, a worker who accepts a job at less than his wage-aspiration level could find himself locked in a disadvantageous position if demand for labour revives. Hence, although such workers can easily find work at a substandard wage, they might decide to 'accept leisure' and enter the passive state of 'wait unemployment' until they receive a 'proper' wage offer.

In between the aggressive 'search unemployment' and the precautionary 'wait unemployment' there is a third form of investment: 'speculative unemployment.' According to Phelps (1972, p. 3), when a worker is engaged in precautionary unemployment, he or she chose to wait for the *unpredictable* arrival of a more lucrative job offer. A worker may also withhold his labour services for speculative reasons when he or she *predicts* that future offers will indeed be higher than current ones.

Finally, the unemployed may perceive himself as standing in a queue with other unemployed workers waiting to be hired. Workers in the queue are ordered by employers according to their perceived skills and, naturally, it is the low-skilled workers who are likely to suffer the longest spells of unemployment. This type 'queue unemployment,' first discussed by Thurow (1969), is different from the previous ones because the unemployed worker does not think he can obtain a job by reducing his wage rate. Yet according to Phelps (1972, p. 29), even 'queue unemployment' stems, at least in part, from the curse of imperfect information:

> There is some question of whether queue-unemployment can stand for long as a distinct type of unemployment. It tends to blend into the other types if we acknowledge that most workers of however little skill could, perhaps only after lengthy and arduous search, reasonably expect to find employment somewhere, in some kind of paying job,

at some wage not beneath consideration.

Hence, the problem is that workers at the bottom of the queue become (irrationally) desperate and then, 'to our distress we find that labor markets are less imperfect than we thought' (*ibid.*).

When information is more costly to obtain when employed, individual workers may voluntary chose to invest in unemployment in order to search or wait for such information. Eventually, however, when sufficient data are obtained, these individuals will accept job offers and there should be no unemployment. In other words, the 'natural' rate of unemployment should converge to zero. At first, this explanation appears to be inconsistent with the observation that actual rates of unemployment are always positive, but this appearance is deceptive because it refers to a static world. In a dynamic economy, argue adherents of the new microfoundations, the numerous supply and demand curves for individual commodities are never stable. The continuous stochastic shifting of such curves means that new information about job opportunities is constantly being generated. Workers are aware of this viability and, naturally, devote some of their time toward productive unemployment in quest for new information about fresh opportunities. In summarizing views on the subject, Phelps (1970, p. 17) argues that a certain rate of unemployment is not only 'natural' but also *desirable* for our economy:

> It would be as senselessly puritanical to wipe out unemployment as it would be to raise taxes in a deep depression. Today's unemployment is an investment in a better allocation of any given quantity of employed persons tomorrow; its opportunity cost, like that of any other investment, is present consumption.

Hence, instead of a direct attack on unemployment through aggregate demand policies, Holt (1970b) recommends to decrease market 'friction.' This could be done by policies that improve economic stability, increase search efficiency and introduce computer-aided counselling and placement, for example.

The notion of unemployment as investment in information is not limited, however, to the 'natural' rate of unemployment. According to proponents of the new microfoundations, unemployment may deviate from its natural rate, but this difference also stems from a rational choice by workers to seek further information. An explanation for this phenomenon, consistent with the expectation-augmented Phillips Curve, is outlined by Phelps (1970, pp. 6-7). When aggregate demand in the archipelago economy falls, workers are mislead to believe that this decline is at least partially

specific to their own island (recall the lack of perfect, costless information). Consequently they intensify their quest for information by increasing their search and wait activity. Unemployment rises above its natural rate until workers finally realize (as the new information is collated and analyzed) that their investment was futile and then go back to work, this time with a lower nominal wage rate. Similarly, an increase in aggregate demand will cause workers to reduce their search or wait activity and will generate a temporary fall in unemployment below its natural rate. Note that because they are unable to distinguish relative from aggregate changes, the underlying strategy of workers is perfectly rational, despite its subsequent failure.

So far, the discussion emphasized voluntary aspects of unemployment. Considerable unemployment is generated, however, when firms lay off workers who presumably would like to retain their current jobs. Such unemployment would appear as 'involuntary' yet, according to Alchian (1970, p. 39), this may be a misleading interpretation. In his opinion, even layoffs can be attributed to latent unemployment aspirations of employees! To illustrate his argument, Alchian considers the hypothetical case where, after demand for cars dropped, General Motors lays off 20,000 workers without even negotiating with them the possibility of a temporary wage cut. One may blame labour unions or assert that these workers could not be employed profitably at any wage rate, writes Alchian, but layoffs are a 'sensible' policy quite independent of such qualifications. In his opinion, General Motors lays off workers because it knows workers will simply leave if their wages are cut:

> Employers learn that wage cuts sufficient to justify profitable maintenance of the prior rate of output and employment would be too deep to keep employee beliefs about alternatives. And so layoffs are announced without fruitless wage renegotiations.

The views about voluntary unemployment examined in this section were criticized almost as soon as they emerged in the early 1970s.[11] Here we wish only to stress the inadequacy of these new microeconomic foundations for empirical research. The problem arises because unemployment is explained in reference to human 'motives' but these are unknown. The argument that workers 'voluntarily' chose to become unemployed can be accepted or rejected as an article of faith, but it cannot be proven or refuted because the psychological drives of workers are not observable. Note that even

[11] See for instance the accounts by Gordon (1976), Hall (1980) and Tobin (1972).

layoffs cannot be considered as leading to 'involuntary' unemployment because such layoffs are considered to be quits in disguise. Indeed, Lucas (1978, p. 355) goes even further to asserts that

> it does not appear possible *even in principle*, to classify individual unemployed people as either voluntary or involuntary unemployed depending on the characteristics of the decision problems they face. One cannot, even conceptually, arrive at a useable definition of full employment as a state in which no involuntary unemployment exists. (emphasis added)

Yet in his view, having no tools to distinguish between 'voluntary' and 'involuntary' unemployment is a methodological bliss, not a curse. In fact, there are considerable benefits to be gained once we accept that *all unemployment is voluntary* and discard the concept of full employment:

> First, one dispenses with that entire meaningless vocabulary associated with full employment, phrases like potential output, full capacity, slack and so on, which suggested that there was some *technical* reason why we couldn't all return to the 1890 workweek and produce half again the GNP we now produce. Second, one finds to ones relief that treating unemployment as a voluntary response to an unwelcome situation does not commit oneself to normative nonsense like blaming depressions on lazy workers. (p. 356)

The greatest benefit, however, is that policy-makers no longer have to be concerned with the average rate of unemployment because, by definition, this is also the 'natural' rate of unemployment. The focus thus shifts to preventing distortions that cause the actual rate to fluctuate around its natural level:

> On this view, the average (or natural, or equilibrium) rate of unemployment is viewed as raising policy issues only insofar as *it can be shown* to be 'distorted' in an undesirable way by taxes, external effects, and so on. Nine percent unemployment is then viewed as too high in the same sense that 2 percent is viewed as 'too low': both are symptoms of costly and preventable instability in general economic activity. (p. 353, emphasis added)

Unfortunately, Lucas replaces Keynes' vocabulary with barren unscientific jargon. If, as Lucas (p. 355) argues so forcefully, 'the "thing" to be measured [the natural rate] does not exist,' how could we discover its determinants? How could we distinguish changes in the natural rate itself from fluctuations around it? In this context, how could an unknown natural rate 'be shown' to be 'distorted' by policy? How could we establish whether 'distortions' to the natural rate are desirable or not? What may constitute desirable as opposed to undesirable distortions here? Lucas and other founders of the new microfoundations do not provide answers to these methodological questions.

2.7 A Rational Expectations 'Revolution'?

The apparent failure of stabilization policies during the 1970s influenced a growing number of macroeconomists to accept the neoclassical dichotomy between a stable domain of 'real' activity and an erratic environment of 'nominal' variables. Many began to argue that interventionist demand-policies were ineffective *even* in the short run and their sole effect was additional price instability. Governments were increasingly called to take their hands off the real economy and limit their activity to a stable expansion of monetary aggregates.

The gradual return to rigid pre-Keynesian convictions (now labelled as 'new classical' macroeconomics), was partly affected by developments in the theory of expectations. Although fierce opponents of stabilization policy accepted the 'natural-rate hypothesis,' they could not use the expectation-adjusted Phillips Curve as developed by Friedman and Phelps to fully support their point. That framework still allowed governments to affect the real economy in the short run and, unfortunately, that short run was much too long. According to Friedman (1968, p. 11), the 'temporary' effect of government policy could last anywhere between two to twenty years, so the case for stabilization policy could not be totally dismissed. To overcome this obstacle, adherents of the new classical approach needed to modify the expectation-adjusted Phillips Curve even further. In particular, they focused on the factors determining the speed at which the Phillips Curve shifted from one long-run position to the next. For Friedman, the reallocation of the Phillips Curve was not instantaneous because institutional arrangements (such as long-term contracts) created friction and because price expectations were slow to adapt to evolving reality. Hence, the nullifying of these two obstacles became an essential step toward accepting the conclusions of new classical macroeconomics.

The first of these impediments was removed by eliminating all institutional distortions and installing a new form of friction-free Walrasian system as the normal state of the economy. Lucas (1972) begins his seminal contribution to the new classical literature with the following paragraph:

> This paper provides a simple example of an economy in which equilibrium prices and quantities exhibit what may be the central feature of the modern business cycle: a systematic relation between the rate of change in nominal prices and the level of real output. The relationship, essentially a variant of the well-known Phillips curve, is derived within a framework from which all forms of 'money illusion' are rigorously

> excluded: all prices are market clearing, all agents behave optimally in light of their objectives and expectations, and expectations are formed optimally. (p. 103)

To derive his results Lucas (pp. 104-6) defines the 'structure of the economy' in highly abstract terms. In his economy there are N identical individuals, each of whom lives for two periods; each person has n units of labour and can produce n units of output; the output cannot be stored but can be freely disposed of; there exists a government with only one function, namely the issuance of fiat money; this money is transferred from the government to individuals in the beginning of the period and from individuals back to the government in the end of the period; there is no inheritance; finally, trade is carried out with an auctioneer at a single market-clearing price. This framework may be fascinating for intellectual reasons but its usefulness toward understanding the 'modern business cycle' is unclear. What can *pragmatic* macroeconomists and policy-makers learn from such a hypothetical economy that definitely never existed and will never exist? Lucas fails to deal with this question but from what he explains in a footnote (p. 105, emphasis added), it seems that these and other simplifications are necessary 'to keep the laws governing the *transition* of the economy from state to state as simple as possible.' In other words, the assumption that the economy is always in a 'state' of market-clearing equilibrium is admittedly artificial, but this moderate sacrifice of realism is fully justified because such 'abstraction' clears the way for the more important task of describing movements from one equilibrium to the next!

In the absence of any institutional rigidities, this movement from one state of equilibrium toward the next is governed solely by the way individual agents form their future expectations. Friedman (1977, p. 24) argued that because of prolonged pre-war price stability, individuals in the United States and the United Kingdom expected the 'normal' price level to persist. This element of inertia remained strong even when inflation began to increase and, consequently, individuals were systematically disappointed when their price expectations underestimated the actual changes. Since price expectations adapted only gradually, the drift of the Phillips Curve between successive long-run equilibrium positions was painfully slow.[12]

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[12] A simple 'adaptive-expectation' mechanism can be described by the following equation:

$$e_t = e_{t-1} + \alpha(p_{t-1} - e_{t-1}), \qquad 0 < \alpha < 1$$

New classical macroeconomists criticized the validity of adaptive expectations because they implied that economic agents were hopelessly 'irrational': they continued to use a model which was likely to generate systematic prediction errors and they 'wasted' non-price information that could have been used to improve their price forecast. The critiques pointed out that if individuals were indeed rational decision makers, they should also formulate 'rational expectations.' The rational-expectation hypothesis was first suggested by Muth (1961, p. 316) who argued that 'expectations, since they are informed predictions of future events, are essentially the same as the predictions of the relevant economic theory.' In his opinion, this meant that

> expectations of firms (or, more generally, the subjective probability distribution of outcomes) tend to be distributed, for the same information set, about the prediction of the theory (or the 'objective' probability distributions of outcomes).

Muth's emphasis on rational expectations was ignored by macroeconomists for over a decade until it was picked up by Lucas, Sargent and others in the early 1970s. Sargent (1973, p. 431) for instance, asserted that

> expectations of inflation are assumed to be endogenous to the system in a very particular way: they are assumed to be 'rational' in Muth's sense -- which is to say that the public's expectations are not systematically worse that the predictions of economic models. This amounts to supposing that the public expectations depend, in the proper way, on the things that economic theory says they ought to.

Since these early formulations, the idea of rational expectation depended critically on two key concepts: the 'objective distribution of outcomes' and the 'relevant economic theory' associated with it. Despite close to two decades of theorizing, these concepts remained surprisingly enigmatic. The language used in the rational-expectation literature is often cryptic and the emphasis on mathematical symbolism helps to further cloak substantive issues. In our examination we present some of the basic claims advanced in the rational-expectations literature and assess their merits.

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where the actual rate of inflation is denoted by p, the expected rate by e and α is a fixed 'disappointment coefficient.' This means that individuals set their current expectation to last period expectations plus an allowance proportionate to last period's disillusionment. The speed at which agents 'learn' from their errors depends on the magnitude of the 'disappointment coefficient' α: a low value means a strong inertial bias and a high value indicates a short memory and quicker adjustment. Clearly, when the rate of inflation is rising (falling), adaptive expectations will underestimate (overestimate) inflation.

A simple description of the rational-expectation framework could run as follows: The economy is a closed system with its own 'laws of motion.' These laws of motion determine how the endogenous variables of the system interact with the exogenous and predetermined ones (in other words, these laws determine the reduced form for the simultaneous equation system).[13] The economic system interacts with other systems like 'nature' and 'politics.' These systems determine values for the exogenous variables. Some of these exogenous variables follow systematic patterns while others are random variables with given distributions. If history could have been 're-run' with given laws of motion, given values for the systematic exogenous variables and given values for the predetermined variables, it would have generated an 'objective distribution of outcomes.' The mean of this distribution would reflect the impact of predetermined and systematic exogenous variables, and the dispersion would be affected by the distribution of exogenous disturbances.[14] In accepting such a framework, the rational-expectations theorists merely follow the standard approach toward macroeconomic modelling. The difference between standard macroeconomic models and ones based on rational expectations stems from assumptions regarding what people know about the economic system.

In a world of rational expectations, people possess considerable knowledge about the system. They understand the system's laws of motion (in other words, they know the 'relevant theory' and the values of its parameters). They also know all about the past history of the system (they know the values for the predetermined variables). They further know the values for those exogenous variables which follow a systematic pattern. They do not know the values for the random exogenous variables but they know the distribution from which these variables are drawn. Under these conditions, a simple rational expectations hypothesis for inflation can be summarized by the following equations:

$$(1) \qquad e_t = E(p_t \mid I_{t-1}) ,$$

[13] The term 'laws of motion' (as used by Sargent, 1986, p. 3, for instance) refers to a description of a stationary process and has nothing to do with Marx's original reference to principles governing the dynamic transformation of society.

[14] The characteristics of this distribution are based on the conventional assumption that the mean impact of random shocks on endogenous variables is zero.

(2) $p_t = E(p_t \mid I_{t-1}) + u_t$.

In these equations the expected rate of inflation is denoted by e and the actual rate by p; E is the conditional expectation operator and I is the 'set of relevant information available' (an all-inclusive term for the 'relevant theory' regarding the 'laws of motion,' the parameters of that theory and the values for predetermined and systematic exogenous variables); finally, u is the effect on inflation of random exogenous shocks. Under these conditions, expectational errors stem only from these unpredictable shocks and have no systematic component.

What happens in a Walrasian, frictionless community of rational economic agents when, starting from equilibrium, the government attempts to increase the pace of growth of aggregate demand? If these intentions become known before they are executed (for example when the government follows a 'policy rule'), the effects of the policy are *immediately* neutralized by the counteractions of private economic agents. The reason for this 'policy-ineffectiveness' is straightforward. According to the neoclassical dichotomy between the 'real' and 'nominal' domains, the ultimate effect of demand policy is on the price level. Since this demand policy is part of I when expectations are formed, the impact of such policy on next period's prices can be accurately predicted by Equation (1). When agents adjust their 'real' supply and demand schedules in anticipation of the new policy measures, they at the same time make these measures ineffective (in other words, by altering their 'decision rules' they also alter the system's 'laws of motion'). This instantaneous adjustment means that policy does not inflict even a short-run disequilibrium and the economy shifts smoothly from one long-term equilibrium into the next. Note that 'surprise' policy can affect the real economy. In the absence of a 'policy rule' for instance, policy changes constitute a random shock to the system and affect prices through u. Since rational expectations do not account for such unpredictable jolts, the real economy is distorted by the nominal impetus. Fortunately, this effect is very short-lived because the execution of the policy makes it part of the system's laws of motion and, hence, an ingredient of the 'relevant theory.' The conclusion of this new-classical scheme resembles the famous *Catch-22*: in order to stabilize the economy, policy must be related to events in some systematic way. But a systematic policy is predictable and a predictable policy is neutral. To put it somewhat differently, in order to *stabilize* the economy the

government must be able to affect it, but this calls for an erratic, unpredictable policy which can only *destabilize* the economy! The circle is closed and the case against demand management is complete.

The rational expectation hypothesis has been often hailed as a 'revolution' in macroeconomic thinking. Many of its leading lights downplay their contribution, however, stating it is merely a natural evolution toward a greater consistency of macroeconomic models with basic microeconomic tenets. Taylor (1985, p. 393) asserts that macro-models with rational expectations are now the 'rule rather than the exception,' yet several key features suggest that embracing the new classical framework may in fact hinder rather than enhance our understanding of how a modern economy works. These aspects deserve some closer examination and we consider them now.

The first question concerns the 'relevant theory.' In a Lucas-type abstract economy, the problem does not even arise simply because the economy is *defined* by the theory, but in a complex, modern economy like that of the United States, the question can no longer be ignored. Reality has no enclosed set of blue prints and, indeed, economists rarely agree about it. There exists a rich menu of different theories and it is not clear which theory (if any) provides an accurate description of the economy's alleged 'laws of motion.'

A second question regards the assimilation of a 'relevant theory.' Even if a 'correct' theory does exist, why should it become common knowledge? Again, in a Lucas-type economy, agents are simply *assumed* to possess all the necessary information about the economy's blue prints and its historical evolution, but what occurs in a real economy? Muth (1961, p. 330) stated that expectations must be at least 'moderately rational' for otherwise 'there would be opportunities for economists to make profits in commodity speculation, running a firm, or selling the information to present owners.' In other words, by taking advantage of their superior understanding, economists turn their private correct theory into

common knowledge and the 'relevant' theory is assimilated.[15] There are two difficulties with this logic. One, when the economy is changing, the relevant theory of today need not be the relevant one for tomorrow and, hence, this process may mislead economic agents to adopt outdated views.[16] Two, the assimilation of theories has a very 'real' effect on the economy because it presumably *redistributes* income (particularly profit) from those who cannot read the market to those who can. Muth (p. 316, emphasis added) argues that a 'public prediction' has no substantial effect on the operation of the economic system '*unless* it is based on inside information' but his own view on the assimilation of market knowledge suggests that every relevant theory grows from 'inside information.' Hence, whether assimilated or not, 'relevant' theories must have a substantial impact on the economy.[17]

Third, the rational-expectations hypothesis asserts that people's expectations constitute part of the system's laws of motion. This implies that interdependency between the 'objective distribution of outcomes' and the 'relevant theory' is potentially destabilizing. Frydman and Phelps (1983) argued that the 'average opinion' of economic agents is one of the exogenous variable in the economic system, so when agents attempt to determine this 'average opinion,' they get entangled in an infinite-regress problem and may drive the system toward a permanent state of disequilibrium. Cagan (1983, p. 45), commenting on the same point, wrote that

> Maximizing behavior requires that economic agents can in fact find the maximum position on their own. If that position is affected by the expectations of others, I do not see that maximizing behavior under such circumstances, even with Bayesian learning, is any longer well defined.

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[15] In arguing that irrational expectations are necessarily short-lived, Maddock and Carter (1982, p. 45) invoke the authority of Keynes (1930, p. 160) who wrote that 'actions based on inaccurate anticipations will not long survive experiences of a contrary character, so that fact will soon override anticipation except when they agree.' However, this merely suggests that people may realize they were wrong, not that they will necessarily learn from their mistakes. As argued bellow, the convergence of expectations toward rational expectation is not inevitable.

[16] Economists have been continuously altering their models yet their predictions published in the popular and scientific media do not seem to converge toward any single, 'correct' vector. For instance, a recent survey of 'What Economists are Predicting for 1990' published in *Business Week* for December, 25, 1989, reports 25 predictions for real-GNP growth ranging between a high of 5.1 percent and a low of -3.2 percent. Predictions for inflation range between 2.5 to 6.3 percent, predictions for the interest rate vary between 6.5 and 12.5 percent and prediction for the rate of unemployment run between 4.4 and 8.8 percent. Note that these predictions were not made by 'ivory tower' economists but by business economists working for large companies who stood to lose from erroneous forecasts.

[17] 'Inside information' on the stock market generated and continues to generate substantial profits but after such information is used, it becomes *useless* rather than *relevant* public knowledge.

Even Taylor, an orthodox adherent of rational expectations, admitted that '[b]ecause of the self-fulfilling feature of rational expectations, there is generally a continuum of solutions to rational expectations models' (1985, p. 419).

A fourth problem arises when we examine how the private sector responds to public-sector initiatives in a 'game theoretic' structure. For instance, if the government can revoke its policy commitments (when it follows an *unconstrained* rather than constrained 'policy rule'), the neutrality proposition fails. Kydland and Prescott (1977) argue that in a dynamic game between two agents (the private sector against the government rather that against 'nature'), rational expectations may lead to 'inconsistency of optimal plans.' Buiter (1980, p. 36) concludes that traditional optimal control techniques 'fail to take account of the impact of future policy measures on current events through the changes in current behaviour induced by anticipation of these future policy measures.' This cultivated language conveys a simple message: when human beings are allowed discretion and there is some interdependency between their economic decisions, there may be no 'objective distribution of economic outcomes.'

Fifth, the rational-expectations framework focuses on how private-sector agents *respond* to public-sector initiatives, while little or no attention is paid to dynamic *initiatives* in the private sector itself. This choice of emphasis is common in much of the macroeconomic literature on expectations but it is striking in the new classical writings. In its crude formulation, the rational-expectations hypothesis examines only one type of initiative: government attempts to change aggregate demand. Every other economic action is 'automatic.' Private agents with a fixed set of preferences are locked in their uncompromising drive to maximize utility. To achieve this goal under prefect competition they must follow one pre-determined course of optimal action. Theirs is a 'game of man against nature' where nature changes 'technology' and man responds following fixed, known rules of conduct. If we discard this perverted animism and recognize that initiative, discretion and interdependency exist in the relation between agents such as firms, consumers, workers and investors, we open a pandora's box of disturbing questions. For example, what rational expectations can agents formulate on a world dominated by oligopolies with complex business ties? What prices should we expect to see when managers tell us they follow a rule-of-thumb in setting profit markups? What are the expected 'objective outcomes' from

attempts by private agents to form coalitions or to influence the government toward a redistribution of income?

To our knowledge, there is no definition for the 'objective distribution of outcomes' in the rational-expectations literature. The idea seems to imply that the experience of our economy in any 'sample period' is generated by some specified 'laws of motion,' and that this actual 'history' is merely one observation drawn from a infinite sample of potential outcomes, with a stable mean and a given dispersion.[18] This framework becomes meaningless when we view the economic process as a qualitative *transformation* or evolution rather than a 'draw' from a *stationary* process. When there is human initiative, historical change has few if any 'deterministic' components and even rational agents cannot 'jump over Rhodes' to discover the future. 'About these matters,' argued Keynes (1937, p. 185) 'there is no scientific basis of which to form any capable probability whatsoever. We simply do not know.'[19] These criticisms should not be interpreted as suggestions towards improvements of the rational-expectations framework. We believe that new classical economics is barren and misleading, and that theoretical 'improvements' to this approach are simply further steps in the wrong direction.

The danger of accepting the legitimacy of such 'improvements' is illustrated by recent attempts to incorporate seemingly 'realistic' features into a rational-expectations theory. The prominence of new classical ideas also brought them under the magnifying glass of macroeconomists. Scholars like Tobin (1980), Buiter (1980), Frydman (1981) and Gordon (1981) argued that the policy-ineffectiveness conclusion depended not only on the assumption of rational expectations but also on the existence of a Walrasian, market-clearing system of prices. When a system with sluggish wage or price adjustment was substituted for the Walrasian construct, the short-run Phillips Curve reappeared even under rational

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[18] Note that these presumptions underlie the notion of 'functional relationships' in the social sciences and are common in conventional econometric approaches to estimation, testing and predictions of macroeconomic models. The significance of the rational-expectations framework is in making these presumptions explicit.

[19] According to Georgescu-Roegen (1979, p. 322), the most notable feature of the economic process is the continuous emergence of *novelty*, or qualitative change. Unfortunately, he argues, 'no analytical model can deal with the emergence of novelty, for everything that can be derived from such a model can only concern quantitative variations . . . noting can be derived from an analytical model that is not logically contained in its axiomatic basis.' Contrary to the new-classical euphoria, Georgescu-Roegen concludes that 'we cannot possibly have a bird's eye view of the future evolution of mankind' (p. 325).

expectations (recall that institutional rigidities were one of the elements in Friedman's model). Fischer (1977), for instance, introduced multiperiod contracts in the labour market and concluded that the authorities could affect real variable provided the policy duration was shorter that the length of contracts. Phelps and Taylor (1977) reached a similar conclusion when they examined the consequences of prices and wages being set one period in advance. In these models *future* prices are set to clear the market on the basis of *current* information but when new information about policy arrives, prices are too 'sticky' to adjust immediately and the policy becomes effective. Talyor (1979) introduced overlapping, or staggered wage contracts into the rational-expectations framework and concluded that policy can be effective even if its announced lead-time is longer than the duration of the longest contract (Taylor, 1985, p. 414).

According to Taylor (1985, p. 411), the algebra of these models retains the long-run neutrality of policy but allows the same policy to be effective in the short run. Hence, such models can be viewed as attempts to resolve what Gordon (1981, p. 509) labelled the 'persistence dilemma' of the rational-expectations hypothesis. The acknowledgment of contracts and price stickiness may appear to reconcile the rational-expections hypothesis with persistent deviations of actual unemployment from its trend. Unfortunately, this aura of realism is a rather deceptive decoration for a barren axiomatic model that has very little to do with dynamics of complex market structures. Taylor must be aware that real-life contracts have numerous institutional and dynamic aspects which cannot allow stable ARMA representations. Yet, finding such time-invariant representations are crucial for his model so real contracts must give way to axiomatic ones, where all dangerous actuality has been conveniently removed. The model apparently dresses in 'realism' while, in fact, it is shallow.

2.8 'Institutional Instability' and Stagflation

The history of the Phillips Curve could be described as an ongoing duel between reality and theory, in which the cunning of history has proven to be no match to the ingenuity of macroeconomists. When, during the late 1960s and early 1970s, inflation accelerated with no apparent decline in unemployment, macroeconomists responded by modifying the downward-sloping Phillips Curve into a

vertical one. To do so, they introduced expectations and the 'natural rate' axiom into the framework. Subsequently, when history staged a combination of rising inflation and rising unemployment, macroeconomists responded by trying to bend the Phillips Curve into an upward-sloping position using concepts such as 'institutional instability' and 'exogenous shocks.' We consider these latter modifications in this and the following section.

In his 1977 Nobel lecture, Friedman asserted that the vertical curve could survive the new reality of stagflation with only a 'modest elaboration of the natural-rate hypothesis.' The element missing from his own original formulation was the requirement for the rate of inflation itself be *stable*. When the same rate of inflation prevails for 'many decades,' wrote Friedman (p. 24), we could expect that prices be fully anticipated and fully adjusted. These conditions for a vertical Phillips Curve are likely to be met in what Friedman calls the 'long-long run' but the interim phase of transition toward inflation stability may involve some unpleasant complications. The increase in the rate of inflation during the post-war period in Europe and the United States also brought with it increased *fluctuations* in that rate. Friedman speculates that this increase in inflation instability led to rising *institutional* instability, whereby the optimum length of unindexed commitments was shortened, the efficiency of the price system in coordinating economic activity was reduced, public policies became increasingly confused, and the extent of government intervention in free markets was greatly increased. Friedman argues that such developments had adverse consequences for economic efficiency, but he admits that they do not really explain the apparent drift of unemployment.[20] In other words, accepting the proposition that the Phillips Curve is vertical in the *long-long run* does not help us resolve the puzzle of *contemporary* stagflation.

In our opinion, the weakness of Friedman's analysis stems not from his failure to further amend the Phillips Curve framework but rather from his very attempt to do so. Friedman (1977, pp. 7-8) implies that his theoretical manoeuvres are constructive steps in scientific progress but it seems that, instead of directing us towards better understanding of stagflation, his 'patching-up' leads us into a

[20] Some authors (like Fischer, 1981) tested and rejected the presumed link between inflation, inflation instability and unemployment.

theoretical vacuum. Each successive interpretation of the Phillips Curve turns the existing construct into a 'special case' of a 'more general' framework. The 'short run' that extended from the late 19th century and until the middle of this century became a special case of a 'long run' that embraced us between the late 1960s and early 1970s, but even this 'long run' was merely a subset of a 'long-long run' phase which we entered in the mid-1970s. The first shift was created when economists discovered that information was 'imperfect.' The second transformation was instituted when economists realized that institutions were slow to 'adjust.' This leads us to pose one simple question: if economic life amounts to a continuous and progressive 'departure' from some enigmatic equilibrium relationships and if these relationships will be valid only in some *imaginary* future when stationarity replaces history, why should such equilibrium relationships be useful in explaining *real* phenomena? The predicament is well illustrated in Friedman's own writings. On the one hand, he painfully acknowledges the 'real' consequences of a high, variable inflation:

> . . . some groups gain . . . other lose. . . . The society is polarized; one group is set against another. Political unrest increases. The capacity of any government to govern is reduced at the same time that the pressure for strong action grows. (p. 26)

On the other hand, he has very little to say on these issues, since conflict of interests and continuous redistribution cannot be integrated into a framework which patiently looks forward toward some long-long run state of bliss, when full 'adjustments' and restored social harmony reinstate the neoclassical dichotomy between inflation and unemployment.

2.9 The Stagflationary Menace of 'Exogenous Forces'

Although macroeconomics was criticized during the 1970s for its failure to effectively deal with stagflation, macroeconomists were not ready to take the blame. Blinder (1979, pp. 3 and 5-6) for example, insists that there is nothing wrong with macroeconomics for, by using the very rudimentary aggregate demand and supply curves, one can provide a 'fairly simple and general theory of stagflation' that 'can indeed explain what has happened.' In his opinion, critiques have often erred by confusing the problem with its solution: stagflation could be easily explained but it could not be easily cured. Moreover, politicians generally failed to understand this and made a difficult situation even worse.

Within what has now become the standard macroeconomic model, stagflation arises either as an adjustment process following an earlier expansion of aggregate demand, or as a result of adverse contraction in aggregate supply. Both cases begin and end in a long-run macroeconomic equilibrium, but they differ in the source of disruption and in the way the economy responds to it. Consider the first case, where the initial equilibrium is upset by an 'autonomous' expansion of aggregate demand. In the short-run, the expansionary demand 'shock' causes output to rise beyond its 'natural' rate with no parallel increase in prices. This is a false tranquillity, however. As time passes, the economy moves into an 'intermediate run' and input prices begin to rise, pulling output prices with them. Unfortunately, this is not the end of the story. Eventually, output starts to *fall* because, by definition, the economy must converge to its 'potential,' or 'natural' rate of output. Hence, we move through three phases in the following order: growth without inflation, growth with inflation and, finally, stagnation with inflation, or stagflation. 'Because wages and prices move sluggishly,' asserts Blinder (1979, p. 14, emphasis added), 'real output *must* overshoot its *eventual* position' and stagflation is merely the inevitable process by which this 'eventual' position is reached. The explanation also suggests that stagflation is in fact implicit in the augmented Phillips-Curve framework: an expansionary demand-policy causes the economy to climb up the short-run Phillips Curve, but the subsequent shift of the curve causes unemployment to *increase* back to its 'natural' rate in the midst of *rising* inflation.

While most macroeconomists accepted the theoretical validity of demand-induced stagflation, it was the 'supply-shock' rationale that captured their imagination. Why complicate the analysis, many asked, when the 'laws of supply and demand' offered the most simple solution to the stagflation riddle? If prices and output move in opposite directions, it was only natural to associate this outcome with changes in supply, not in demand. A 'supply shock' which shifted the intermediate and long-run aggregate supply curves to the left, would cause stagflation with rising prices and falling output. Moreover, since we assume that the natural rate of output itself is reduced, the situation is often irreversible and the adverse effects of the original shock may be with us 'for ever' (Blinder, 1979, p. 16). Finally, a supply shock may create a lengthy wage-price spiral that will further aggravate the initial effects of that shock. All of this means that when supply-shocks hit the economy, politicians are cornered into a policy nightmare:

> The limited capability of policy to influence supply poses a particulary vexing problem in a stagflationary world since any stabilization policy adopted in response to stagflation is bound to aggravate one of the problems [inflation or unemployment] even as it helps cure the other. Such is the policy dilemma of stagflation. (Blinder, 1979, pp. 20-1)

Many macroeconomists were excited by this alternative theoretical avenue though only few were fully aware of its wider methodological implications.

Both aggregate demand and aggregate supply are 'convenient' tools for analyzing the neoclassical synthesis. In this framework, we can always argue that aggregate demand increased or that aggregate supply decreased and it is practically impossible to refute such assertions since 'desired' magnitudes for spending or production are not observable. Yet beyond this convenience, there lies a disturbing asymmetry between the two concepts of supply and demand. It seems that aggregate demand can shift for a host of 'subjective' reasons; for instance when consumers change their 'preferences' or 'propensities,' when investors experience a burst of 'animal spirits,' or when politicians make an 'autonomous' policy move. Thus, since the world of demand is supposedly at the mercy of human impulse, it can be easily blamed for much of our instability. A similar hypothesis for supply is not very convincing, however. The aggregate supply curve often emerges from a rational, efficient sphere of activity with no room for destabilizing elements of human fancy. Shifts in the curve occur for 'objective' reasons, such as changes in the production function or the availability of factors of production. This asymmetry poses an obstacle for a supply-based theory of stagflation, for how could the turmoil of stagflation originate from this stable domain of activity?

Disturbing as this question might have been, few macroeconomists were discouraged by its implications. For decades, macroeconomics made an efficient use of assorted 'imperfections' to patch up the theory of aggregate demand, and there was very little reason not to use this very approach in making necessary adjustments to the theory of aggregate supply. Supply prices depend on factor costs. In an ideal neoclassical world, such input costs are 'endogenous' to the system for they emerge as simple derivatives from the production function: the wage rate is equal to the marginal product of labour, the rate of profit is equal to the marginal product of capital, and so on. Unfortunately, noted many macroeconomists, our own market system was far from this ideal because some factors had the power to set their prices higher than their corresponding marginal products. In principle, such imperfections

could distort the pricing of every factor yet practical macroeconomists prefer to emphasize the pivotal role of raw materials and labour. Bruno and Sachs (1985, p. 7) are typical when they point their first 'blaming finger' at the weather and the oil sheiks:

> A clear and central villain of the piece is the historically unprecedented rise in commodity prices (mainly food and oil) in 1973-74 and again in 1979-80 that not coincidentally accompanied the two great burst of stagflation.

When the raw-material price shock hits the system, it causes the aggregate supply curve to shift to the left, raising prices and lowering output. The turbulence could have been lessened somewhat, argue Bruno and Sachs (ch. 1), if other factor prices were fully flexible. With such flexibility, an increase in the price of raw materials would have led to a reduction in the use of those inputs, to a consequent decline in the marginal product of accompanying factors and, hence, to a subsequent fall in the prices of these latter factors. Such cost reductions would have created a compensatory rightward shift in the supply curve and could reduce the severity of stagflation. Unfortunately, the price of the most important factor -- labour -- is far from being flexible, at least in the downward direction. When a raw-material price shock creates a burst of stagflation, workers not only refuse a necessary reduction in their real wages but they also demand and obtain real-wage increases! This causes the supply curve to shift even further to the right.

For many macroeconomists, labour is responsible for more than just aggravating an ongoing stagflation. According to Blinder (1979, p. 14), for instance, workers can generate their own supply shock when they 'suddenly become more aggressive and demand higher wages.' Bruno and Sachs (1985, p. 7) associate this undesirable power with evolving 'institutional rigidities' in the labour market:

> . . . one of the variables that set the stage for the 1970s stagflation was the rise in union power and militancy at the end of the 1960s . . . . A real wage boom resulted, which started a squeeze on profits even before 1973 . . . . It strikes us as misguided to consider the labor market as a perfectly competitive bourse when in almost every OECD economy much of the labor force is unionized and governments play an enormous role in affecting labour compensation.

The supply-shock theory for stagflation raises many interesting questions and we consider some of them now. First, the argument that supply shocks are created by 'excessive' factor prices has no empirical meaning. For instance, Bruno and Sachs (p. 178) argue that 'an important supply factor has been the persistent excess of real wage levels above the marginal product of labor at full employment'

and then devote an entire chapter to estimate this 'wage gap.' Under the heroic assumptions of 'output-clearing markets and competitive firms' and together with knowledge of the production function, this would have been a mundane task. In reality, admit the authors, there are 'technical limitations' which make this a somewhat difficult exercise. For example, markets may not clear 'on a year-to-year basis' and there are 'data problems' regarding the capital stock. We may also add that production functions as frontiers have a vague empirical meaning, that marginal productivity is not observable, and that we rarely if ever reach full employment where the level of marginal productivity should be measured. Despite these unsurmountable obstacles, Bruno and Sachs remain undeterred and proceed with a simple 'practical' solution. They observe that both unemployment and real wages were higher during the 1970s and early 1980s than during the late 1960s. Next, they make the convenient but totally arbitrary assumption that, during the 1965-69 period, unemployment was at its 'full employment' level and hence that wages were at their 'right level' (i.e., there was no 'wage gap'). Finally, they use various hypothetical production functions and measures for productivity changes to estimate by how much the actual wage exceeded the 'full-employment wage' in subsequent years. Naturally, they find that the 'wage gap' in most OECD countries was positive after 1973, but then how could it *not* be positive under these definitions?

A second question concerns the source of different supply shocks. If the weather, Arab oil-sheiks and labour unions can engineer a supply shock, why should we not explore the possibility of a 'corporate profit-shock'? Bruno and Sachs (pp. 19-20) agree that, in principle, the roles of labour and capital are 'entirely symmetric' but suggest that this is not a matter for concern in practice. In their opinion, world supply and demand for saving determine the real rate of interest on world markets and 'competition among firms in the economy will ensure that the rate of profit will eventually equalize itself to this external rate of interest.' The picture emerging from this set of presumptions is perplexing. Most key industries in OECD countries are oligopolistic and large companies interact with each other in many different markets. Furthermore, market structures and the interrelations between large corporations experience continuous changes. Finally, governments are involved with these firms through procurement, subsidies, loans, taxation, the granting of certificates and so on. According to Bruno and Sachs, however, all these institutional features can be safely ignored. The combination of union power and government

involvement affects relative and aggregate wage levels in the labour market but, for some mysterious reason, market power and government activity in the product market have no similar consequences for the rate of profit. The return on capital simply cannot be contaminated by rigid institutions. Despite the heterogeneity of their experience, firms are somehow compelled to adjust their actions in order to ensure their own rate of profit converges toward the 'normal' world rate. Unfortunately, even this absurd assumption is not very helpful for empirical analysis. The 'normal rate of return' is supposedly determined by supply and demand for saving but these are neither observable nor stable. As a result, we can never verify that the 'normal' (average?) rate of profit is indeed an equilibrium value equal to the marginal productivity of capital. Since Bruno and Sachs admit that markets can occasionally be out of equilibrium, it is possible to have a profit shock even in this framework.

Third, the discussion suggests that supply shocks generate a redistribution of income from the 'shocked' to the 'shocker.' In analyzing the U.S. case, Blinder (1979, p. 17) draws attention to a 'massive redistribution of real income away from urban workers and toward farmers and oil producers.' Presumably, the latter have a lower propensity to spend than the former, so the effect of this redistribution is to reduce aggregate demand. Blinder (p. 18-9) is quick to point out that such demand-reducing effects of supply shocks are 'not permanent':

> The farmers who do the high saving are probably accumulating the means to finance subsequent investments in their farms, not to add to their estates. Oil companies will not sit on top of a pile of cash for long. They will either pay it out in dividends (to stockholders who will then spend it), spend it on additional investment goods, or use it to finance internally some investment projects that would otherwise have been financed externally. Like the oil companies, the OPEC nations too cannot be expected to allow the massive buildup of liquid assets to continue indefinitely. Gradually, these countries can be expected to find more and more ways to spend their oil earnings, thus returning demand in the form of exports to the countries that lost demand in the form of consumption . . . [hence] . . . For the long run, we have only the permanent shift of the supply curve to contend with.

The notion that income redistribution can have temporary but no lasting effect on the level of economic activity is inconsistent even with standard Keynesian views. The failure of oil companies (or other firms that increase prices faster than costs) to promptly re-invest their increased savings will lead to a fall in overall levels of activity, which may further reduce the incentive for future investment. A serious recession can easily eliminate previously-accumulated 'piles of cash' so their eventual long-term investment may never materialize. Similarly, there is no reason to assume that petrodollars accumulated

by OPEC and subsequently spent on western products had only a 'neutral' effect on economic activity. For example, we may discover that dollars earned from U.S. consumers may have been spent by OPEC countries on European-made products, or that price inflation for finished goods may have eroded the real purchasing power of perviously earned petrodollars. These considerations are of utmost importance but are generally neglected in the supply-shock literature.

A fourth and final issue concerns the notion of 'exogenous' shocks and its relation to equilibrium analysis. The spectra of increasing price instability, higher rates of unemployment and, finally, the puzzle of stagflation presented macroeconomists with a difficult dilemma. They could try to explain these as 'endogenous' phenomena but then this would amount to admitting the economic system was inherently unstable. Alternatively, they could maintain their stubborn emphasis on equilibrium and blame all the havoc on 'exogenous' forces that jolt the system. Most macroeconomists chose the second avenue but, by doing so, they have effectively admitted that explanation for important aggregate phenomena lied outside the realm of mainstream macroeconomic theory itself! Furthermore, an emphasis on equilibrium could appear meaningful when the economy is generally stable, with only occasional 'disruptions.' When there is a continuum of dynamic instability, however, attempts of macroeconomists to depict it as a rapid transition from one equilibrium to the next seem rather pathetic.

2.10 Concluding Comments

The progressive disintegration of the Phillips Curve helped unveil some pristine simplicities which characterized the 'neoclassical synthesis' of microeconomics and macroeconomics. The belief in the equilibrating force of perfect competition proved decreasingly useful in an era of stagflation. In their attempts to defend their paradigm, mainstream macroeconomists were forced to transcend previously sacred boundaries and acknowledge that underlying microeconomic structures and non-equilibrating changes were significant for macroeconomic analysis.

Alas, the departure of macroeconomists from equilibrium and perfect competition seems hopelessly circumscribed. For most macroeconomists, the deviation from ideal market conditions, even

when such a deviation persists for a long period of time, is an *exception*. For them stagflation is ultimately an alien phenomenon. Its roots lay not in the 'economic system' but rather in impediments imposed on that system. Given this assessment, it is not surprising that most attempts to examine the broader structural causes and implications of inflation and unemployment were perceived as challenges to mainstream macroeconomics. We examine some of this structural literature in the next two chapters.

CHAPTER 3

PRICE BEHAVIOUR AND BUSINESS BEHAVIOUR

The economic and political turbulence of the 1930s spawned a number of serious challenges to the hegemony of classical economic doctrines. Of these challenges, only Keynes' 'new economics' was broadly accepted and assimilated into the mainstream of economic thinking. Keynes was successful partly because his policy propositions sought to reform capitalism while preserving its underlying structure. According to Keynes, the malfunctioning of the system stemmed primarily from a chronic lack of synchronization between the 'propensities' of consumers and the 'animal spirits' of investors. The ultimate problem was rooted not in the *structure of capitalism* but in fundamental psychological tendencies stemming from *human nature* itself.[1] In this context, his call for government intervention appeared to be fairly conservative: policies were needed not to alter basic power relationships among specific economic groups but merely to overcome an unfortunate gap between abstract saving and investment 'tendencies.'

As an orthodox student of Marshall, Keynes rarely questioned the basic structural tenets of neoclassical microeconomics and, indeed, he saw no apparent reason to do so. In his opinion, the macroeconomic problem of unemployment arose *despite* the efficiency of individual markets and, furthermore, the solution for the problem could be achieved by broad policy measures which need not interfere with the functioning of these individual markets.[2] The apparent success of early Keynesian policies during and after the Second World War further strengthened the conviction that

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[1] See for example Keynes (1936, p. 97 and p. 161). Keynes was of course very much aware of contemporary structures and institutions but these were significant for his *General Theory* only in so far as they *enhanced* the tendency for stagnation or instability. The primary *cause* for these tendencies remained human nature.

[2] Being aware of contemporary research, Keynes (1936, pp. 268, 270-1) was careful to stress that his theory abstracted from 'administered' or 'monopoly' prices. Half a century later, Tobin (1983, p. 299) expressed retroactive regret for this turn of events: 'It is unfortunate that Keynes, in spite of the Chamberlin-Robinson revolution that was occurring in microeconomics at the same time he was making his macro revolution, chose to challenge orthodoxy on its own microeconomic grounds of competitive markets.'

macroeconomics was quite independent of underlying microeconomic structures. This legacy of Keynesian macroeconomics has proven more powerful then Keynesian theory itself, for while the primacy of Keynesianism has been subsequently challenged by competing schools, macroeconomics as a whole continues to neglect significant aspects of real structures and institutions.

The eventual divorce of mainstream macroeconomics from the dynamics of real economic structure was established only in the post-war era, however. During the 1930s, before the apparent triumph of Keynesian policies, economists were seeking answers also in alternative directions. While Keynes was elaborating the psychological reasoning for his *General Theory*, some of his contemporaries were trying to identify structural causes for the general economic distress. Their subject of inquiry concerned basic convictions about 'price behaviour' and 'business behaviour.' First, the pioneering work by Means (1935a) and by the National Resources Committee (1939) under his direction questioned the monolithic approach to price dynamics. Means suggested that there were in fact two types of prices -- those which were relatively flexible and those which were relatively inflexible. More importantly, he argued that this basic difference was rooted in the structure of modern capitalism. Second, the research by Hall and Hitch (1939) challenged accepted assumptions regarding pricing decisions by firms. Their interviews with businessmen indicated that the latter determined their prices by imprecise rules-of-thumb and were quite indifferent to the notion of 'profit maximization.' These studies launched a prolonged controversy which has not yet been 'resolved' and, because it involves basic methodological issues, perhaps could not be resolved. The purpose of this chapter is not to provide a review of this literature but rather to examine key methodological questions arising from it. Given our limited goal and the availability of numerous surveys, we find it appropriate to focus only on some of the important contributions to the debate.

Briefly, the link between 'price behaviour' and 'business behaviour' involves questions of 'structure' and economic or business 'power.' The neoclassical notion of 'pricing power' suggested that a firm could set its own price but, since the firm was assumed to maximize profit, economists could still 'determine' what that price would be. The increasing emphasis since the 1930s on the significance of oligopolistic interdependency did not prove to be detrimental for price theory. With sufficiently

restrictive assumptions and a complicated mathematical reasoning, economists often succeeded in finding an 'optimal solution' for their game theory. The literature following Means and Hall and Hitch undermined this logical simplicity. The existence of relative price inflexibility in markets other than pure competition did not imply that such prices were 'optimal' for firms. It only suggested that prices were 'administered' and this was precisely the problem. If these were 'monopoly prices' in the neoclassical sense they should have been perhaps higher than comparable competitive prices, but there was no reason to expect them to be less flexible. The fact that administered prices were relatively inflexible implied that firms might not have been acting 'optimally.' The writings on business behaviour strengthened this doubt when they pointed to substantial ambiguities and considerable discretion in the way firms set their pricing policies.

Ironically, by emphasizing the significance of structure for *actual pricing*, the new empirical literature operated to undermine the methodological basis for *price theory* itself. It was implied that firms operating in non-perfectly competitive markets had the privilege not only to determine their own prices, but also to set these prices in a rather 'arbitrary' manner. Prices were still influenced by 'objective' conditions such as cost, demand, the specific structure of the industry, or the intensity of competition. However, since firms enjoyed substantial discretion over their own goals, the 'mapping' of these objective conditions into prices was obscured from the economist. Since these issues have considerable bearing on 'structural' theories of inflation, it is necessary that we explore them more closely before we can turn to those theories in the next chapter.

Our examination begins in the first and second sections with the early contributions to the administered-price controversy and the criticisms they elicited. The third section explores the early literature on 'full-cost' pricing while, in the fourth section, we deal with the marginalists' counterattacks against that literature. The fifth section examines the aspects concerning the 'target' rate of return and the last section offers some observations on the anthropology of business behaviour.

3.1 The Administered Price Controversy: Beginnings

The controversy over the relationship between market structure and price behaviour was triggered in 1935 by the work of Means on *Industrial Prices and Their Relative Inflexibility.*[3] Means raised two basic questions concerning (1) the apparent anomaly in the behaviour of numerous industrial prices, and (2) the causes behind this behaviour. First, he argued that comprehensive price indices, such as the Wholesale Price Index published by the Bureau of Labor Statistics (BLS), were potentially misleading because they failed to distinguish between 'market prices' and 'administered prices.' Market prices were defined as prices which were 'made *in* the market as a result of the interaction of buyers and sellers.' Administered prices, in contrast, were 'set by administrative action and held constant for a period of time' while sales fluctuated with demand at the rigid price (Means, 1935b, p. 401). This distinction was highly significant because market and administered prices 'behaved' quite differently in terms of both frequency and amplitude of change.

The evidence for such divergent behaviour was based on an analysis of monthly prices for individual commodities included in the BLS Wholesale Price Index. Means classified 747 such items according to the number of times their price changed during the eight-year period between 1926 and 1933 and demonstrated that prices for the majority of items changed either very frequently or very infrequently.[4] His inference that these were in fact 'quite different types of prices' was further enhanced by illustrating that 'items which changed frequently in price showed a large drop during the depression while those having a low frequency of change tended to drop little in price' (Means, 1935b, p. 402 and p. 403). Additional evidence. published 4 years later by the National Resources Committee under the

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[3] Although he initiated the debate, Means was not the first to draw attention to price inflexibility and to discuss its potential causes. Stigler and Kindahl (1970, pp. 11-12) cited earlier works by Berlund and by Jones on the rigidity of steel prices during the early 20th century. In 1927, Mills published a comprehensive study on *The Behavior of Prices* where he found, much like Means' later discovery, that industrial prices appeared to be either flexible or inflexible in their frequency of change. Another study by Tintner (1935) on price behaviour in Germany, England and the United States, suggested that the frequency of price changes in monopolized industries was appreciably smaller than in competitive ones.

[4] Of the 747 item prices, 50 percent changed very infrequently (between 0 and 24 price changes during a period of 96 months), 24 percent changed very frequently (between 80 and 94 times), while 26 percent fell in the intermediate range (between 25 and 79 times over the period). See Means (1935b, Chart I, p. 402).

direction of Means, indicated that, as prices recovered between 1933 and 1937, frequency and amplitude of price changes were again positively related.

Writing during the depression of the 1930s, Means was primarily attentive to the broad economic implications of this distinction between market and administered prices. Based on the observation that a substantial number of commodities (over one half) had administered prices, he argued that relative price inflexibility became a major disruptive factor in the American economy:

> We have always relied in the past on the automatic balancing of economic activity through price changes. This is all right where prices are flexible, since a general drop in demand such as occurred in the depression would result in a drop of prices and maintained production. If all prices had been flexible it is doubtful if we would have had a serious depression after the stock crash of 1929. Where prices are rigid, however, a general drop in demand has quite different and most disastrous result. Instead of producing lower prices, the drop in demand produces a drop in sales and in production. Workers have less to spend, thus amplifying the original drop in demand. In this manner, rigid prices can expand an initial small fluctuation of industrial activity into a cataclysmic depression. (1935b, p. 405)

Means went on to illustrate that between 1929 and the spring of 1933 there was a marked inverse relationship between the relative drop in prices and the relative decline in production for a sample of ten major industries. When prices fell substantially, like in the case of agricultural commodities or petroleum for example, the decline in output was below 20 percent, while when prices remained stubbornly rigid like in agricultural implements or motor vehicles, production levels dropped by as much as 80 percent!

Given the prevalence of administered prices and given the disruptive effect their relative inflexibility had on macroeconomic performance, Means set to address the second issue, namely the cause behind the phenomenon. In his opinion, administered prices emerged primarily (though not exclusively) as a consequence of industrial concentration. Although he expressed this conviction forcefully in 1935, empirical support for his 'concentration thesis' was first provided only in the National Resources Committee monograph published in 1939. There Means examined price changes between 1929 and 1932 for a subset of 37 out of the 282 manufacturing industries included in the Census' universe, and contrasted them with four-enterprise concentration ratios associated with each individual industry. In selecting the sample, Means sought to eliminate the possible influence that factors other than concentration might have had on price changes. Consequently, he excluded industries where (1)

products were not relatively homogenous, (2) more than 2/3rds of the product value originated outside of manufacturing, possibly in demand-sensitive industries such as agriculture or some raw materials, (3) products were not produced for national or international markets, so national concentration ratios were misleading, and (4) reasonably reliable price data were not available. Based on a scatter diagram between percent change in price and concentration ratios for the 37 industries, Means concluded that 'When the depression drop of prices in these industries is compared with the proportion of value of product which in each was produced by the four largest enterprises, a rough relation is apparent between concentration and price insensitivity' (National Resources Committee, 1939, p. 142).

Means repeatedly emphasized that the existence of administered prices was not synonymous with 'monopoly profits' and that the process of industrial concentration did not necessarily mean a growing 'monopolization':

> It is . . . abundantly clear that a considerable degree of administrative control is inherent in the narrowing of markets and the willingness of buyers to accept the one-price system of American merchandising. Further administrative control is implicit if the efficiencies of modern technology are to be realized. Only to the extent that administrative controls arise from collusion between enterprises or through the bringing of production under common control beyond the extent necessary for efficient operation is there an opportunity to reduce the existing degree of administrative control without incurring a cost of decreased efficiency in the use of resources. (National Resources Committee, 1939, p. 145)

In this context, economic 'power' was perceived not so much as an attribute of broader *social relationships* but more as a facet of *industrial organization*. The power to determine prices did not denote the ability of one group to redistribute income from another, but rather the ability of 'organizations' to overcome the 'market.' Thus, the apparent link between industrial concentration and the administration of prices was rooted primarily in the growing 'bureacratization' of economic activity:

> . . . the last century has seen a steadily increasing shift from market coordination to administrative coordination. Gradually, as our great corporations have been built up, more and more of the coordination of individual economic action has been brought about administratively. . . . As a result of this shift from market to administration, the area of coordination remaining to the market has been greatly reduced while the increased bargaining power of the big administrative units has induced the counter concentration in the form of cooperative bargaining organization, farm cooperatives, labor unions and to a small extent consumer cooperatives, thus further reducing the number of separate units interacting through the market. (Means, 1935b, p. 407)

To a significant extent, then, the adverse consequences of administered prices were the inescapable price we must all pay for technological progress:

> Thus a considerable degree of administrative control over prices appears to be *inherent in the modern economy*. Administrative prices and their depression insensitivity seem to be an *integral part* of the structure of economic activity. With the century-long transition of this country from a predominantly agriculture to a predominantly industrial country, the administration-dominated prices of industry have gradually displaced the market-dominated prices of agriculture as the more characteristic form of prices. (National Resources Committee, 1939, p. 145, emphases added)

Although Means pointed to a structural cause underlying the overall economic depression, he recommended not to alter but accommodate that structure. Breaking up large scale enterprises in order to revive price flexibility, he argued, would be immensely wasteful in terms of foregone output and hence he suggested we 'accept inflexible prices as inherent in our modern economy and build our economic institutions around them in such a manner that inflexible administered prices will cease to be a disruptive factor' (Means, 1935b, p. 408). To that end, he proposed we adopt expansionary monetary policies, but although his recommendations were macroeconomic in nature, his analytical framework was too controversial to be unanimously accepted as a basis for such policies.

The idea that firms administered their prices with a considerable disregard to 'market signals' challenged basic theoretical convictions about 'optimal' behaviour. Furthermore, Means' presupposition that such administrative control was largely unrelated to conventional notions of economic 'power' and 'monopoly profits' was not sufficiently persuasive to defuse public concern. A series of Congressional hearings on administered prices in general and on steel prices in particular began in the late 1940s and extended through the 1950s. Guidelines on wage and price policies were issued by the Council of Economic Advisors in 1962 and were aimed particularly at concentrated industries such as steel, copper and aluminum. The announcement of these Guidelines was followed by heightened confrontation between the subjected industries and the Presidential office and the debate over administered prices received considerable public attention. Means' interpretation that price inflexibility was predominately a 'technical' outgrowth of modern 'industrial organization' and his suggestion that public policy could 'overcome' the problem of administered prices presupposed that, in itself, the administration of prices *served no particular interests*. Given the public turmoil over the issue, this was not a very convincing assumption. There was a growing atmosphere of crisis among economists and many mainstream scholars who felt as if the 'sky were falling' became receptive toward evidence or explanations which would

discredit the administered price thesis. Not surprisingly, then, the publication of *Industrial Prices and Their Price Inflexibility* generated an enduring controversy surrounding both the existence of administered prices and their relation to economic structure.

3.2 Price Inflexibility: Fact or Fancy?

A most promising line of assault on Means' thesis was to deny the very inflexibility of administered prices, for if 'administered prices' were flexible they were no longer a cause for concern for either economists or politicians. This could have been done by either demonstrating that 'administered prices' changed *frequently* (in other words, that they were not really 'administered') or by showing that even if they changed only infrequently, the *amplitude* of such changes was sufficiently large. Let us briefly examine these criticisms beginning with the 'frequency' issue.

In a staff paper for the Price Statistic Review Committee, headed by Stigler in 1961, McAllister demonstrated that the frequency of change in BLS price indices was positively related to the number of reporting companies. This meant that a price index which combined information from all reporting companies changed more frequently than the price for each of the individual companies.[5] Following this study, Stigler (1962a, p. 5) concluded that

> Means' tabulations of frequency of price change are unknown mixture of the actual behavior of quoted prices and the number of firms reporting such prices. By increasing the number of price reporters, the B.L.S. can reduce price inflexibility by the same order of magnitude as the increase in the number of reports. The major development which Means believes to have outmoded neoclassical economic theory is the "development" of collecting a number of price quotations inappropriate to the measurement of short-run flexibility.

Although Blair (1964) promptly indicated that this criticism was based on a simple misunderstanding of Means' procedure, Stigler and Kindahl (1970, p. 20) still insisted that 'The McAllister analysis effectively destroys the entire body of work resting upon frequency of price change.' The offensive crumbled a year later, when Stigler (1971) finally realized that Means had access to the raw data of the BLS and that he in fact analyzed the number of price changes reported by the individual companies.

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[5] 'Government Price Statistics,' Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, 87th Congress, 1st Sess., 1961. Cited in Stigler and Kindahl (1970, p. 19). See also McAllister (1961).

While the infrequency of administered-price changes was indeed quite remarkable when compared to market prices, this, in itself, was a relatively minor matter for concern. The crux of Means' discovery was that when prices were 'administered' (changing only infrequently), their *amplitude* of change was unduly small and it was this aspect of his findings which drew the heaviest fire. The criticism, first expressed by Thorp (1936), was that BLS price series were based on *quoted* prices and hence failed to reflect the array of secret or undisclosed rebates, discounts and concessions included in actual *transaction* prices. As Thorp later argued, this discrepancy by itself could explain the mysterious inflexibility of the BLS series:

> Frequently a commodity will be quoted at an unchanged price over a period of years and thus to the extent that indexes include this type of quotations they will remain relatively unchanged. Actually, the manufacturers of the product may have shaved or cut the price of the item drastically, in periods when business was slow and boosted it as economic conditions improved without the change being recorded in the quoted price. (Thorp and Crowder, 1941b, p. 406)

As a matter of fact, Means was aware of this potential inaccuracy of the BLS series and, as already indicated, he excluded industries for which price data seemed inappropriate. Furthermore, he expressed his confidence that, despite their shortcomings, BLS data reflected actual prices:

> I have become convinced the bulk of their quotations represent net prices. The exceptions seemed unlikely to falsify seriously the picture which I presented. Consultation with the technical staff of the Bureau of Labor Statistics supports this view. So far as this question is concerned, I am confident that the statistical picture is not seriously faulty. (Means, 1936, p. 28)

The adequacy of BLS data was subsequently evaluated in an appendix to the National Resources Committee report, where Nelson compared these data to 'realization' prices of the Census of Manufacturing. 'Realization' prices were taken as an approximation for actual 'unit prices' because they were derived as a ratio between the total dollar value of the industry's sales and a corresponding index for total physical quantity. The analysis of price movements between 1929 and 1933 for 28 commodities indicated the existence of positive relationships between the two indices for most but not all products in the sample. Nelson (1939, p. 185) concluded that there was room for caution in using the BLS wholesale price data, yet

> after all due allowance is made for the factors demanding caution, very marked and significant differences still remain between the behavior of rigid and flexible prices. For the statement and interpretation of such different types of price behavior, Bureau of Labor Statistics series can be regarded as furnishing an acceptable basis.

Unfortunately, such comparisons with Census data proved rather ineffective in resolving the dispute. Critics of Means still argued that disparities between the indices were sufficiently large to disqualify the BLS series, while supporters maintained that the discrepancies arose mainly because the Census data constituted a current-based index and, hence, were not strictly comparable to the fixed-based indices published by the BLS.[6]

The most serious attack on the empirical basis underlying Means' thesis was launched by Stigler and Kindahl (1970) in their NBER study on *The Behavior of Industrial Prices* between 1957 and 1966. The authors argued that in the reality of a modern industrial system, many products had a complex 'price structure' which could not be approximated by a single number. The price structure for a commodity was affected by the various mixtures of physical characteristics with which the product could be sold (such as size, finish, or packaging) and by the many possible 'terms of sale' associated with different transactions (for example, when price is related to the quantity purchased or credit terms). The BLS series were based on selected 'typical' products with pre-specified characteristics and given terms of sale, but changes in the list price of such products need not reflect the heterogenous experience of a multitude of buyers who bought other varieties under different terms of sale. As an alternative to the BLS method, Stigler and Kindahl constructed price indices for some 68 commodities which they obtained from 279 different public-sector and private-sector buyers. The commodities represented approximately 19 percent of the value of all products included in the BLS Wholesale Price Index and were limited mainly to 'widely used staple individual materials' in order to bypass the difficulty of measurement presented by quality changes. The buyers were mostly large companies and institutions which, according to the authors, were most likely to enjoy secret rebates.

Stigler and Kindahl declared that, after analyzing their new data, they have found 'a predominant tendency of prices to move in response to the movement of general business' and no

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[6] Ross (1964) suggested for example, that during a contraction, the Census index would appear more flexible mainly because it allowed shifts to lower-priced items within Census categories. The Census price index would be inaccurate also because it reflected changes in both price and product mix for multi-product industries and was further contaminated by inter-company non arm's length transactions. (These observations made by Ross are cited in Blair [1972, p. 434].) Other researchers such as Thorp and Crowder (1941b, pp. 391-92) felt that these theoretical incompatibilities were not very serious and the two indices should move fairly closely together.

evidence 'to suggest that price rigidity or "administration" is a significant phenomenon' (p. 9). In their opinion, the lack of a generally accepted theoretical explanation for inflexible 'administered prices' was no coincidence, for the very existence of such inflexible prices was largely a statistical artifact. Yet the apparently definitive language of these conclusions stood in sharp contrast to the body of evidence on which they presumably rested. If anything, the new NBER data and the analysis by Stigler and Kindahl seemed to both reinforce the validity of the BLS series and reconfirm the administered price thesis!

Stigler and Kindahl compared the behaviour of BLS and NBER series for individual commodity groups and, instead of great disparities, they found that in all but one of the cases (rubber and rubber products), the two indices had similar trends and close cyclical movements. They also found close similarity in the behaviour of the comprehensive index which included all the individual commodities. These observations were contrary to what one would expect if the new NBER data were to put the administrative-price thesis to rest: 'In view of the parallelism between the two series,' Blair (1972, p. 463) commented, 'it is difficult to see how the administered-price doctrine could find support in the BLS indexes but be disproved by the new transaction prices.' The apparent contradiction was resolved by Means (1972) who, feeling personally under attack, sought to strike Stigler and Kindahl with their own data.[7] According to Means, their study was seriously flawed for two basic reasons. First and foremost, the two researchers simply misunderstood his administered price thesis. Second, Stigler and Kindahl's conclusions had no basis in their own data which, in fact, supported both their own incorrect interpretation of the administered-price thesis as well as the correct version of Means.

The conclusion of Stigler and Kindahl that there were no evidence for significant price rigidity was supported by two summary tables (pp. 8-9), where the 68 price indices were classified according to their average behaviour over the contractions of 1957-58 and 1960-61 and over the expansions of 1958-60 and 1961-1966. The tables indicated that in 56 percent of the cases prices move pro-cyclically, in 17 percent of the cases they remained the same and in 27 percent of the cases prices moved

[7] The personal tone was rather evident in Means' reply to Stigler and Kindahl: 'Nor can there be any question that the authors are aiming to test the Means' thesis. Means is indicated as the source of the "doctrine" being tested. The name "Means" appears seventeen times in the first eighteen pages. And no other source is given for the doctrine' (Means, 1972, p. 294).

counter-cyclically. Means observed that pro-cyclical movements in just over half of the cases could not be considered a very robust proof for classical price flexibility, but accentuated the deficiency was much more serious. A key problem was that Stigler and Kindahl (p. 3) attributed to Means the notion that administered prices were '*wholly* unresponsive' to cyclical market movement, while Means' original thesis (and the very title of his first 1935 study) emphasized their '*relative* inflexibility.' The difference between the two interpretations was clarified in reference to a broader taxonomy:

> Basically, the administered-price thesis holds that a large body of industrial prices do not behave in the fashion that classical theory would lead one to expect. . . . This departure from classical behavior in a business cycle could theoretically take any one of three forms. In a recession an administered price might fall substantially less than classically competitive market prices; it might show no substantial change; or it might rise contracyclically. These can be referred to, respectively, as *relatively inflexible*, *rigid*, and *contracyclical behavior*. Any one of these three reactions to a general fall in demand would be classically unexpected except as some noncyclical factor intervened such as a trend of technical change. Similarly, in a recovery, an administered price might rise less, show no change, or actually fall. (Means, 1972, pp. 292-3, emphases added)

Using this classification, Means distinguished between the 'full' administered-price thesis which included all 3 deviations from classical behaviour and the 'truncated' version of Stigler and Kindahl, which treated *all* pro-cyclical price movements -- including those which were *relatively* inflexible -- as being in conflict with the thesis and considered only rigid and counter-cyclical behaviour as supporting it. Evidently, the 'truncated' version adopted by Stigler and Kindahl was only a subset of the 'full' version as expressed by Means.

Moreover, in their zeal to discredit Means' thesis, Stigler and Kindahl committed several methodological errors and hence failed to properly interpret their own data. By correcting these errors, Means showed that the new data in fact supported the 'truncated' version of the administered-price thesis, and the 'full' version as well! First, Stigler and Kindahl identified the period between January 1960 and November of 1966 as a period of *cyclical* recovery while the data indicated that the cyclical recovery in fact ended in March of 1962 and was followed by 56 months of a non-cyclical expansion. Second, of the 63 commodities for which NBER data were actually provided, 13 were either produced in competitive markets or had a substantial portion of their input costs determined in competitive markets for raw-materials. Third, by classifying individual indices according to their *average* change over the two recoveries or two recessions rather than according to their behaviour in *each* of the 4 periods,

Stigler and Kindahl attributed uniform 'tendencies' to many commodities which in fact exhibited none. (For example, a commodity for which the price moved pro-cyclically in one expansion and counter-cyclically or not at all in the second expansion should not be said to have a 'tendency' based on its *average* price change over the two expansions.) In reexamining the NBER data, Means concentrated on the 50 commodities which were relevant for the administered price thesis, restricted himself to periods of unambiguous cyclical movements and considered each of the 4 cyclical phases in isolation. The indices for these 50 commodities had 200 opportunities to change over the 2 contractions and 2 recoveries and in 69 percent of these cases their changes conformed with the 'truncated' version (Means, 1972, Table 1, p. 296). Means also used another classification in which he separately defined indices that either moved counter-cyclically or did not move at all in 3 or 4 of the cyclical movements as 'tending to support the truncated version,' from those indices which move pro-cyclically in 3 or 4 of the cyclical movements as 'tending not to support the truncated version.' A test based on this classification indicated that 60 percent of the indices tended to support the 'truncated' version, 36 percent were neutral and only 4 percent tended to reject it. These data also supported the 'full' version when Means accounted for relative price inflexibility (Table 2, p. 296). The 'neutral' indices (36 percent of the total) which showed no tendency to either support or reject the 'truncated' version according to this test, dropped by an average of only 2 percent in the two contractions compared with close to 7 percent for the 13 market-dominated indices excluded from the sample. In the two recoveries, market-dominated indices increased by 3.5 percent, while the average for the neutral indices *declined* by 0.8 percent! Means (p. 297) also reviewed the analysis by Stigler and Kindahl for specific cycles. The authors had examined price movements for specific commodities in 66 instances where the demand for these individual commodities experienced a sharp cyclical change. According to the data, price behaviour in 85 percent of the cases supported the 'truncated' administered price thesis, yet Stigler and Kindahl described this test as a 'relatively unsuccessful investigation,' characterized its results as 'unprepossessing' and failed to even mention them as part of their main findings![8]

[8] For more on the debate, see Blair (1972, pp. 461-6), Moore (1972), Ross and Wachter (1973) and Stigler and Kindahl (1973).

The debate over the adequacy of BLS data was complicated by further questions. Blair (1956, p. 429) argued that secret rebates need not be limited to administered prices and could be found in market prices as well. In other words, BLS data could be underestimating the true extent of price flexibility for *both* types of prices and in order to test whether or not administered prices were *relatively* inflexible we needed to compare transaction data for the two indices. To refute Means' thesis, one had to show not only that actual administered prices were 'flexible' but also that they were *as flexible as actual market prices*. Of even greater consequences for the debate was the emergence since the 1950s of significant *counter-cyclical* price movements during downswings. The development was particularly disconcerting for those who considered administered prices to be a statistical mirage, for the occurrence of this new phenomenon effectively invalidated their argument. As Adams and Lanzillotti noted, one could reasonably speculate that, facing a recession, companies would reduce their quoted prices by less than they reduce their actual prices, but it was not very convincing to argue that as demand fell, firms *raised* their list prices only to compensate for such increases by even larger secret rebates and discounts.[9]

In general, attempts to deny the existence of administered prices or their 'perverse' behaviour were more reassuring than convincing.[10] The criticisms, particularly when voiced by eminent economists, helped to reduce the anxiety and justify the continued theoretical neglect of the issue, but

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[9] On this Adams and Lanzillotti wrote: '[If] Stigler is correct about the illusion of quoted prices, why in the spring of 1962 did United States Steel not simply raise its transaction prices to the level of its quoted prices? Why did Roger Blough, who is certainly conversant with the facts of life in the steel industry, insist on raising a fictitious price? Did he not know that a simple revision of transaction prices would have served his purpose and also saved him from detection by the B.L.S. (and its henchmen)? In short, given Stigler's model, Mr. Blough was either a fool or a provocateur, hankering for a joust with the President of the United States. Both these interpretations of Mr. Blough's behavior tax credulity' (88the Cong., 1st Sess., Senate Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, *Administered Prices: A Compendium on Public Policy*, 1963, pp. 6-7). Quoted in Blair (1972, p. 436).

[10] For example, Weiss (1977) concluded that over long period of times, the Wholesale Price Index of the BLS, the 'realization' price index based on the Census of Manufacturing and the buyers' index developed by the NBER were highly correlated and conveyed the same *general* movements. Coutts, Godley and Nordhaus (1978) compared list and transaction prices for non-food manufacturing industries in the U.K. and concluded that 'There was little evidence found to support the view that the wholesale price indices, being composed of listed quotations, do not accurately measure transaction prices' (p. 138).

never succeeded in eradicating it.[11] Continued concern with administered prices was also fuelled by a related debate which began at about the same time and which focused on how individual firms actually set their prices.

3.3 'Full-Cost' Pricing

While Means (1935a) initiated a controversy over 'price behaviour,' the Oxford Economists' Research Group, and in particular Hall and Hitch (1939), helped to launch a related debate over 'business behaviour.' The conventional theory of the firm, argued Hall and Hitch, stipulated that firms attempted to maximize their profits and that they did so by choosing the output-price combination (or output in the case of perfect competition) such that marginal revenue was equal to marginal cost. This approach yielded theoretical solutions for equilibrium in the case of pure competition, pure monopoly or monopolistic competition, but when the structure was oligopolistic or when monopolistic competition was mixed with oligopoly, the theoretical method broke down. In those latter instances, interdependency between firms meant that individual demand and marginal revenue curves were indeterminate and, hence, could not be used to determine the output-price combination for maximum profits. Economists commonly chose either to ignore the difficulty by considering oligopoly as an 'exception' or to bypass it by using some ad-hoc explanations. According to Hall and Hitch, these two solutions were directed toward the wrong problem. In their opinion, the interesting question was not so much how firms *should* set their price and output in order to maximize profit, but whether firms *indeed* set prices and output in order to maximize profit. Their concern was not with what firms *ought* to be doing but rather with what they were *actually* doing.

In an attempt to address this latter question, Hall and Hitch conducted interviews with 38 British entrepreneurs of which 33 were involved in manufacturing, 3 were retailers and 2 were builders. Based on these interviews, they pointed to a wide gap between the presumptions of conventional analysis

[11] Commenting on the title of Blair's article, 'Administered Prices: A Phenomenon in Search of a Theory,' Bailey (1959, p. 460) brushed aside the entire debate as irrelevant and suggested it was in fact 'A Theory in Search of a Phenomenon.' Since then the phrase has been often cited as a summary statement on the insignificance of administered prices.

and the reality of business practices:

> For the above [neoclassical] analysis it is necessary that entrepreneurs should in fact (a) make some estimate (even if implicitly) of the elasticity and position of their demand curve, and (b) attempt to equate estimated marginal revenue and estimated marginal cost. We tried, with very little success, to get from the entrepreneurs whom we saw, information about elasticity of demand and about the relation between price and marginal cost. Most of our informants were vague about anything so precise as elasticity, and since most of them produce a wide variety of products we did not know how much to rely on illustrative figures of cost. In addition, many, perhaps most, apparently make no effort, even implicitly, to estimate elasticity of demand or marginal (as opposed to average prime) cost; and of those who do, the majority considered the information of little or no relevance to the pricing process save perhaps in very exceptional conditions. (p. 18)

It seemed that the *theoretical* distinction between monopoly or monopolistic competition (where the demand curve facing the firm was assumed to be known) and oligopoly (where the individual demand curves were indeterminate) was not very important for the issue of *practical* price determination. In reality, businessmen operating in all of these markets simply did not 'know' their demand curve and, furthermore, they did not care to 'discover' this demand curve even when they could have done so:

> Only where oligopoly elements are present is the demand curve 'indeterminate' in the economist's sense, but in the other cases it is *unknown to the entrepreneur*, and *this seems to be the essential point*. It is true that in the case of monopoly or monopolistic competition the possibility of finding his demand curve by experimenting is open to the entrepreneur; but there are objections to experimentation, and the prospect of a quiet life seems in many cases to have a greater appeal. (pp. 30-1, emphases added)

The revelation that firms neglected their demand led to an even more 'stunning' conclusion, namely, that firms did not try to maximize their profits as suggested by standard theory:

> The most striking feature of the answers was the number of firms which apparently *do not aim* in their pricing policy, at what appeared to us to be the maximization of profits by the equation of marginal revenue and marginal cost. (p. 18, emphasis added)

Instead of equating marginal revenue and marginal cost in an attempt to maximize profits, Hall and Hitch (p. 18) suggested that businessmen were 'thinking in altogether different terms.' While under certain circumstances, pricing behaviour could be explained by reference to 'long-term' profit maximization, in most cases businessmen applied a simple 'rule-of-thumb' which Hall and Hitch called 'full-cost' pricing:

> The formula used by the different firms in computing 'full cost' differ in detail . . . but the procedure can be not unfairly generalized as follows: prime (or 'direct') cost per unit is taken as the base, a percentage addition is made to cover overheads (or 'oncost', or 'indirect' cost), and a further conventional addition (frequently 10 per cent.) is made for profit. Selling costs commonly and interest on capital rarely are included in overheads; when not so included they are allowed for in the addition to profits. (p. 19)

Firms justified their submission to the practical norm of 'full-cost' pricing in a variety of different ways. Some argued it was the 'right price,' other considered its application as a 'fair' practice toward their competitors, while still others noted that experience 'proved its advisability.' When asked why they did not charge a price higher than that implied by the 'full-cost' principle, most entrepreneurs cited their uncertainty regarding the response of competitors. When requested to explain why they would not charge a price lower than 'full-cost,' the businessmen mentioned primarily the fear that competitors would match the lower price, the unresponsiveness of demand and moral objections to selling below costs. As reasons for not changing prices (however fixed), businessmen explained that they wished not to 'disturb' the stability of market prices and also that buyers had a 'conventional' price in mind and 'disliked' price changes. Hall and Hitch (p. 22, emphasis added) felt that 'All of these reasons militate against *changing* the price from the conventional level,' yet they stressed that the 'full-cost' principle was insufficient to explain this 'conventional level' itself.

The simplicity of the 'full-cost' principle was potentially deceiving. 'It would be useful for economic analysis,' Hall and Hitch (p. 19-20) wrote, 'if the magnitude of "full cost" in any case could be deduced from the technical conditions of production and the supply prices of the factors,' but in practice this was impossible for four principal reasons. First, costs varied with the size of the firm but firms were rarely operating at an 'optimal' size which economists could presumably determine; instead, their size apparently was the consequence of a 'historical accident' which economists found very difficult to 'predict.' Second, overhead cost per unit depended on the 'normal' output level used as a divisor in the 'full-cost' formula, but this benchmark for output was set by arbitrary accounting conventions. Third, selling expenses were included in costs but were often depended on demand. Fourth and most importantly, the way in which entrepreneurs set the magnitude of 'conventional' profit, or the reasons why they changed it were not at all clear.

For the businessmen, the 'full-cost' principle was a straightforward technical matter yet, because of the many 'arbitrary' factors involved, the economist could not anticipate the final price with any reasonable accuracy. Surprisingly, then, getting closer to reality did not seem to enhance our understanding of the pricing process. Hall and Hitch questioned the usefulness of neoclassical price

theory because its preoccupation with what firms ought to be doing turned this theory into a *normative* doctrine. They suggested we explain prices by embarking on a *positive* scientific inquiry into actual pricing decisions made by real businessmen but, unfortunately, substituting the businessman's practice for the economist's postulate did not seem to solve the price question. The explanation provided by businessmen appeared 'arbitrary' and were hardly more revealing than the theories of neoclassical economists. Instead of adhering to rigid pricing procedures shaped by necessity, entrepreneurs seemed to follow loose 'conventions' and 'norms of conduct' which did not appear to have a solid 'objective' rationale. Hall and Hitch discarded the normative approach embraced by economists, but their own 'full-cost' principle seemed to reflect the normative ethic adopted by businessmen.

One could have removed the deadlock by seeking psychological explanations for the behaviour of businessmen but this, of course, would have constituted a retreat from the empirical road into the normative twilight. Instead, Hall and Hitch (p. 33) emphasized that 'There is usually some element in the prices ruling at any time which can only be explained in the light of the history of the industry.' The rule-of-thumb for pricing included conventions on what constituted 'normal output,' conventions on how to estimate costs, conventions on how to react or cooperate with competitors and, most importantly, conventions on how to set 'adequate' profit margins. Yet these conventions were shaped by *history*, not by the erratic fancy of businessmen and only by accounting for the specific historical evolution of these conventions could one hope to shed some light on current prices.

The totality of beliefs and conventions prevailing in any one time were encompassed in what Hall and Hitch (p. 28) called the 'community of outlook' of businessmen, and it was within this context that 'full-cost' pricing reinforced a tendency toward price stability:

> We cannot say precisely what this price will be, for reasons already explained; if it is set anywhere over a fairly wide range it will have a tendency to stay there. The nearest that we can get to an exact statement is that the price ruling where these conditions obtain is likely to approximate to the full cost of the representative firm; and that this price is reached directly through the *community of outlook* of business men, rather than indirectly through each firm working at what its most profitable output would be if competitors' reactions are neglected, and if the play of competition then varied the number of firms. (pp. 27-8, emphasis added)

In a similar way, price instability was not a direct consequence of changes in underlying conditions but was rather created indirectly when such changes led individual entrepreneurs to question the prevailing 'community of outlook':

> Prices in an industry become 'unstable' as soon as any of the competitors form an idea of a profitable price which is markedly different from the existing prices. (p. 28)

'Full-cost' pricing implied that prices would likely be altered in response to significant changes in the cost of labour or raw material but that, normally, businessmen would not question the existing price structure as a result of moderate or transitory changes in demand. As Heflebower (1955, p. 361) indicated, the new heresy of 'full-cost' pricing provided an appealing explanation for relative price stability during the Depression, especially after the findings of Hall and Hitch were supported by subsequent studies like Saxton (1942), Lester (1946), Dean (1951) Oxenfeldt (1951), Fog (1960), Cyert and March (1963) and Skinner (1970).[12] Nevertheless, the imprecise nature of the new approach left it open to criticism from mainstream economists who were quick to respond.

3.4 The Marginalists' Counterattack

The proposition that businessmen did not try to maximize their profits but rather were content with the quiet life of 'full-cost' pricing was not universally accepted by economists. Leading the neoclassicists' counterattack, Machlup (1946) argued that the rejection of marginal analysis by empirical researchers such as Hall and Hitch (1939) and Lester (1946) was in fact baseless.[13] In his opinion, Hall and Hitch and their followers erred because their research suffered from one or more of the following shortcomings: (1) a failure to properly understand the essence of marginal analysis, (2) faulty research techniques, and (3) mistaken interpretations of empirical 'findings.' Let us consider these criticisms in some detail.[14]

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[12] For surveys of 'full-cost' pricing, see Heflebower (1955) and Silberston (1970).

[13] Similar criticisms of 'full-cost' pricing appeared in Robinson (1939) and Kahn (1952).

[14] For further replies and rejoinders see Lester (1947), Machlup (1947) and Stigler (1947). Later comments can be found in Machlup (1967).

According to Machlup (p. 521), the emphasis Hall and Hitch put on the 'history of the industry' in determining current conditions and in shaping behaviour was 'by no means denied by marginal analysis.' Contrary to common beliefs, he insisted, neoclassical theory recognized the role of history and, hence, did not really seek to explain how an individual firm determined the *levels* for its output, prices and employment. Rather, the theory focused on how the firm *altered* these variables in response to changing conditions. The overriding principle which guided the firm in its actions was the aim of maximum profit and marginal analysis was merely a *technique* used to achieve this goal.

Machlup emphasized that the procedure whereby the firm equated marginal revenue and cost must be interpreted with great care. First, the magnitudes for the relevant variables were 'subjective estimates, guesses and hunches.' They reflected the perceptions, opinions, and beliefs of the businessman and were not necessarily equal to the corresponding 'objective' magnitudes as they might be observed by 'outside' parties. Second, the businessmen need not be engaged in tedious data collection and complicated calculations in order to equate marginal revenue and cost. In most cases he could rely on his intimate knowledge of his own business and follow an imprecise 'routine' which nevertheless accounted for all crucial factors:

> The business man who equates marginal net revenue productivity and marginal factor cost when he decides how many to employ need not engage in higher mathematics, geometry, or clairvoyance. Ordinarily he would not even consult with his accountant or efficiency expert in order to arrive at his decision; he would not make any tests or formal calculations, he would simply rely on his sense or his feel of the situation. There is nothing very exact about this sort of estimate. On the basis of hundreds of previous experiences of a familiar nature the business man would "just know," in a vague and rough way, whether or not it would pay him to hire more men. The subjectivity of his judgements is obvious. (p. 535)

Thus, contrary to the inference of Hall and Hitch (1939) and others, the observation that businessmen could not or simply did not know all the objective data, and the fact that they did not perform complicated computations failed to demonstrate that firms did not *seek* to maximize profit.

Hall and Hitch further suggested that entrepreneurs did not make use of concepts such as 'demand elasticity,' 'marginal revenue' and 'marginal cost,' and in many cases did not even understand them but, according to Machlup, this also did not invalidate the standard theory. While entrepreneurs might have failed to understand the marginal concepts as presented to them by Hall and Hitch, they

have not necessarily failed the crucial test of marginalism. The marginal theory did not stipulate that businessmen must use the *jargon* of marginal analysis as developed by economists, only that they follow the marginal *principles*. Businessmen had no interest in the equality of marginal cost and revenue per se but only insofar as it helped them evaluate how their action might affect total profit. For that purpose they could also use many other guidelines which, although expressed in a different language, had practically the same meaning. For instance, a firm might decide to raise its price because it expected unit profit to rise by a greater percentage than the fall in quantity sold. The decision was based on 'averages' and 'totals' yet the logic was *marginal* for the focus was on the expected *change* in profit.

Given that Hall and Hitch misunderstood the thrust of marginal analysis, and given that they baffled the entrepreneurs with academic jargon, it was hardly surprising that the two researchers also derived erroneous conclusions from their data. To explain this latter point, Machlup (p. 545) summarized the findings of Hall and Hitch in their own words:

> "A large majority" of them [of businessmen] explained that they charged the "full cost" price. Some, however, admitted "that they might charge more in periods of exceptionally high demand"; and a greater number reported "that they might charge less in periods of exceptionally depressed demand." Competition seemed to induce "firms to modify the margins for profits which could be added to direct costs and overheads." Moreover, "the conventional addition for profit varies from firm to firm and even within firms for different products."

According to Machlup (*ibid.*) these findings, which apparently 'shook the researchers' confidence in the marginal principle and convinced them that business men followed the "full cost principle" of pricing regardless of profit maximization,' were exactly what one would expect to hear on the basis of *marginal* analysis! Indeed, in the neoclassical framework:

> we should expect for most industries that price in the long run would not deviate too much from average cost, yet that the firm would attempt to get better prices when it could safely get them and would not refrain from cutting prices when it believed that this would increase its profit or reduce its losses. (*ibid.*)

The observation that different firms behaved differently and that their experience also vary over time proved, in Machlup's opinion, that firms paid close attention to variables other than average cost and, in particular, to those variables which affected their demand. In general, he summarized,

> there is little or nothing in the findings of this inquiry [by Hall and Hitch] that would indicate that the business men observed an average-cost rule of pricing when such observance was inconsistent with the maximization of profit principle. On the other hand, there is plenty of evidence in the findings that the business men paid much attention to demand elasticities -- which to the economist is equivalent to marginal

revenue considerations. (p. 546)

Marginalists attacked 'full-cost' pricing on methodological grounds and hence it is interesting to note that their own criticisms suffered from similar methodological shortcomings. One important complaint against Hall and Hitch was that views of businessmen were no substitute for economic theory. Kahn (1952, p. 126), for instance, stated that

> the fundamental doubt is whether these business men, and other business men in similar predicaments, did not feel called upon to devise and present to the Oxford intellectuals, a theory of business behaviour which is primarily a rationalization and, in considerable measure a false rationalization of behaviour based on instinct rather than reasoning. It is with business men's behaviour not with their thoughts, that we have to reckon. The economic *theory* of a business man may be based on the concept of a *fair price*, which is the price which, it is believed, in the absence of special circumstances, *ought* to rule. But very often this theory is a theory of ethics rather than of economics, and the business man takes the best price that he can get (through if this is higher than the fair price he may be reluctant to extort it to the full).

The marginalists rejected the explanations of businessmen for 'full-cost' pricing as mere 'ethics,' 'rationalization' and even 'false rationalization,' yet their dismissal of evidence appeared to be quite selective. When the same businessmen reported on *deviations* from 'full-cost' pricing, Kahn and Machlup were only too eager to cite them as decisive confirmation of profit maximization. The basis for this selective use of evidence is not clear. Machlup (p. 538) wrote that 'It takes an experienced analyst to disentangle actual from imaginary reasons and to separate relevant from irrelevant data and essential from decorative bits of information furnished,' but he failed to enumerate the criteria he himself followed in screening the evidence provided by Hall and Hitch. If, as Kahn so forcefully asserts, we have to reckon with 'behaviour' rather than 'thoughts' then *every* interpretation provided by businessmen -- whether it is consistent or inconsistent with the economic theory under examination -- is simply extraneous for our purpose.

Beyond this double standard toward evidence, the citation from Kahn raises an even more serious difficulty concerning our ability to prove or refute the norm of profit maximization. A 'historical' approach to economic theory could emphasize forces beyond the particular inclinations of individuals and claim that, to a large extent, individual opinions and convictions are shaped by these forces. Hence, the empirical basis for testing such a historical theory for prices can indeed be independent from the 'business creed.' This conclusion does not hold for neoclassical price theory, however. The latter is a

theory based on *motivation* and as such can be tested only by resorting to direct evidence on motivation. To say that business behaviour is governed by the *aim* of maximum profit and then to argue that the stated goals of businessmen cannot be used as evidence in testing the theory seems to us quite inconsistent. Without such direct evidence on motivation, the neoclassical theory of profit maximization amounts to either a normative recommendation for businessmen on how they *should* act, or else it is simply an axiomatic construct.

The marginalists could of course claim that, while they did not have direct support for the motivational theorem of profit maximization, the observation of business performance could provide an indirect test for this basic neoclassical postulate. This, however, is easier said than done. For example, Kahn (1952, p. 127) concludes that observed performance does not lend clear support to either 'full-cost' pricing or profit maximization:

> The *actual* behaviour of prices and profits -- as revealed by comparisons of different firms and products and of different points of time -- fails to support the "full-cost" principle in its undiluted form. But it fails equally to support, in its undiluted form, a narrow interpretation of the operation of the profit motive. (emphasis added)

Yet the bases for such conclusions are not clarified by Kahn. We do not have an empirical yardstick for 'maximum profit' so we cannot really determine whether firms obtained this maximum or not. Furthermore, we cannot use business performance as evidence for business motivation. Even if we somehow knew what maximum profit were and even if we observed that firms indeed *obtained* this maximum, there would be nothing in this observation to demonstrate that firms *sought* maximum profit. Firms could obtain maximum profit by accident or even despite their efforts to attain another goal. Alternatively, firms could strive toward maximum profits but persistently fail to achieve them. In short, the goal for maximum profit can be demonstrated by interviews with businessmen or can be simply stipulated by the economist, but it cannot be proven or refuted by business performance.

The second important criticism against Hall and Hitch was that businessmen acted not on the basis of objective circumstances, but rather on the basis of their own subjective interpretations of these conditions. In particular, it did not matter that entrepreneurs did not know the objective demand curve as long as they acted on the basis of their subjective notion of that curve. This explication of the neoclassical theory is also problematic because profit maximization becomes consistent with *every* course

of action. If, facing an increase in demand, businessmen increase their prices we can argue that profit maximization is vindicated, but we can derive the same conclusion if businessmen lower their prices instead! In this latter case, we can simply argue that businessmen attempted to maximize profits on the basis of erroneous interpretations of current conditions. If for some reason they believed that demand fell or was just about to fall, a policy to reduce prices would have been quite consistent with profit maximization, despite the 'objective' increase in demand. Thus, it would appear that when profit maximization is based on subjective perceptions of businessmen and when these perceptions cannot be accurately observed because we cannot rely on what businessmen tell us, the theory becomes irrefutable.

Both adherents of 'full-cost' pricing and advocates of profit maximization argued that their theories explained business behaviour. They also acknowledged that these theories could not be used to predict prices. According to Robinson (1966), the two doctrines faced the same barrier mainly because they were unable to explain the *profit margin*. In the 'full-cost' approach, price was determined by adding to observed unit cost a certain profit markup but this addendum was admittedly 'arbitrary':

> The gross profit margin, or rake-off on price cost . . . probably depends very much upon historical accident or upon conventional views among business men as to what is reasonable. And any conventional pattern of behaviour which established itself amongst an imperfectly competitive group provides a stable result. So long as all adhere to the same set of conventions each can enjoy his share of the market, and each can imagine that he is acting according to the strict rules of competition, though in fact the group as a whole, by unconscious collusion, are imposing a mild degree of monopoly upon the market. . . . Where outright monopoly rules, or where a group of commodities is produced by a few powerful firms, there is great scope for individual variations in policy, and it is hard to make any generalization at all as to what governs the margin of profit per unit of output. (Robinson, 1966, pp. 78-9)

For the neoclassicists, on the other hand, the price was determined when the businessmen attempted to maximize his profit by equating marginal revenue and marginal cost. The magnitudes for marginal revenue and cost, however, were not as clear in practice as they were in theory. The businessmen did not use the 'true' value from marginal revenue but rather his subjective interpretation for it. Furthermore, marginal cost included, in addition to observed expenses, an unspecified figure of 'normal' profit which the entrepreneur presumably added to cover his 'opportunity cost.' With both marginal revenue and cost thus obscured, the explanatory power of the theory was dramatically reduced. By using observed costs and *ex-post* prices, we could still predict the subjective elasticity of demand but, in doing so, we merely explained what we were supposed to know by using what we were supposed to explain!:

> The gross profit margin, however it is determined, can always be expressed in terms of a formula $e/(e\text{-}1)$ [where e denotes the elasticity of demand]. For instance, if, in a certain case, price is found to be equal to prime cost *plus* 50 per cent of prime cost, we may say that the producer concerned acts as though he believed the elasticity of demand in his market to be equal to 3. But by saying so, we add nothing whatever to our knowledge of how the gross margin is determined. (Robinson, 1966, p. 78)

This led Robinson to ponder the dismal prospects of ever answering the 'first problem' of economics:

> All this makes a serious breach in the smooth surface of the orthodox theory of value, and it seems that economic science has not yet solved its first problem -- what determines the price of a commodity? (p. 79)

3.5 The 'Target' Rate of Return

Although the marginalists insisted that 'full-cost' pricing was no more than the everyday incarnation of profit-maximization policy, sceptics continued to look for alternative, hopefully more plausible explanations for 'rule-of-thumb' pricing. One of the first serious studies on pricing objectives of large U.S. firms was conducted by Kaplan, Dirlam and Lanzillotti (1958) as part of their Brookings Institution research on *Pricing in Big Business*. Based on this investigation, Lanzillotti (1958) tended to reject both the notion that pricing was motivated by an effort to 'maximize profit' and the idea that firms simply followed 'conventions.' Instead he suggested that, in many big companies, 'full-cost' pricing was adopted as part of a broader strategy to obtain a 'target' rate of return on investment.

Kaplan, Dirlam and Lanzillotti conducted interviews with officials of 20 large U.S. companies.[15] At the time, all of these firms were among the 200 largest industrial corporations and over 10 were among the 100 largest corporations. Some (like Johns Manville, U.S. Steel, International Harvester and Union Carbide) were dominant price leaders, while others (like Swift and A&P) faced tough competition and, despite their large size, could not 'decide' for the market. The remaining companies fell between these two extremes. Company officials were asked detailed questions concerning formal and informal commercial goals, procedures for implementing and evaluating goals, techniques of price setting, and functions of pricing executives and committees. When asked about their pricing objectives,

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[15] Alcoa, American Can, A&P, du Pont, General Electric, General Food, General Motors, Goodyear, Gulf, International Harvester, Johns-Manville, Kennecott Copper, Kroger, National Steel, Sears, Standard Oil of Indiana, Esso, Swift, Union Carbide and U.S. Steel.

officers often cited several goals but in over 10 of the 20 firms surveyed, the primary objective was to achieve a target rate of return. According to Lanzillotti (1958, p. 923fn),

> Target-return is defined as the building up of a price structure designed to provide such a return on capital employed for specific products, product groups, and divisions, as to yield a predetermined corporate average return. In most cases management referred to stockholders' equity (net worth) plus long-term debt. Usually, a standard cost system is used as a means of allocating fixed cost to various product divisions, with the standards premised on an assumed rate of production, typically about 70 per cent to 80 per cent of capacity, and an assumed product-mix as "normal."

Kaplan *et al.*, it should be noted, were not the first to unveil the practice of target-return pricing. The essential aspects of this pricing practice were described already in the early 1920s by Brown, who was a vice president of General Motors at the time. Brown (1924) explained that General Motors customarily began with a target of achieving a 20 percent rate of return on stockholders' equity and geared its pricing policies toward that end. The price calculations were based on the assumption of a certain 'standard' volume of production (usually 80 percent of practical annual capacity which represented the 'normal average rate of plant operation'). Cost items were classified as being either variable or fixed and the corresponding average cost per unit were determined by dividing the total figures by the 'standard' volume. Unit profit was similarly determined by dividing the target for total profit by the 'standard' volume. The 'benchmark' price was then set as the sum of unit variable cost, unit fixed cost and unit profit. Brown noted that although fluctuations in actual production would affect unit fixed cost, it was not really practical or even desirable to alter the price whenever there was a change in production in order to continuously maintain the profit margin at the pre-specified level. Since output was expected to oscillate around the 'standard' volume, maintaining the 'benchmark' price despite fluctuations in production would enable the firm to achieve its target as an *average* rate of return over time. Hence, in this early explanation, Brown already provided a simple rationale for both the practice of 'full-cost' pricing and for the relative inflexibility of 'administered prices' which were to be discovered by economists more than a decade later.

In 1955, Bradley who, together with Brown, developed the target-return method for pricing in General Motors testified in front of a Congressional committee that the same principles were still

vigorously applied by his company.[16] The research by Kaplan *et al.* (1958) and the summary by Lanzillotti (1958) were important because they indicated that a target rate of return has been a principal pricing objective not only for General Motors, but for many other leading U.S. firms as well. The studies were significant also because they pointed to certain *limitations* on what we could learn from exploring pricing 'objectives.'

Lanzillotti (1958) emphasized that pricing toward a target rate of return was a primary objective only for firms which had substantial market power and occupied a price-leading position in their industry. Most other large firms cited alternative goals such as the need to 'meet' (or prevent) competition, the desire to stabilize prices and margins, an aim to realize a certain market share, the wish to resolve conflict of interests between the different firms and a desire not to arouse public protest and prevent adverse political and legal backlashes. In most cases, there was one paramount objective but it was evident that, in many situations, pricing was also influenced by a combination of subsidiary goals. Even when target-return pricing was the dominant objective, it was hard to separate this from other justifications provided by company officials:

> A variety of explanations was given by the companies to justify the particular size of the profit target used as a guide in pricing decisions. The most frequently mentioned rationalizations included: (a) fair or reasonable return, (b) the traditional industry concept of fair return in relation to risk factors, (c) desire to equal or better the corporation average return over a recent period, (d) what the company felt it could get as a long-run matter, and (e) use of a specific profit target as a means of stabilizing industry prices. At least one of the foregoing, and most frequently the first, was mentioned by the companies interviewed, and in a few cases the entire list was offered as justification for the company profit goal. This reinforces the observation that *no single objective* or policy rules all price-making in any given company. In fact, in many companies a close interrelationship exists among target-return pricing, desire to stabilize prices, and target market-share (either a minimum or a maximum objective). (p. 931, emphases added)

The complexity of these considerations indicated that knowing the objectives of the firm still provided the economist with little or no clue about the *causes* for adopting these objectives.

The key question of what determined the target rate of return remained open and Lanzillotti suggested that this target and the pricing practices used to achieve it were determined together with the

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[16] Bradley's testimony is included in 84th Congress, 1st Sess., Senate Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, *Hearings on General Motors*, 1955, Pt. 7, p. 3593, and is reported in Blair (1972), p. 470.

firm's investment decisions. He began his explanation by noting that large firms appreciated the complexities of modern business and paid close attention to their implications. These companies realized the delicacy of their dealings with external suppliers and customers, as well as the complexity of interrelationships between the various units within the firm itself. They also acknowledged the intricacy of corporate rivalries in individual markets and in the economy as a whole. Furthermore, because of their size, the actions of large firms were potential targets for the media, legislators and the justice system, so the political cost of 'irresponsible' behaviour might far exceed their immediate pecuniary benefits. Finally, all large firms viewed price competition as a dangerous policy alternative that should be avoided as much as possible. Under these circumstances, argued Lanzillotti (p. 936), business executives viewed the *market* as a *creature of the firm*. They felt it was their responsibility to perpetuate the firm's position and to preserve its different relationships. From their perspective, prices should not be left to anonymous and potentially destabilizing 'market forces' and must be set in accordance with a 'pricing policy.'

In this light, the ideal notion of 'profit maximization' took a new meaning. Large firms that sought to 'maximize' profits could not afford to obey erratic market signals and must follow their own price planning. In fact, the stronger the drive for profits and accumulation, the more compelling was the imperative for a *careful pricing policy*. Of course, firms did not have to stress the priority of profit and accumulation. In a corporatist environment where the market was perceived as a 'subset' of the firm, company executives tended to advance a philosophy which stressed 'responsibility,' 'leadership' and 'cooperation' and to present corporate policies as striving for a 'just prices' and a 'fair return.' Lanzillotti noted that company officials habitually claimed that their products faced a wide array of substitutes and that, consequently, their price discretion was in fact minimal. Under these circumstances, the executives argued, the administration of prices by 'price leaders' merely 'approximates the market equilibrium.' Instead of deciding to engage in cutthroat competition (which was a price 'policy' in itself), large firms chose to 'administer' prices and in this sense they provided an advantageous public service. Both price competition and price administration would lead to similar long-run price trends, they contended, but the latter arrangement saved the system from the destabilizing effects of severe price fluctuations.

Lanzillotti rejected this common rhetoric. Price 'leadership,' he argued, could not be taken as a proxy for equilibrium unless we took the latter to denote whatever the firm happened to decide. In his view, the data overwhelmingly demonstrated that firms based their pricing upon '*planned* profits' (p. 938). Instead of 'administered prices' he suggested the concept of 'administered profits' which were set to meet specific investment plans:

> The company proceeds on the assumption of the need for a certain amount of capital to undertake the investment in plant expansion and new facilities which are envisaged for the long haul in order to maintain and/or improve market position. . . . The only way in which price policy can be viewed in such companies as these, with their wide variety of products and selling in a large number of different markets, is in terms of profits-investment ratios. This criterion serves as an effective guide for pricing decisions at divisional and departmental levels. If we are to speak of "administrative" decisions in the large firm, it is perhaps more accurate to speak of administered *profits* rather than administered *prices*. (p. 938)

Yet the administration of profit was a process no less complex than the administration of prices. Lanzillotti argued further that

> (a) the large company has a fairly well defined pricing goal that is related to a long-range profit horizon; (b) its management seeks -- especially in multiproduct operations -- a simultaneous decision with respect to price, cost and product characteristics; and (c) its pricing formulas are handy devices for checking the internal consistency of the separate decisions as against the general company objectives. Under this hypothesis no single theory of the firm -- and certainly no single motivational hypothesis such as profit maximization -- is likely to impose an unambiguous course of action for the firm for any given situation; nor will it provide a satisfactory basis for valid and useful predications of price behavior. (*ibid.*)

This suggested that the debate over administered prices was partially misdirected. The notion that prices were stable or 'inflexible' because they were based on rigid pricing procedures was potentially misleading because these procedures were themselves subject to change. This point was clarified by noting the bureaucratic dichotomy between middle and top management:

> Managerial specialists down the line are given a framework of requirements that must be met, while managers at the top, of course, are free to and do change these requirements to meet particular situations. (p. 939)

The recognition that firms may have a complex set of objectives and that these are inherently dynamic presents a serious methodological difficulty if we want to use such objectives as bases for price theories. Many company executives candidly endorse corporatist ideals whereby pricing procedures reflect 'responsibility' and 'leadership,' but this rhetoric does not provide the researcher with much insight. More importantly, the way in which firms determine their 'requirements' for expansion and profit must

be understood as part of a dual process. While corporate decisions may affect the performance of firms, these decisions themselves are formulated in the context of the firm's own history and the general business climate. Corporate *objectives* may guide the short term behaviour of large firms but these objectives themselves will be continuously modified by actual *performance* and corporate projections regarding the firm's evolving environment. In this sense, the success or failure in achieving company objectives -- whether they are formulated to 'maximize profits' or to achieve a 'target rate of return' -- can never be tested because the causal relationship between any such goal and its realization is *double sided.*

With this in mind, it is hardly surprising to find that large firms 'succeed' in meeting their 'targets.' For example, Blair (1972, p. 482-93) compared the target and actual rates of return for a group of 5 leading companies over the 16-year period between 1953 and 1968. (The group included General Motors, U.S. Steel, Alcoa, Standard Oil and Du Pont.) He concluded that 'Over the 16-year period the success of the 5 leaders in meeting their profit objectives is little short of remarkable' (p. 482) but this, of course, does not establish a clear line of causality between target and actual rates. Under stable conditions, targets rarely change simply because they are achieved, but under dynamic conditions firms might be tempted to alter their targets in light of new circumstances or can be compelled to do so in order to accommodate new realities. For instance, during the 1950s, U.S. Steel apparently attempted to raise its target rate of return from 8 to 12 percent but subsequently it had to reverse this decision when its large price increases were accompanied by an unacceptable fall in volume. Another illustration is provided by General Motors. The company, which from the 1920s has managed to realize an average target rate of return of 20 percent, had to reduce its target in face of intensified competition since the 1970s. In both of these cases, it appears the target was amended, at least in part, in order to enable the firm to successfully achieve it. Hence we should not be surprised to find that the firms succeeded in meeting revised targets.

3.6 The Anthropology of Business Behaviour: An Interpretation

The ideas of 'administered prices,' 'full-cost pricing' and 'target rate of profit' seemed to have undermined simplistic convictions about business behaviour. The ambiguity was intensified when prominent neoclassicists, in an attempt to shield their paradigm, introduced 'subjectivity' into profit maximization and 'confessed' that the theory was not intended to explain the actual price but only the direction of its movement. The heightened debate over how businessmen 'behaved' questioned the usefulness of adhering to a single 'ideal type.' It was suggested that firms did not necessarily obey an *externally* imposed goal, such as the achievement of maximum profit and, in many cases, followed their *own* objectives which they defined and occasionally altered. Furthermore, it appeared that business behaviour in general, and pricing practices in particular, did not always conform to unique *procedures* and could not be described by simple *mechanisms*. This presented a serious methodological difficulty for the theory of price movements.

The success of neoclassical price theory was contingent, to a large extent, on the ability of this theory to abstract from underlying dynamics of economic and other social relations. The focus on price as the ultimate variable of interest was required in order to reduce social relations and aspects of economic structure into a simple static framework. Firms are commonly assumed to operate in one of 4 possible market structures, which are fixed for the purpose of analysis. The structure affects the way firms set their prices but, since this structure is assumed to be fixed, it cannot be altered by price behaviour. Note that the static framework is not merely the first step toward a broader dynamic theory as neoclassicists often like to stress. If we allow price behaviour by firms such as IBM, General Motors or Exxon to alter the economic environment in which they operate, we introduce a fundamental 'non-stationarity' that is likely to undermine our ability to 'predict' such price behaviour. For this reason, the assumption that structure affects prices but prices do not affect structure is quite fundamental to neoclassical theory. This stationarity requirement also explains why it is necessary to assume that a businessman is a slave to a single fixed goal such as 'profit maximization.' Without a clear goal, the functional link between objective conditions and price behaviour is severed and prices become 'arbitrary.'

The new ambiguities regarding the autonomy and diversity of business behaviour in modern capitalist economies removed much of the stationarity necessary for a solid price theory. In the neoclassical paradigm, the theorist could ignore the axiomatic nature of 'profit maximization' because this assumption was deeply embedded within the model and was rarely questioned. With the enlarged menu for potential patterns of business behaviour, things became more complicated. The observation that pricing goals and practices were not really fixed and changed with business conditions suggested that we could not ignore structural dynamics in our explanation for prices. It also insinuated that the behaviour of prices could operate to affect underlying structures.

Many economists, it must be noted, failed to realize that the expanding field of 'business anthropology' created a methodological minefield. Instead of shying away from arbitrary assumptions about 'business motivation,' many preferred to ignore the potential hazard and actually welcomed their new freedom to chose. The result has been a flood of alternative models for inflation which could be distinguished mainly on the basis of their arbitrary behaviourial assumptions. We consider some of these models in the following chapters.

CHAPTER 4

INFLATION AND MARKET STRUCTURE

The 20th century was marked by substantial changes in the nature of firms, industries and markets, yet most of these institutional developments left little or no impression on mainstream theories for inflation. Of course, no reasonable macroeconomist would deny that the modern corporation is a far cry from Marshall's 'family firm,' or that the complexity of modern industry is distinct from the simplicity of agricultural markets of early capitalism. Macroeconomists have not disputed that major structural changes occurred but their approaches suggest these and similar developments are simply immaterial for the explanation of inflation. The reason is fairly simple: in order for the aggregate price level to rise, the total demand for commodities must exceed their total supply and, since this requirement is quite independent of underlying structures, the specific nature of such structures is inconsequential for the purpose of analysis. From this perspective, 'perfect competition' should be regarded merely as a convenient instrumental assumption. While inflation might occur in a variety of structures, its ultimate cause is always excess demand and this can be best illustrated by resorting to a competitive framework.

The disregard for real structures and the emphasis on competitive market forces can be explained, to some extent, by noting that the formative years of modern macroeconomics coincided with the long post-war boom in advanced capitalist economies. Growth in that period was always accompanied by rising prices and that seemed to vindicate demand-pull theory. Given these circumstances, it was hardly surprising that most macroeconomists felt they could safely ignore the difficult intricacies of concrete structures and institutions. In this respect, economic growth arrested theoretical progress.

Stagnation, on the other hand, operated as a theoretical catalyst and kept bringing structures and institutions back into the macroeconomic centre-stage. This first happened during the 1930s when, after a half century of neglect for changing structures, the economics profession was woken up by the

clamour of the Great Depression. The discovery that 'administered' or 'full-cost' prices were not very sensitive to demand pressures was sufficiently persuasive as to provide, at least during the 1930s, a serious alternative to the *a*-structural macroeconomic approach promoted by Keynes. Yet at that period, rising prices were hardly a pressing problem and even the *avant-garde* saw no reason to incorporate these new structural insights into a broader theory for inflation. When the Second World War finally revived the economy and inflation started to appear, it was already too late to achieve such a theoretical breakthrough. Encouraged by the brisk post-war growth, macroeconomists forgot recent findings about modern structures. The familiar microeconomic idea of 'excess demand' was now successfully integrated into the aggregate Keynesian framework and provided the necessary explanation for rising prices!

Growth was not continuous, however, and when stagnation or recession reappeared, they again revived interest in structures and institutions. The positive effects of stagnation on structural awareness were felt particularly in the 1950s, when the United States experienced its first bouts of stagflation and, subsequently, during the severe worldwide stagflation of the 1970s and early 1980s. The experience of stagflation produced many explanations and served to heightened the basic difference between structural theories and the macroeconomic approach to inflation. As long as prices were rising with output, macroeconomics had no use for 'superfluous' structural complications. Only when the conventional demand-pull theory failed (that is during periods of stagflation), was there a pressing need for institutional insight. Hence, at the risk of some oversimplification, we can say that, while macroeconomics is geared toward *growth inflation*, structural theories relate primarily to *stagflation*.

The link between stagflation and structure is also evident in macroeconomics itself. As we illustrated in Chapter 2, mainstream explanations for stagflation are invariably based on some institutional amendments to the perfectly-competitive ideal but this *ad hoc* approach is quite different from the one followed in structural theories. While macroeconomists often view most institutional factors as unfortunate *imperfections* which can be ignored once stagflation disappears, structural theorists take such institutions as their *fundamental* starting point.

For that reason, the structural literature on inflation -- though much smaller than its macroeconomic counterpart -- is difficult to review and evaluate. In Chapter 3, we argued that the rejection of neoclassical motivational assumptions created a flood of alternative rules-of-conduct for modern firms. Furthermore, the departure from standard macroeconomic methodology meant that most structural theorists did not feel obliged to 'close' their models. These theorists were commonly preoccupied with one or few 'crucial' questions, such as what created the 'spark' of inflation or how it was 'transferred,' and the broader implications of their explanations were often ignored or left for 'future studies.' While it is not at all clear that such 'openness' is necessarily a deficiency, the relaxation of so-called 'consistency requirements' obviously broadened the range of possible theories. Under these circumstances, even Scherer, a prominent authority on industrial structure, cautioned his readers that 'any attempt to summarize *the* state of knowledge is risky, for virtually every conclusion [regarding the effect of structure on inflation] has been contradicted somewhere' (1980, p. 355).

Our examination of structural theories is intentionally selective.[1] Much of the attendant literature is dominated by the notion of 'markup pricing,' and the different interpretations for this practice provide a convenient basis for classification. Two broad categories can be discerned. The majority of explanations use markup pricing to emphasize the *passive* role of firms in the inflationary process. Another, much smaller, group of theories use markup pricing to suggest that firms play an *active* inflationary role. The bulk of this chapter is devoted to exploring the former category of theories. First, we deal with the way in which firms respond to changes in demand and cost. In the first section, we examine the idea that, given their markup-pricing practices, large firms tend to respond slowly to variations in demand. In the context of long-term growth, this behaviour is said to create a moderate (but persistent) inflationary bias and prices continue to rise even during cyclical recessions. The two following sections deal with the way in which industrial firms respond to cost. The second section explores the underpinning of 'normal-pricing,' a hypothetical framework in which fixed markups are added not to current cost but to 'normalized' cost. The third section develops the 'normal-price' hypothesis further by examining how industrial structure and competition affect the extent of 'price

[1] Surveys of important studies are provided by Blair (1972, chs. 16 and 17), Mueller (1974), Beals (1975) and Dalton and Qualls (1979).

smoothing.' With markups insensitive to demand conditions, 'markup pricing' (in general) and 'normal pricing' (in particular) point to cost as the prime mover of inflation. The fourth section integrates commodity prices into the structural framework for inflation, while the fifth section focuses on the potential impact of labour costs. Proponents of 'cost inflation' often point to the stability of markups as an indication that firms merely pass their cost increases onto the final price. This reliance on stable markups is a double-edged sword, however. Fixed markups are also consistent with the proposition of 'profit inflation' provided the initial rise in profits is followed by subsequent increases in costs. We deal with this idea in the sixth section of the chapter.

4.1 Persistent Demand Inflation: Slow Giants and Unliquidated Monopoly Gains

During the 1950s, economists in the United States were baffled by the increasing significance of counter-cyclical price movements during recessions. The Federal Government tried to 'cool' the economy with restrictive monetary policies, but these were apparently unsuccessful. In an early influential interpretation for the phenomenon, Galbraith (1957) argued that the confusion arose mainly from a basic structural misconception. The divorce of macroeconomics from microeconomic considerations caused policy makers to ignore important heterogeneities in the movement of individual price series and neglect the bearing of market structure on aggregate questions. The positive overall rate of inflation, Galbraith indicated, was affected mainly by prices for steel, steel-mill products, metal products and machinery. Those prices continued to increase despite the slack in activity and substantial excess capacity. On the other hand, prices for commodities such as farm products, synthetic textile products and apparel, behaved pro-cyclically and fell during the recession. According to Galbraith, this contrast in price behaviour during recessions was associated with differences in underlying structures: pro-cyclical price movements were typical to markets which approximated pure competition, while counter-cyclical price changes occurred primarily in markets where oligopolies were dominant.

The situation during the 1950s differed from earlier experience. Many who repudiated suggestions that, during the Great Depression, concentrated industries lowered their prices by less than competitive industries, found it more difficult to ignore how concentrated industries raised their prices

in the midst of recessions (see Chapter 3). Unlike some of his contemporaries who identified oligopolistic inflation as a cost-push phenomenon, Galbraith insisted that price movements in *both* competitive and oligopolistic industries were primarily demand determined. The divergency arose not from cost differences, but rather from a fundamental dissimilarity in the way firms in each industry responded to demand. For a firm operating under perfect competition, the rise in demand appeared as an increase in the ongoing market price. In other words,

> The adaptation of prices to the increase in demand is automatic; in the nature of the competitive market no individual has the power to halt the adaptation. The price adaptation proceeds *pari passu* with the increase in demand; it is completed *pari passu* with the completion of the movement in demand. . . . In sum, in these markets price adaptation to changing demand is *contemporaneous* and, hence always *complete*. In all cases the rate of adaptation is market controlled; none of the aggregate effect is subject to the discretion of the individual firm. (p. 127, emphases added)

Hence, under conditions of pure competition, prices always move pro-cyclically with demand. The situation was different in the case of oligopoly. Here, prices were set by firms and not by the market and, thus, the rise in demand was first revealed to those firms in the form of increased orders or sales. Consequently,

> The price adaptation must always come *later* and as a result of specific entrepreneurial decision. This adaptation is not automatic as in the competitive market; again in all but the most exceptional cases there will be some *time interval*. (*ibid.*, emphasis added)

Based on his assumption of 'delayed response,' Galbraith drew two related conclusions. First, during the interval in which price was adjusted to increased demand, the oligopolist did not maximize his short-term profits. Second, because the price adjustment during the expansion was 'incomplete' (in other words, short-term profits were not maximized) the oligopolist could *and would* continue to raise his price, even when the increases in demand subsided or disappeared:

> With inflation, the demand curves of the firm and industry are moving persistently to the right. Under these circumstances there will normally be an incomplete adaptation of oligopoly prices. Prices will not be at profit-maximizing levels in any given situation, for the situation is continuously changing while the adaptation is by deliberate and discrete steps. This means that at any given time there will ordinarily be a quantum of what may be called *unliquidated monopoly gains* in the inflationary context. The shift in demand calls for a price increase for maximization; since the adaptation is currently incomplete, prices can at any time be raised and profits thereby enhanced. (*ibid.*, emphasis added)

Furthermore, Galbraith argued that 'under quite commonplace conditions the lag in adaptation will be considerable and the unliquidated short-run monopoly gains substantial' (*ibid.*). This assumption was necessary in order for inflation to spill from the upswing over to the downswing. The overall result in

the oligopoly sector was a moderate but continuous inflation throughout the business cycle. Since oligopoly was the dominant sector, the phenomenon overshadowed the different performance of competitive industries and appeared also as a macroeconomic anomaly.[2]

The main argument here is that oligopolies are slow to react to changing conditions. According to Galbraith (pp. 127-8), interdependency between oligopolies introduced caution into price changes. Also, wages often rose with prices but rarely fell with them, so firms tried to refrain from hasty price increases which might cause an irreversible swelling of costs. Finally, oligopolies were attentive to their public image and tried to avoid the appearance of short-term opportunism. Hence, these firms tended to adopt a longer view toward profit maximization, by 'smoothing' short-term price oscillations into a more steady trend. The result, according to Galbraith (p. 128), was that during expansions, oligopoly prices would constantly undershoot the prices implied by short-term profit maximization. When an increase in demand could have allowed them to make larger short-term profits by rapidly raising their prices, oligopolies gracefully waived their claim over this extra income and, thus, moderated the rate of inflation. The oligopolists' sacrifice was only temporary, however. As long as demand continued to increase, large firms continued to accumulate unliquidated monopoly gains, but when the trend was reversed, they carried on with price increases and slowly 'liquidated' those gains. Viewed somewhat differently, the process of moderating the rate of inflation during expansions was not a free service and the community must pay for it by tolerating rising prices also in recessions.

Galbraith's theory for 'perverse' inflation built on a basic difference in the way in which competitive and oligopolistic firms reacted to demand. Yet, in a more fundamental sense, the two types of firms were similar since they both merely *responded* to external stimulus. In changing their prices, both types of firms acted as *intermediaries*, while the ultimate cause for inflation was *exogenous*. This perception on the passive role of firms constituted the cornerstone of many 'transmission studies.' These studies were mainly preoccupied with the effect of market structure on the speed at which exogenous changes in demand or costs were translated into final prices. As we demonstrate in subsequent sections

[2] For subsequent elaborations on this 'lag thesis,' see Adelman (1961), Scherer (1970, pp. 127-8) and Ross and Wachter (1973).

of this chapter, the 'transmission mechanisms' specified in many such studies were rigid in their format and axiomatic in their bases. The seeds of some of these shortcomings were already present in Galbraith's article and we examine them now.

First, Galbraith indicated that oligopolies had *discretion* over their actions, but then assumed there was a certain *regularity* in exercising this discretion: during expansions oligopolies accumulated unliquidated monopoly gains which they liquidated during recessions. Given a short-run profit-maximizing price, the oligopolist would set his own price lower than this yardstick in expansions, and higher in recessions. One serious problem with this rationale is the lack of any meaningful estimates for 'profit-maximizing prices' and, hence, for 'maximum profit.' Without these benchmarks, 'potential monopoly gains' have no clear meaning and, hence, it becomes rather difficult to show how oligopolies 'hoard' and then 'realize' such gains.

Second, the logical basis underlying the existence of 'unliquidated monopoly gains' is not clear. Galbraith's 'catch-up' thesis seems to rely on the dual assumption that oligopolies only *react* to changes in demand and that they do so by changing their prices in *steps*. Yet, these presumptions are still insufficient to explain why, during the expansion, the average rate of inflation in the oligopoly sector should be lower than what is necessary to maximize profits. As Galbraith (p. 127, emphasis added) acknowledged, 'There is an, obvious, although I think outside, possibility that although adaptation is by discrete steps, there will be *anticipatory* adaptation in each move.' Furthermore, the price steps during the expansion could be large enough to leave no 'unliquidated' gains for the following recession. Yet, Galbraith discounted these possibilities, arguing that 'anticipatory' price changes and 'high' price steps were not very likely to happen for a fairly simple reason. In his opinion, oligopolies would prefer to maintain relatively 'low' prices during the expansion in order to circumvent wage demands and public protests. But if this were true, should the oligopoly not keep 'low' prices also in recessions? It is not clear how large firms in the steel industry, for instance, could hope to prevent wage demands and public criticism by setting 'excessive' prices during a slump and blaming the extra profits on sacrifices they made in an earlier expansion. Galbraith also argued that oligopolies, because of intricacies in their interdependence, developed certain inhibitions toward a fast response, but this seems to imply a *lack* of

discretion! In this context, the oligopolist appears as a slow giant whose size and power constitute a fetter rather than advantage.

These criticisms lead back to the methodological dilemma raised in the preceding chapter. The 'regularity' assumptions made by Galbraith are not necessarily wrong, but if they are correct, they indicate that large oligopolies do not have much more discretion and autonomy than their purely-competitive counterparts. Discretion and autonomy mean more than just an ability to *not* maximize profits. They imply a freedom to *alter* one's course of action. If we insist that oligopolistic firms always smooth prices in one particular way, we cannot, at the same time, maintain that these firms exercise discretion. It should be emphasized that Galbraith (p. 127) stopped short of specifying any precise smoothing 'mechanism' for prices and indicated only that, although the oligopolist's response pattern is 'subject to alteration by individual entrepreneurial decision . . . the regularities are more than sufficient for the solution of the present problem.' Unfortunately, these generalities merely blur the basic methodological contradiction arising when the economist, in the name of entrepreneurial discretion, first emancipates firms from the reign of profit maximization and, then, enslaves them to his own dictum of how they should act. The significance of this contradiction is stressed in subsequent sections.

4.2 The 'Normal-Price Hypothesis': In Search for Standard Cost

With renewed concern over price behaviour since the 1950s, economists exercised great latitude in specifying their own pricing procedures for firms and the number of different models grew rapidly. The best choice among competing hypotheses, so it was hoped, would emerge through rigorous econometric testing, but this has failed to happen. After more than a decade of econometric research into price behaviour, Nordhaus (1972a, p. 34) admitted in a disconcerted tone that '[u]nfortunately, it is not clear that the studies have been fruitful.' Disagreement over the 'proper' model intensified through the 1970s and 1980s. According to Earl (1973, p. 7), the lack of meaningful progress in the econometrics of price formation was hardly surprising, for most models had no 'clear theoretical basis.' Moreover, because of spatial and temporal instability, the analysis of price behaviour had 'no solid econometric foundation' (1975, p. 83). Most researchers chose to ignore the possible non-stationarity of underlying

processes and continued to assume that firms exercised 'inflexible discretion' in their pricing. Many studies imposed rigid 'pricing rules' on entire industries, sectors and even the economy as a whole, and these rules were assumed to be valid for time periods of arbitrary length. When the econometric results were disappointing, the economist commonly amended or replaced the old specifications, and the process of estimation began anew.

One major approach in this empirical literature has been to consider pricing as a 'normalizing' process. The terminology is quite natural in this context. Since one assumes that firms merely respond to external circumstances and that they are unable to take initiative and deviate from their 'standard' pricing practices, it seems only logical to label their procedure as 'normal' pricing. The 'normal-price hypothesis' has several variants. In this section we examine an important series of studies conducted by Nordhaus and Godley (1972), Coutts, Godley and Nordhaus (1978) and Coutts, Godley and Moreno-Brid (1987), all focused on the manufacturing sector in the United Kingdom.[3] We consider these studies in chronological sequence and illustrate how, over a 15-year period, this group of economists has dramatically altered its definitions for 'normal pricing.' The changes have blurred the very meaning of 'normal pricing' and greatly reduced the scientific stature of attendant statistical tests.

Unlike Galbraith (1957), Nordhaus and Godley (1972) argued that prices responded only to long-run, 'normal' changes in direct cost and where insensitive to short-run, 'temporary' fluctuations in either cost or demand. Also unlike Galbraith, the two authors specified the pricing process in precise terms. They began by stipulating that 'output price is set by taking a constant percentage over average normal historical current cost' (p. 854). The 'normal value of a variable,' they wrote, was 'the value that variable would take, other things equal, if output were on its trend path' (*ibid.*). The test for this hypothesis involved 3 basic steps: (1) normalizing direct unit cost by removing its cyclical components; (2) estimating the lag profile between costs and prices under the assumption that firms used historical-cost accounting for their pricing; and (3) predicting the price by first imposing on each item of normal cost its corresponding lag profile, and then adding the results using the weights of each cost

[3] For earlier works on the 'normal-price hypothesis,' see Godley (1959), Neild (1963) and Schultz and Tryon (1965). A later study by Gordon (1975) applied the hypothesis for prices in the United States.

item in some particular base year. We explore each of these steps in turn.

The first stage of analysis consisted of deriving the normal, or standard values for direct cost. Nordhaus and Godley argued that only labour cost should be normalized. Non-labour cost (for materials, fuel, services and indirect manufacturing taxes), they explained, had no normal trend and, hence, did not required any special transformation. The definition for unit labour cost involved 4 variables: average weekly hours, hourly wage rates, employment and total output. The value for each of these variables was assumed to be the sum of a normal, long-term component and a temporary, cyclical element. In order to remove cyclical elements from each actual series, Nordhaus and Godley followed a standard two-stage procedure. First, they regressed the variable against a collection of 'trend' and 'cyclical' carriers. Then, by using the estimated coefficients and values for only the trend carriers, they 'predicted' the normal series for the variable of interest. We examine the details of this procedure below.

The variable for average weekly hours (H^*) was specified as a function of a constant, standard weekly hours determined by law or national negotiations (HS), the rate of capacity utilization (CU)[4] and a time trend (t), such that

$$(1) \qquad H^* = \alpha_0 + \alpha_1 HS + \alpha_2 CU + \alpha_3 t + u ,$$

where u was an error term and $\{\alpha_i\}$ were unknown coefficients to be estimated. Assuming that α_2 represented the cyclical impact of capacity utilization, the definition for normal weekly hours (HC) was given by Equation (2):

$$(2) \qquad HC \equiv a_0 + a_1 HS + a_3 t ,$$

where $\{a_i\}$ were the estimated coefficients for $\{\alpha_i\}$. Next, the natural logarithm for average weekly earning (AWE) was expressed as a function of a constant, time (t), the basic official hourly wage rate

[4] Capacity utilization was defined as the ratio of actual output (X) to 'normal' output (XN). 'Normal' output was obtained by first regressing the natural logarithm of output on a time trend and then using the estimated coefficient to predict the trend in output. See Nordhaus and Godley (1972, p. 875).

(*BHR*), standard hours (*HS*) and the relative deviation of actual from standard hours [(*H* – *HS*) / *HS*], reflecting the impact of overtime hours:

$$(3) \qquad ln\, AWE = \beta_0 + \beta_1 t + \beta_2 ln\, BHR + \beta_3 ln\, HS + \beta_4 (H - HS) / HS + u ,$$

where u was an error terms and $\{\beta_i\}$ were unknown coefficients to be estimated. Using coefficient estimates from this equation, the normal average weekly earning (*AWEN*) was defined implicitly in the following equality:

$$(4) \qquad ln\, AWE \equiv b_0 + b_1 t + b_2 ln\, BHR + b_3 ln\, HS + b_4 (H - HS) / HS ,$$

where customary hours (*HC*) replaced actual hours (*H*) and $\{b_i\}$ were the estimated coefficients for $\{\beta_i\}$. In the following step, Nordhaus and Godley distinguished between operative employment, (L_{op}) and employment for administrative, technical and clerical workers (L_{atc}). They specified one regression for each type:

$$(5) \qquad ln\, L_{op} = \gamma_0 + \gamma_1 ln\, X + \gamma_2 ln\, HC + \gamma_3 t + \gamma_4 t^2 + u$$

and

$$(6) \qquad ln\, L_{atc} = \delta_0 + \delta_1 ln\, X + \delta_2 t + \delta_3 t^2 + u ,$$

where X was output, *HC* was customary weekly hours, t was time, u was an error term and $\{\gamma_i\}$ and $\{\delta_i\}$ were unknown coefficients to be estimated. The corresponding implicit definitions for the normal-employment variables were given by equations (7) and (8):

$$(7) \qquad ln\, L_{op}N \equiv c_0 + c_1 ln\, XN + c_2 ln\, HC + c_3 t + c_4 t^2$$

$$(8) \qquad ln\, L_{atc}N \equiv d_0 + d_1 ln\, XN + d_2 t + d_3 t^2 ,$$

where normal output (XN) was substituted for actual output (X), $\{c_i\}$ and $\{d_i\}$ were the estimated coefficients for $\{\gamma_i\}$ and $\{\delta_i\}$, respectively. Finally, normal unit labour cost for operative labour ($ULCN_{op}$) and for administrative, technical and clerical workers ($ULCN_{atc}$) were defined by identities (9) and (10), respectively:

$$(9) \qquad ULCN_{op} \equiv (AWEN \cdot L_{op}N) \,/\, XN$$

$$(10) \qquad ULCN_{atc} \equiv (S \cdot L_{atc}N) \,/\, XN \,,$$

where S denoted salaries per head.

Note that this process of constructing normal variables for direct unit cost was wholly axiomatic and had little to do with what *firms* might have considered to be 'normal.' First, the definitions depended solely on the perception of Nordhaus and Godley, who alone specified the list of carriers, classified them as reflecting either trend or cyclical influences and provided the functional forms for the different equations. Choosing the time period presented a second problem. Nordhaus and Godley estimated the trend in direct unit labour cost on the basis of actual data for the period between 1953 and 1969. Unfortunately, this estimated trend could not have been very useful for pricing *decisions* made in that period. For instance, how could firms in 1953 (the first year in the sample) determine their normal price on the basis of a *future* trend? Clearly, during the early years of the sample, businessmen had no way of knowing what the subsequent trend would be, and that would have been true even if they happened to meet Nordhaus and Godley at the time! Furthermore, if current pricing could be based on future developments, why should firms in 1969 (the last year in the sample) be satisfied with data for the 1953-1969 period and not wait until they have a more 'complete' data set extending until the year 2000, for example? Also, why should companies operating in the 1950s and 1960s insist not to rely on data for years prior to 1953? And if they used earlier data, how far back did they go? By choosing 1953 as a starting point for the trend, Nordhaus and Godley imposed their own bias with very little explanation for why this should have been preferred over alternative dates such as 1920 or 1880, for instance. Finally,

the authors did not explain how a single pricing procedure could be adequate for every firm in the British manufacturing sector. They also failed to clarify why the relative size of firms or the industrial structure in which they operated were extraneous for pricing.

The derivation of normal variables was also plagued by technical problems. Following their specification and estimation for these variables, Nordhaus and Godley (p. 861) concluded that

> We can be confident that all reversible cyclical effects have been purged from these series; the only variables entering normal cost are basic weekly rates, standard hours, salaries per head and time.

This confidence was unwarranted for several reasons. First, the regressions specified by equations (1), (3), (5) and (6) were not the ones estimated with the actual data! In practice, the authors felt free to amend their original specifications. Equations (1) was estimated twice, for men and women. In the equation for women, 2 lagged terms for capacity utilization were added 'on grounds of plausibility' (p. 857); Equation (3) was specified in levels, but then estimated in first differences (p. 858); Equation (5) contained one variable for output and one variable for customary hours, but the estimated equation included 5 additional lagged variables for output and 3 additional lagged variables for customary hours (p. 860); finally, Equation (6) had one variable for output, while the estimated version had 7 additional lagged variables for output (p. 860). These transformations were the outcome of extensive econometric experimentation and the authors' 'preferred equations' were chosen on the basis of unclear econometric criteria. Most importantly, both the transformations and the final selections had no apparent relation to *actual* pricing processes in the British manufacturing sector.

Second, even if we neglected the process of 'data mining,' the empirical results still left much to be desired. The goal of purging *all* cyclical components from the time series was not really achieved. By using the standard least-squares method of estimation, Nordhaus and Godley assumed that the mean value for the error term in each regression was zero and, hence, that the impact of this term was entirely cyclical. The assumption was obviously arbitrary but its potential effect on the estimation of trend could have been ignored, provided the average size of the error was sufficiently small. One way to evaluate this decomposition into trend and cyclical components, is to examine the coefficient of multiple correlation reported for each equation (Nordhaus and Godley reported values for $\bar{R}^2$, the

coefficient adjusted for degrees of freedom). Note that, while this coefficient should not be used as a criterion in the testing hypotheses, in this case, where the aim was to 'decompose' the series into trend and cyclical components, it might be quite useful. The figures indicated that only one regression (for customary hours) 'explained' over 95 percent of the total sum of squared deviations in the dependent variable (adjusted for degrees of freedom). In the other regressions, the value for $\bar{R}^2$ varied between 0.79 and 0.10. For these latter regression we cannot share the confidence of Nordhaus and Godley in having 'purged' *all* cyclical variations. It is possible that alternative specifications with greater 'explanatory power' would have generated different estimates for the coefficients and altered the predicted trend.

Third, the decision to interpret actual non-labour items in prime cost as equivalent to their 'normal' values was justified by noting that, between 1954 and 1968, the volume of materials and services used per unit of output remained approximately constant. Unfortunately, the authors did not provide data to support this observation so it is hard to evaluate its plausibility.[5]

In the following stage of the analysis, Nordhaus and Godley attempted to estimate the lag between the incurring of cost and the setting of price. First, they assumed that markup prices were based on *historical* normal cost. In their opinion, this was a 'natural' assumption to make, partly on the basis of 'the widespread practice of evaluating stocks at cost on a FIFO basis' and, mostly, because that assumption 'has the particular advantage of enabling us to produce, by direct reference to facts, quantitative estimates of the lag structure which can then be imposed on the constructed cost series without any fitting procedure' (p. 862). In adopting the said assumption, the question of whether real firms indeed followed this practice was not even considered. Second, they assumed that costs of some materials entered the price in bulk at the beginning of the production process, while costs of other materials as well as fuel, bought-in services, indirect taxes and labour, entered progressively and evenly throughout the process. Gross profits were also assumed to enter progressively into the final price. On

[5] In their subsequent study, Coutts, Godley and Nordhaus (1978) chose to alter their explanation for this decision. There they argued that a 'firm has no means of telling what is and what is not normal about changes in its raw materials. Although their costs are vaguely cyclical, they are *not reversible*; they do not automatically fall as the *firm's* capacity utilization falls, nor are they in any way under the firm's control' (p. 34).

the basis of these two assumptions, they demonstrated how the period of production (Θ) could be expressed as a function of total stocks (S), quarterly sales (X), the share of materials in sales (α) and the share of material cost entering in bulk at the beginning of the process (β), such that

$$(11) \qquad \Theta = 2S / X(1 + \alpha\beta) .$$

Values for S, X and α could be obtained directly from Census data. The value for β, on the other hand, was unknown to Nordhaus and Godley and they assumed it was equal to 2/3rds. They further presumed that, within each category of cost, prices for all inputs moved together. With these arbitrary assumptions they derived estimates for the period of production in each main industry group and, after accounting for inter-industry flows, computed the distributed-lag structure of price behind cost. Finally, by imposing this lag structure on normal unit costs, the authors derived *'historical* normal unit cost' for the sample period.

The last phase of analysis consisted of predicting the normal price (PN_t) by using the following formula:

$$(12) \qquad PN_t = (\text{1963 mark-up}) \cdot (\text{Historical Normal Unit Cost})_t ,$$

where the '1963 mark-up' was computed as the 'ratio of total value of output in 1963 to total historical normal current cost in 1963.' The particular choice of 1963 as the benchmark year was not explained, perhaps because the authors felt it should not matter: 'The profits counterpart of the normal price hypothesis,' Nordhaus and Godley (p. 866) wrote, 'is that normal gross profits (that is profits at normal output, employment, etc.) should be a constant fraction of total value of sales.' 'If this theory of profit is precisely correct,' they added, 'the ratio of predicted price to actual price would remain constant.' With this in mind, the empirical results emerging from their detailed study seemed to have rejected the normal-price hypothesis. The data indicated not only that the markup of price over normal cost varied cyclically, but that it also experienced a long-term decline. After examining the actual and predicted series for both the price level and its rate of change (Figure 4, p. 867 and Figure 5, p. 868), Nordhaus

and Godley concluded that 'The most striking fact is that the mark-up of price over normal cost has *fallen* over the period especially since 1961' (p. 866, emphasis added). In other words, it appeared that the normal-price hypothesis was not even *approximately* correct!

The authors (p. 869) acknowledged they were unable to explain the secular decline in profit margins and, given this admission, one would have expected that the normal-price hypothesis would be rejected or at least modified. This did not happen, however, and Nordhaus and Godley proceeded to test the effect of demand on actual prices, presuming that the normal-price hypothesis was in fact correct! They estimated 100 different regressions where the actual price was regressed against a constant, the normal price and a demand variable.[6] Their categorical conclusion was that the average effect of demand on prices over the business cycle was 'uncertain but small' and probably did not exceed 0.1 percent of the price. The evidence in support of this conclusion were not very solid, however. Consider, for example, the authors' 'preferred test' for the impact of demand as given in Equation (13):

$$(13) \qquad ln\ P_t = 0.001399 + 0.6248\ ln\ PN_t + 0.000238\ ln\ (X\ /\ XN)_t\ ,$$

where P_t was the actual price, PN_t was the normal price, X was output and XN was normal output. Since the test was conditional on accepting the normal-price hypothesis, the weakness of that hypothesis was manifest here too. Nordhaus and Godley were disturbed by the positive intercept which suggested that the actual rate of inflation was, to some extent, independent of the 'normal' rate of inflation. They were even more troubled by noting that the coefficient associated with the normal-price variable was significantly lower than unity:

> The coefficient of predicted price is somewhat a puzzle. Our tentative hypothesis is that it is reduced below its *assumed correct value* of unity (a) because of incorrect lag estimates which mean, in effect, that [*PN*] is measured with error and (b) because of special factors in the second half of the period -- in particular incomes policy, nationalization of steel, and devaluation -- which *threw price from its normal relation*. (emphases added)

[6] The specifications combined 10 alternative variables for demand together with 10 functional forms, where the variables were expressed in levels, first differences, linear and logarithmic forms and the equations were written with or without a first-order adjustment of prices.

The explanations provided in this quotation are interesting. First, the notion of having of 'incorrect' estimates for the lag structure is unclear. The only correct lag structure was the one employed by *actual* firms in the British manufacturing sector, but this was never explored by Nordhaus and Godley. Their notion of 'correctness' seemed to indicate consistency with the data rather than relevance to actual pricing procedures. The problem is that, with sufficient experimentation, we can *always* discover some lag structure which will be consistent with the normal-price hypothesis. Indeed, that was one way in which the researchers later attempted to fit their hypothesis to the data. But as Godley was later to recant (see below), the arbitrary way in which normal cost was defined, stripped the adjective 'normal' from any clear meaning. The second explanation is even more intriguing. If exogenous forces can operate to 'throw' price from its normal relation with cost for a *substantial* period of time, what is the meaning of 'normal' in this context? Can we insist on the assumption of a fixed markup when the ratio of price to normal cost keeps changing? How could we talk about an 'assumed correct price' here? Nordhaus and Godley do not address these question, but this is hardly surprising. Since the framework for normal pricing rests on the assumption of a fixed markup, such framework cannot be very useful in explaining why the markup changes.

The normal-price hypothesis for inflation is essentially a *technical* relationship between price and cost. Since the focus is on rates of change rather than levels, we can conveniently ignore the size of the markup and assume it does not change. The practice seems acceptable because our ultimate aim is not to discover how firms actually set their prices, but simply to *predict* the observed rate of inflation. The issue is not merely technical, however. A fixed markup means that we can explain inflation without explaining the markup itself and, thus, avoid the issue of distribution. It is hence hardly surprising that when the markup does change, advocates of the normal-price hypothesis often label such a change as 'temporary,' 'autonomous' or 'exogenous.' When changes persist, the tendency is not to reject the normal-price hypothesis but rather to *redefine* normality. Indeed, when their axiomatic model failed to produce sufficiently accurate predictions for actual price developments, Nordhaus and Godley sought to retain their general approach but alter its particular specifications.

In their subsequently study, Coutts, Godley and Nordhaus (1978) introduced two central amendments into their basic procedure. First, they expanded their sample by breaking the non-food manufacturing sector into 7 broad industry groups to be examined separately. Second, they declared that the assumption of historical-cost pricing used in the 1972 study was an extreme one. Instead of imposing the lag structure, they now proposed to 'test' it, by contrasting historical-cost pricing with alternative specifications for replacement-cost and average-cost methods.[7] The first amendment had the general effect of shortening the time lag of price behind cost because it eliminated the effect of inter-sectoral flows. The second change increased the flexibility of the authors in choosing the 'appropriate' lag profile. Unfortunately, these modifications failed to generate major improvements in the 'goodness-of-fit' of the normal-price hypothesis and did not eliminate the 'autonomous' drift in the markup.

The failure was indicated in Table 3.3 (p. 48), where the authors presented the estimated results for the following regression:

$$(14) \qquad \Delta \ ln \ P_t = \alpha_0 + \alpha_1 \Delta \ ln \ PN_t + u_t ,$$

where Δ denotes first difference, P_t was the actual price, PN_t was the predicted 'normal' price, u_t was an error term and $\{\alpha_i\}$ were unknown coefficients to be estimated. For each of the 7 industries, the authors estimated 3 equations where PN_t was constructed on the basis of either replacement cost, average cost or historical cost. For 4 of the industries, the regressions covered the period of 1957 to 1973, while for the remaining 3 industries, the data extended between 1963 and 1973. Coutts, Godley and Nordhaus (p. 48) felt that 'If we apply the test of goodness of fit and the closeness of α_1 to unity, the average-cost specification is very clearly superior to either of the other two.' This was only a relative assessment, however. The 'absolute' performance of the amended model, based on disaggregated

[7] Under historical-cost pricing, a change in the price of an input affects only those units of input purchased after the change has occurred. Costs will be transmitted to the price only when the affected inputs emerge as part of the finished product at the end of the production process. Under replacement-cost pricing, a change in the price of an input affects units of that input throughout the production process and is, hence, transmitted immediately to the final price. The method of average-cost pricing is a hybrid of the previous two. The percent increase in the product price is computed by taking the ratio between the replacement value of all 'work-in-progress' before and after the change. For instance, if the replacement cost of work-in-progress is valued at $200,000 before the cost increase and $300,000 after, the rise in unit cost is said to have been 50 percent.

industries and 'normal average cost,' was still disappointing. The 'goodness-of-fit' which they measured by the value of $\bar{R}^2$ was not very impressive (the average for the 7 industries was 0.59) and the estimated values for α_1 were generally significantly lower than unity. Yet the authors were in the opinion that the low estimated values for α_1 were 'not a matter for serious concern' (p. 49). The discrepancy, they contended, could be easily explained by the presence of measurement errors, mis-specifications of the lag structure and, most importantly, by 'missing variables.'

Hence, they devoted the remainder of their monograph to examine how demand, the shifting of corporate taxes, government prices policies, competing imports or world demand might affect the markup. It should be emphasized, that all of these tests for the impact of 'missing variables' were constructed on the assumption that the normal-price hypothesis (this time in its 'average- cost' version) was correct. Unfortunately, the inclusion of additional variables still did not seem to improve the 'goodness-of-fit' or provide a convincing explanation for the long-term decline in the markup. After a lengthy examination, Coutts, Godley and Nordhaus (p. 72) concluded that 'The effect of short-run changes in demand through the period of a typical business cycle as a separate influence on price, if it exists at all, is almost certainly no greater than 0.5 per cent from trough to peak.' The results concerning tax shifting were at best unclear: 'The most emphatic conclusion to be drawn,' they wrote, 'is that extremely little tax shifting occurs in the short term, defined as a (mean) lag of one year or less'; as for the long term, 'the data cannot resolve the question how much tax shifting occurs and over what period of time' (p. 96). They also concluded (p. 124) that although direct price controls have had some restraining effect on the markup (and, hence, inflation), their impact was only temporary and sporadic. Finally, they found conclusive evidence that, for the period examined, 'world demand has had no effect on prices relative to costs' and that 'the behaviour of competing import prices has had no significant effect on the price of domestically produced manufacturers' (p. 135).

The initial inability to explain much of the short or long-term changes in the markup, and the apparent insensitivity of the markup to a host of external stimuli were disturbing to Coutts, Godley and Nordhaus. Yet, since the normal-price hypothesis was presented as a technical explanation for prices and was independent of underlying social and power structures, the 'markup mystery' must also be reasoned

as a technical phenomenon. For that purpose, the authors returned to the field of corporate anthropology. Business firms, they argued, could be characterized in reference to 3 'ideal types':

> [W]e shall call a firm 'neoclassical' if its objective is the maximization of its net worth; 'managerial' if its objective is broader, including objectives like safety, growth, or size; and 'behavioural' if it has an *inconsistent* set of objectives, or perhaps *no well defined objectives at all.* (p. 96, emphases added)

Given this taxonomy, Coutts, Godley and Nordhaus felt their own results for British manufacturing were consistent with the 'behavioural' model:

> In particular, firms appear to have very limited and specific rules about their processes of short-run price behaviour, rules based essentially on their average normal cost of production. The rules do not appear to be complex in that they do not respond automatically and in a significant way to the state of demand, . . . to the price of competitive imports, or to corporate taxation. (p. 96)

The *a priori* presumption of fixed markups clearly pushed Coutts, Godley and Nordhaus into a methodological corner. Given that firms could not decide on changing their own markups, the only remaining explanation was that they simply failed to react. The problem was that such rationale was inconsistent with the very thrust of normal pricing. The latter was a theory of how firms *responded* to external changes but the 'behavioural' firm was defined here as a firm which, to a considerable extent, *failed* to respond! Coutts, Godley and Nordhaus were not deterred by this apparent inconsistency, however. Instead, they chose to explain how the 'response instinct' somehow generated inaction.

The 'behavioural' corporation, they suggested, operated under the stresses and challenges of a hectic business environment. In order to cope with these complex demands, the corporation employed a computer program (or behaved 'as if' it used one) which told its officers what to do. The program contained variables which changed frequently (like wage rates and capacity utilization) but excluded variables which did not change very often (like government anti-trust policies or corporate tax rules). Despite the power of modern computers, the authors (p. 98) maintained that 'the typical computer routine for pricing is very simple and not responsive in an optimizing way to fairly frequent environmental shocks.' Furthermore, 'The response of the firms will be different for those variables which are included in the computer programs from those that are not, and indeed the observed response may change over time as certain decisions move into and out of the computer programs.' For example, the long lag of tax shifting (8 to 10 years, in their opinion) could not be explained by 'corporate drowsiness' because firms were very responsive to changes in other variable such as wage rates. Instead,

> The best explanation for this discrepancy is that firms simply are not 'programmed' in a consistent way to react to changes in company taxation, and that it is not until they are woken up by some other events -- such as inability to finance investment or pay out dividends, or low rates of return -- that they react in their pricing and investment policy so as to raise their net profit margin. (pp. 98-9)

Note that this fantastic computer fairy-tale did not necessarily mean that firms resorted to 'sub-optimal' behaviour. If we were to remove their 'behavioural disguise' we might have found what Coutts, Godley and Nordhaus called 'superoptimizers,' firms which in fact

> calculate what to include in their programs and what should be excluded, taking into account the costs of decision making and the uncertainties of their environment, but once these programs are 'written' firms may behave in *apparently* non-optimizing ways. (p. 99, emphasis added)

Given its *ad hoc* nature, the concept of 'programmed inaction' by 'behavioural' firms was adopted only as a temporary rationale for unexplained variations in the markup. It was abandoned during the 1980s, after Coutts, Godley and Moreno-Brid (1987) were able to redefine their normal-price hypothesis in a more successful way.

The relative tranquillity of the 1950s and 1960s was followed by the turbulent period of the 1970s and 1980s, and the authors (p. 3) felt it was time to use 'new concepts of costs and profits' in order to bring their earlier studies 'up to date.' First, they were no longer sure about what exactly constituted *the* trend. They observed that, while until the mid 1970s, output, employment and hours had all fluctuated closely around 'well established long term trends,' this were no longer true in the subsequent period. From the mid 1970s onward, the relation between output and productivity was no longer 'consistent' with earlier experience. Since firms were assumed to view 'trends' as being in some sense 'normal,' the question now arose of 'what for the purpose of making their price decision, can firms have regarded as normal during the period since 1974?' (p. 5). Coutts, Godley and Moreno-Brid admitted that 'unfortunately there can be no clear answer to this question, because the deviations from earlier trends have been so large and prolonged' (*ibid.*). Consequently, there was also no point in hiding behind econometric estimation for trends, and the authors simply resorted to an 'as-if' assumption. In particular, they stipulated that 'firms considered as normal the costs which would have obtained had productivity moved smoothly between 1974 and 1985' (*ibid.*). Since the arbitrary basis of normal cost was now an open secret, there was no reason to refrain from making further arbitrary, yet highly convenient improvements in the model.

The second amendment concerned the proper time lag of price behind cost. After moving from historical cost in Godley and Nordhaus (1972), to average cost in Coutts, Godley and Nordhaus (1978), the present authors took the next logical step and adopted 'replacement cost' as the adequate basis for pricing. The justifications for earlier choices were now conveniently disposed of:

> [W]e can now see no good reason to suppose that the markup will be on historical costs. The whole notion of markup-pricing does, after all, imply a high degree of price administration. Business firms should be in an excellent position to measure, and often accurately to forecast, the movement of most of their own costs. Does it really make sense to suppose that any systematic lag arises because of inertia? Why should there be any lag at all? Should we not rather expect that changes in price sometimes precede changes in costs? (p. 6)

Unfortunately, this seemingly plausible explication also serves to undermine the normal-price hypothesis: If we assume that firms can accurately predict future developments, that they have a high degree of administrative power and that they can raise prices before cost increases, why should we assume that these firms have to follow 'normal' cost and maintain a fixed markup? The authors did not address these questions. Instead, they moved ahead with additional 'imporovements' to their normal-price hypothesis.

The third amendment was in the definition of costs and profits. While earlier the authors insisted that prices were marked over *direct* cost only, now they proposed that the markup was set over *total* costs which included -- in addition to direct costs -- also depreciation, inventory valuation and interest charges. The relation between price and costs was expressed by the following equation:

$$(15) \qquad P = (1 + k) \cdot (1 + \sigma r)\, C ,$$

where P was unit price, k was the markup, σ was the inventory/output ratio, r was the real rate of interest and C was total normal cost per unit of output. To test this hypothesis, the authors used the following semi-logarithmic equation [assuming that σr was approximately equal to $ln\ (1 + \sigma r)$]:

$$(16) \qquad ln\, P = \alpha_0 + \alpha_1\, ln\, C + \alpha_2 \sigma r + u ,$$

where $\{\alpha_i\}$ were unknown coefficients to be estimated and u was an error term. For the period between 1967 and 1985, the least-squares estimate for α_1 was 0.97 and Coutts, Godley and Moreno-Brid felt this number was sufficiently close to what the normal-price hypothesis suggested. They also tested and found that, despite its violent fluctuations, demand had no effect on the relationship between price and normal cost.

This seemed to have finally provided the long-sought vindication for the normal-price hypothesis, yet, to their dismay, the authors discovered that a parallel model, containing a variable for *actual* instead of *normal* unit cost, produced a better fit with the data! Furthermore, with actual costs as a carrier, demand changes seemed to have had a positive and statistically significant effect on unit price. The discovery again reshuffled the anthropological cards:

> Some people may prefer to interpret this result to mean that firms set prices on actual costs . . . and add a flexible mark-up which adjusts with the state of demand. But on any interpretation our results say that demand has a very small influence on price compared with that of costs. The limitation of our methodology is that although our tests of normal cost pricing imply that demand effects are no larger that the impact of the cycle on unit costs, it cannot at the aggregate level establish whether our interpretation of how firms set prices is correct. (p. 26)

Frustrated with their results, Coutts, Godley and Moreno-Brid pondered on the prospects of ever 'proving' the normal-price hypothesis. After 15 years of research, they discovered that real firms might not share the researchers' own perspective of 'normality' and concluded it was quite unhelpful to presume they did:

> Our suggestion as to how entity profit should be defined and measured stands independently of any empirical results. On the other hand we find ourselves unable to draw conclusions as strong as we would wish about how prices are determined, probably because *we* have not been able to define and produce estimates of 'normal' costs which we can be confident were the costs which *manufacturers firms themselves* took to be normal. . . . It looks very much as though by dint of data mining we could find some estimate or other of normal cost which would follow fairly closely the movement of actual costs and which, as a result, would at once perform satisfactorily in a regression competition with actual costs and also be smooth enough to avoid any effects coming from demand. But the results of such excavation would not really add anything to knowledge. (p. 31, emphases added)

It seems that statistical tests for 'normal pricing' involve a joint hypothesis about business behaviour and price behaviour. First, these tests suggest that, on the aggregate, the conceptions of manufacturing firms about what constitutes 'normal' cost correspond to definitions supplied by the

researcher. Second, they state that, on the aggregate, manufacturing prices are set at a fixed percent markup above 'normal' cost. Clearly, the second part of the hypothesis is meaningful only if the first part is correct but, since this cannot be demonstrated by conventional statistical tests, the entire hypothesis becomes impossible to prove. The methodological difficulties explored in this section have failed to deter most structural theorists, however. Indeed, over the years, the normal-price hypothesis has been integrated into a broader framework where it was linked with the underlying structure of individual industries. We examine one such study in the following section.

4.3 'Price Smoothing' and Industrial Structure

Many researchers felt that the aggregate treatment of manufacturing prices left much to be desired. While most manufacturing firms operated under conditions of 'imperfect competition,' the extent of 'imperfections' varied widely across industries. It was thus important to go beyond the aggregate view and examine whether interindustry variations in the *degree* of competition had a systematic effect on price dynamics. In the voluminous empirical literature on the issue, researchers have usually followed the footsteps of Means' original 'concentration thesis' and used some measure of sellers' concentration as an index for 'competitiveness.' (Other proxies for competition have also been used but only to a lesser extent.) Based on their empirical results, the majority of scholars tended to conclude that concentration reduced the 'responsiveness' of prices to both demand and cost.[8] Dalton and Qualls (1979, p. 26) summarized the prevalent view on the demand issue in following words:

> In the short run, firms in highly concentrated industries tend to lag behind firms in less concentrated industries in adjusting prices to changes in market demand conditions. Having "lagged" behind, prices in concentrated industries may be adjusted later, even thought the initial demand movements may have been halted.

Similarly, Scherer (1980, p. 356) concluded that, with respect to cost,

> there is reason to believe that, at least since 1960, [the] price change sluggishness may have come from a tendency for concentrated industries to pass on, in the year they occurred, a smaller fraction of cost increases, and especially labor cost increases, than atomistically structured industries. Although the evidence is not as well developed as

[8] Some of the important studies on the link between concentration and price responsiveness include Aaronovich and Sawyer (1981), Barrett, Gerardi and Hart (1973), Cagan (1975), Dalton (1973), Depodwin and Selden (1963), DeSilva (1971), Dixon (1983), Domberger (1979), Earl (1973), Eckstein and Fromm (1968), Eckstein and Wyss (1972), Laden (1972), Lustgarten (1975), Ripley and Segal (1973), Sellekaerts and Lesage (1973), Weiss (1966; 1971), Weston and Lustgarten (1974) and Wilder, Williams and Singh (1977).

> it might be, this does not necessarily mean that such cost increases are not *eventually* reflected in higher prices; it only means that transmission lags may be longer in concentrated industries.

These conclusions proved puzzling to some extent. If industrial concentration was indicative of market power, should it not allow firms a *greater* flexibility in their response to demand and cost changes?[9] To settle the apparent inconsistency, many economists started to argue that price inflexibility was indicative of 'price-smoothing policies' and that, in a dynamic framework, such policies were in fact 'optimal.'[10] Clearly, the ability to pursue 'optimal-smoothing' policies depended on the market power of firms and this seemed to have shed a new light on the whole issue. The apparent positive association between industrial concentration and price inflexibility was no longer a theoretical embarrassment to those economists. It merely demonstrated how greater market power enabled a more optimal smoothing of prices.

Yet, these attempts to assign an aura of 'optimality' to sluggish price behaviour may have been somewhat misdirected. The attempts focused mainly on how firms reacted to market conditions and largely ignored the possibility that firms initiated price changes. The ensuing methodological difficulties are illustrated here in reference to a recent study by Encaoua and Geroski (1984) who examined the relationship between price dynamics and competition in Canada, Japan, Great Britain, U.S.A. and Sweden for the period of the 1970s.

According to Encaoua and Geroski, price smoothing could be viewed in terms of adjusting the current price toward some 'moving target.' The policy proceeded in two stages: one in which current

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[9] This question was raised in a series of studies by Qualls (1978; 1979; 1981). According to Qualls, the impact of competition on price responsiveness was highly nonlinear. Prices in atomistic industries responded quickly to current changes because firms lacked the market power to counter the invisible hand. In moderately concentrated industries, the mutual distrust and uncertainty about conjectural variations outweighed the potential for concerted action, so firms preferred the less risky course of price stabilization. In highly concentrated industries, however, the centripetal forces toward closer coordination outweighed the centrifugal forces of distrust and uncertainty. Since firms felt confident in pursuing short-term profit maximization, their prices became very responsive toward cyclical variations in cost and demand. Qualls (1979) examined the behaviour of price-direct cost margins for 79 U.S. industries over the period between 1958 and 1970. He found that, contrary to conventional views, the cyclical variability of those margins indeed tended to *increase* with the level of concentration.

[10] See for example recent works by Amihud and Mendelson (1983), Blinder (1982), Carlton (1979) and Phlips (1980; 1983).

changes in cost and demand were translated to changes in the target price and, another, in which changes in the target affected the actual price. The extent of smoothing depended on the time-horizon for profit maximization which, in turn, depended on the state of 'competition.' Firms which could take a longer view (because they faced less competition) would smooth their prices extensively and respond mainly to changes in 'normal' cost and demand. On the other hand, firms which were forced to maximize short-run profits (because they confronted stronger competition) would hardly smooth their prices and respond mainly to current cost and demand. We begin by exploring the general, two-stage model for smoothing and, then, examine how it was used to identify the link between market structure and price dynamics.

The model for price smoothing included two basic equations. First, in any particular industry, the rate of change of the actual price (p_t) was said to be a function of the rate of change of the 'target price' (tp_t) and the rate of change of price in the earlier period (p_{t-1}):

$$(1) \qquad p_t = \delta_t \, tp_t + (1 - \delta_t) \, p_{t-1} ,$$

where the variable coefficient δ_t denoted the 'speed of adjustment of prices toward the target' (p. 9). Second, the rate of change of the 'target price' (tp_t) was defined as the sum of the rate of change of the desired markup (dm_t) and the rate of change of normalized unit costs (nc_t):

$$(2) \qquad tp_t = dm_t + nc_t$$

Both dm_t and nc_t could not be observed and had to be replaced with 'satisfactory proxies.' Encaoua and Geroski asserted that the change in the desired markup 'clearly depends in the first instance on demand conditions (appropriately normalized)' and described this dependency with the following equation:

$$(3) \qquad dm_t = \tau_t \, DEM_t ,$$

where DEM_t was the ratio of the change in inventories to the sum of production and stocks and τ_t was an unknown variable coefficient. According to the authors, DEM_t provided 'reasonably decent information on the larger current period demand shocks that firms face.' The coefficient τ_t in this equation captured the impact of demand variations on the rate of change in the desired markup. Similarly, the rate of change in normalized unit cost (nc_t) was defined as a function of current cost and 'other variables':

$$(4) \qquad nc_t = \beta_t + \alpha_t c_t .$$

In this function, c_t denoted the rate of change in current unit costs, α_t was an unknown variable coefficient reflecting the impact the rate of change in current unit cost had on the rate of change in normalized unit cost, and β_t was the rate of change in normalized unit cost attributed to 'all other factors' (p. 10).

The model was developed as an axiomatic set of mathematical definitions and, in order to convert it into a convenient statistical format, several changes had to be implemented. The original specification with variable parameters indicated that smoothing coefficients could change over time. This plausible formulation was now abandoned, however, and all variable parameters were replaced by fixed coefficients! (Encaoua and Geroski did not furnish any explanation for this change of heart.) The original equations included non-observable variables and these were now eliminated by backward substitution of equations (3) and (4) into (2) and subsequently into (1). Finally, the researchers added an error term (u_t) and obtained the following statistical function:

$$(5) \qquad p_t = \Theta_0 + \Theta_1 p_{t-1} + \Theta_2 c_t + \Theta_3 DEM_t + u_t ,$$

where $\{\Theta_i\}$ were unknown coefficients to be estimated.[11] Encaoua and Geroski (p. 12) argued that, by using coefficient estimates from this equation, the theoretical coefficients for the smoothing mechanism

[11] Notice that if errors were added to equations (3) and (4), prior to substitution, the interpretation of u_t might differ, especially with pooled data.

could 'easily be identified.' Thus, we could estimate the 'speed of adjustment of current prices to the target' ($\delta = 1 - \Theta_1$), the 'sensitivity of the target to current cost variations' [$\alpha = \Theta_2 / (1 - \Theta_1)$], the 'sensitivity of the target to current demand pressures' [$\gamma = \Theta_3 / (1 - \Theta_1)$] and, finally, the 'rate of growth of the target independent of current cost variations' [$\beta = \Theta_0 / (1 - \Theta_1)$].

Given this model, Encaoua and Geroski moved to the next task of assessing the impact of market structure on 'price responsiveness.' In each of the 5 countries, industries were grouped on the basis of one or more of the following criteria for competition: concentration ratios, the degree of foreign ownership and the extent of import penetration.[12] Equation (5) was then estimated separately for every 'industry group,' using the pooled time-series data of all industries in that group. The estimated parameters for each 'industry group' were tabulated as a basis for evaluating the significance of market structure for price smoothing. Based on this analyses, Encaoua and Geroski concluded that competition (as approximated by their 3 criteria) indeed made price changes more responsive to changes in current demand and cost:

> [O]n the whole, price adjustment through *both* channels (the conversion of current shocks into targets, and the adjustment towards these targets) is slower in less competitive sectors. It appears that firms in less competitive industries are both slower to incorporate new information into their plans, and slower to adjust to whatever plans are made on the basis of this information. (p. 28)

In our opinion, these conclusions may be misleading for several reasons which we now consider.

The model contains serious flaws which make it hard to assign meaning to the different coefficients. First, Equation (1) stipulates that current price inflation (for the industry's product) is a function of current 'planned' inflation (tp_t) and last period's inflation (p_{t-1}), but the reason for this formulation is unclear. Why should firms in any particular year be concerned with the rate of price change in the previous year? Encaoua and Geroski argued that the extent of smoothing depended *only* on the relative impact of 'normal' as opposed to 'current' demand and cost changes, so how could it also

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[12] For instance, Japanese industries were classified into 4 groups on the basis of their four-firm concentration ratios. Thus, 17 industries were classified as having low concentration (0-40 percent), 16 were allocated to a low-medium group (40-60 percent), 18 were clustered in the high-medium category (60-80 percent) and 16 were designated as having high concentration (80-100 percent). Similar classifications were used to group industries in the other countries and, in some cases, more than one criterion for competition was used.

depend on the past rate of inflation? As it stands, Equation (1) implies that the rate of inflation in any industry has its own momentum, independent of whether price smoothing is extensive or not. Such momentum might very well exist, but it has no theoretical basis in Encaoua and Geroski's argument about *optimal* smoothing. In the context of this model, it could only be interpreted as a *non*-optimal component of current inflation.

Second, given that last period's inflation has an independent effect on current inflation, why should this impact be proportional to $1 - \delta_t$? For that matter, why should the impact of the target rate of inflation and of last-period's inflation be related in any particular way? The imposition of this arbitrary constraint has interesting ramifications. In this model, a lower sensitivity to demand and cost increases (either current or normal) does not necessarily mean lower inflation. It only implies that a larger proportion of the on-going inflation must be attributed to unexplained 'inertia'!

Finally, equations (1) to (4) were written as axiomatic definitions, not as statistical functions with distinct and specific stochastic properties and, furthermore, they all contain non-observable variables. For example, the assertion expressed in Equation (2), whereby the rate of change in the 'desired' markup is a linear function of some ratio of inventory to stock, can be accepted or rejected as an article of faith. It can not be proven or refuted by resort to empirical evidence. The definition of 'normal cost' given in Equation (4) suffers from the same shortcoming. Consequently, the interpretation of tp_t as the rate of change in the 'target price,' and of α, β and τ as separate 'adjustment coefficients' toward such a target, are also axiomatic.

These observations lead to the simple question of whether we can in fact use Equation (5) to 'test' the link between market structure and 'price smoothing' as Encaoua and Geroski suggested. Note that the theoretical variables for 'price target,' 'normalized cost' and 'target markup,' disappeared from Encaoua and Geroski's final statistical equation. Instead, Equation (5) consists of a simple expression, where current inflation is written as a function of a constant, last period's inflation, current cost, current 'demand pressures' and an error term. Given the criticisms in the preceding paragraphs, it is hard to see how we can use estimates from this equation to 'easily identify' the various 'smoothing parameters.' The

criticisms do not imply, however, that the estimated parameters for Equation (5) are useless.

The summary tables indicated that, in industries with higher concentration ratios, greater foreign ownership or smaller import competition, inflation was commonly less 'responsive' to changes in current demand or costs, and these results appeared to be consistent with the idea of 'price smoothing.' Yet, being interested only in the impact of market structure on price 'responsiveness,' Encaoua and Geroski failed to notice the another important result emerging from their tables. Inflation in the less competitive industries seemed to have had a 'life of its own.' Indeed, in all 5 countries, the impact of last period's inflation on current inflation (Θ_1) and the rate of inflation attributed to 'all other factors' (Θ_0) increased dramatically as the degree of competition decreased. This behaviour is somewhat puzzling. One may ask why, as firms became less responsive to cost and demand, their inflation became increasingly 'autonomous'? What was the source for this 'extra' inflation in less competitive industries? The answer to these questions may require us to transcend the scope of Encaoua and Geroski's framework.

The emphasis of this and similar models on 'responsiveness,' serves to blur another possible link between market structure and inflation, namely, the ability of firms with market power to *initiate* price increases. It is possible that firms in concentrated industry appear insensitive to increases in current demand and costs simply because their price increases preceded rather than followed those changes. But under these circumstances, traditional analyses focused on reaction cannot identify initiative. Instead, such initiatives will be mistakenly interpreted as 'irresponsiveness' or unexplained inflation attributed to 'other sources.'

4.4 'Pull-Push' Spirals

The stagflation episodes in the 1950s created a renewed interest in 'administered prices' and revived the old controversy between 'demand pull' and 'cost push' theorists. Commenting on the debate, Ackley (1959) argued that the very distinction between demand and cost inflation was quite unhelpful

toward understanding the inflationary process in modern capitalism.[13] The demarcation between the two varieties, he noted, hinged on a presumed causal sequence between cost and prices:

> In our model of demand inflation . . . buyers of final output are attempting to procure a larger total supply than can be produced. As a result, prices are bid up. To be sure, wages and other cost-prices may promptly rise, too; but it is important that the causal sequence is this: prices are bid up, costs follow. If the causal sequence is reversed -- if costs rise, and therefore prices rise -- we have the case of cost inflation. (p. 420)

Now, in most finished-goods industries, prices were administered by sellers' discretion on the basis of some cost-markup formulae and, hence, according to the above definitions, it would appear as if such industries experienced only cost inflation. Unfortunately, these standard definitions were misleading according to Ackley, because they considered only the direct impact of demand on prices and completely ignored the potential *indirect* effect of demand on administered prices. When demand for finished goods increased, Ackley wrote, firms attempted to purchase more raw materials and semi-finished goods and tried to hire more labour in order to quicken the pace of production:

> Now if the materials of which sellers are trying to buy extra quantities are also priced by our administrative rule, their prices will not rise either unless their costs rise. This means that the excess demand for materials is passed backward through a chain of administrative prices until it meets one of the markets where excess demand cannot exist because price rises to eliminate it. . . . Thus we might have the result that, while demand inflation pressures do not directly raise prices which are administered by a markup rule, the effect appears to be much the same, at least to the extent that the pressures focus back on markets where prices do respond to excess demand. (p. 421)

The direct influence of excess demand on prices was particularly pronounced in markets for agricultural commodities and some raw materials, yet the precise impact of such demand pressures was hard to predict for two main reasons. First, prices in those markets were influenced by speculative activities and, second, adjustments in production, especially of agricultural commodities, were subject to cyclical patterns which were often independent of current market pressures. Excess demand also affected labour costs but not in the same manner that it influenced the prices of physical inputs. According to Ackley (p. 423), the money wage was 'one of the most clearly administered' of all prices and, hence, rising demand for labour (following an increased demand for commodities) had an only limited direct effect on wage costs. The more important impact was indirect and came through the 'strong tendency of wages, either by automatic formula or otherwise, to follow the cost of living.'

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[13] Similar arguments were expressed in the mathematical model of Duesenberry (1950) and in the analysis of Moulton (1958).

Thus, far from having no effect on inflation, a general excess demand for goods tended to raise administered prices. That, according to Ackley (pp. 424-5), occurred

> when and to the extent that an excess demand for labor causes wage rates to rise faster than they otherwise would; when, and to the largely unpredictable extent, that increased market-determined agricultural prices raise the cost of living and thus wage rates; when, and to the largely unpredictable extent, that market determined prices for a few key raw materials are bid up.

Furthermore, the interaction of 'demand pull' and 'cost push' often tended to develop into a 'pull-push' inflationary spiral:

> [T]o the extent that these three forces combine to raise administered prices, the cost of living will be further affected, leading to further wage increases, further marking up of goods prices, and so on. The increased money incomes associated with inflation may also tend to cause those prices which are market-determined to rise further, as higher money prices may be needed to keep these markets cleared. (p. 425)

Although their arguments were different, Ackley concluded much like Galbraith (1957), that the combination of modern oligopolistic structure and excess demand bred moderate but continuous inflation. Because the indirect effect of demand on prices was generally not very rapid,

> the process may continue for some considerable period after the original source of excess demand had been eliminated; and, further, that the movement has large element of irreversibility, since money wage increases, once granted, will tend to support a generally higher level for the market-determined prices. Of course, if an excess demand for raw materials is replaced by an excess supply, their prices will fall; but they are not likely to fall as far as they had previously risen. (p. 425)

In the 1950s, most economists viewed stagflation as a perplexing yet atypical phenomenon. Theorists like Ackley felt it was necessary to explain why inflation could *coexist* with stagnation but, in general, they did not attempt to establish *causal* relationships between the two. This line of thinking started to change during the 1970s, when stagflation seemed to become the norm rather than the exception in mature capitalist economies. Increasingly, prominent economists such as Hicks (1975), Kaldor (1976; 1983), and Sylos-Labini (1982) suggested that the same structural forces which generated 'pull-push' inflation were also responsible for stagnation.

According to Kaldor (1976), the simultaneous outbreak of inflation and recession in all major industrial countries during the 1973-75 period, indicated that the roots of the crisis were international in nature. The key toward comprehending these international aspects, Kaldor argued, was a proper structural perspective for the world economy. His analysis began by identifying two broad sectors: a

'primary' sector which provided agricultural staples, energy and basic materials, and an 'industrial' sector which included both 'secondary' industries for consumer and producer goods and 'tertiary' industries for services.[14] The source of contemporary instability, Kaldor claimed, stemmed from the relationship between these two sectors:

> Continued and stable economic progress requires that the growth of output in these two sectors should be at the required relationship with each other -- that is to say, the growth of saleable output of agriculture and mining should be in line with the growth of demand, which in turn reflects the growth of the secondary (and tertiary) sectors. (p. 704)

But, then, from a *technical* standpoint,

> there can be no guarantee that the rate of growth of primary production, propelled by land-saving innovations, proceeds at the precise rate warranted by growth of production and incomes in the secondary and tertiary sectors. (pp. 704-5)

According to conventional theory, the synchronization of growth rates in the two sectors should have been brought about through changes in the 'terms of trade' (relative prices) between primary and industrial commodities:

> The more favourable are the terms of trade to agriculture and mining, the more current technological advance will be exploited through new investment, and the faster the growth of output. If the growth of primary production runs ahead of the growth of industrial demand, the terms of trade will move in favour of industry: this, in theory, should stimulate industrial growth and thereby the demand for primary commodities, whilst retarding the growth of production of primary commodities. (p. 705)

Unfortunately, this desired adjustment often failed to occur because the price mechanism did not perform its task. The reasons for the malfunctioning could be clarified by examining the nature of pricing in each sector. Industrial prices were generally administered by markup formula and, hence, were insensitive to changes in demand conditions. This meant that the necessary adjustments in the 'terms of trade' could be achieved only through changes in the prices of primary commodities. Yet even this could not be accomplished because the price mechanism failed here again. Instead of inducing the necessary alignment, the behaviour of commodity prices in the primary sector constituted a detriment to growth and contributed toward aggravating the inflationary process.

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[14] This distinction between two main sectors as a basis for analyzing macroeconomic developments began with Means (1935a) and then reappeared with slight variations in many important writings such as Kalecki (1943), Hicks (1965; 1974), Sylos-Labini (1969), Robinson (1977) and Okun (1981).

The adjustment problem arose for two principal reasons. First, when prices for primary commodities fell, they moved the terms of trade against primary producers, but when they rose, the improvement in the terms of trade for primary producers was only short-lived. In the latter case, industrial producers increased their own prices to cover rising material costs, and these increases were 'blown up' by the successive compounding of profit markups. Moreover, the accompanying increase in consumer prices exerted pressures on wage demands, which were further strengthened by the rising share of profit in industrial value added. Given those forces, the original increase in relative prices for raw materials was fairly quickly reversed by the consequent onset of administered-price inflation in the industrial sector.

Second, as already indicated by Ackley (1959), commodity prices were subject to variable time lags in adjusting to excess demand or supply. More importantly, their movements often reflected the additional influence of speculative expectations on the holding of stocks. Those factors contributed to make commodity prices fairly erratic and, according to Kaldor, such instability constituted a serious impediment to industrial growth. Consider, for instance, the impact of a sudden and substantial jump in commodity prices, followed by a rapid inflation of administered prices. If the resulting pull-push process redistributes income in favour of the industrial sector, it will cause a decline in the primary sector's demand for industrial output. Furthermore, the severity of inflation is likely to push governments toward restrictive demand policies with the repercussion of further declines in overall industrial demand. On the other hand, when there is a significant income redistribution in favour of the primary sector (like the initial accumulation of petrodollars by oil-producing countries during the 1970s), only part of this redistributed income will be used to demand industrial output. Again, the effect on industrial growth is negative.

For these two reason, Kaldor (p. 706) argued that *any* large change in commodity prices (whether it was in favour or against the primary sector) was potentially harmful for industrial growth:

> The emergence of commodity surpluses which should, in principle, lead to accelerated industrialization may have a perverse effect by diminishing effective demand for industrial products. Similarly the emergence of shortages which should accelerate the growth of availabilities of primary products through improvements in the terms of trade may lead instead to an inflation of manufacturers' prices which tends to offset the improvement in the terms of trade, and by its dampening effect on industrial activity,

> worsens the climate for new investment in both the primary sector and the industrial sector. (p. 707)

Hence,

> If the above analysis is correct, the market mechanism is a highly inefficient regulator for securing continuing adjustment between the growth of availabilities and the growth in requirements for primary products in a manner conductive to the harmonious development of the world economy. (*ibid.*)

For Kaldor, the basic structural cause for international economic disharmony rested with the malfunctioning of 'price mechanisms.' Furthermore, the latent danger of maladjustment tended to increase with global economic integration.

Given this assessment, it was now necessary to explain the relative post-war stability and why the international crisis erupted only in the 1970s. According to Kaldor, the relatively smooth growth of industrial countries from after the Second World War and until the early 1970s was largely contingent on the remarkable stability of commodity prices. While agricultural technology advanced rapidly, the instituting of government price-support policies and national stock-piling programs in that period prevented the collapse of primary commodity prices, secured a modest growth of real income in the primary sector and, hence, supported the continuous expansion of primary sector's demand for industrial goods. But while real income in the primary sector was growing, industrial inflation acted to curtail the pace of that growth. Early inflationary pressures emanated from wage demands in industrial countries. Since the 1950s, workers began to set their income aspirations on the basis of 'comparability' with more successful labour groups. As a result, wage rates experienced ratchet-like increases and inflation started to rise slowly. The rate of price inflation rose further with the so-called 'wage explosion' during the 1968-71 period.[15] According to Kaldor, deductions from gross wage payments have been rising for a long period of time, and the consequent built-up of labour frustrations exploded during the late 1960s in an outburst of union militancy.[16] The acceleration of wage inflation was accompanied with an even faster growth in administered-price inflation of manufactured products. Inflation during the 1950s and 1960s was moderate but persistent and it gradually worsened the terms of trade enjoyed by primary producers.

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[15] See Nordhaus (1972b) for an early use of this term.

[16] See also Jackson, Turner and Wilkinson (1972).

This relatively stable process of redistribution ended abruptly in 1972. Prices for many primary commodities doubled and even tripled within a year and then started to fluctuate with unprecedented amplitudes. According to Sylos-Labini (1982), the new instability was brought by a 'structural change' which occurred in 1971, and transformed the relationship between commodity prices and industrial production. While the relative fluctuations in global industrial output exceeded those in commodity prices between 1956 and 1971, the situation was dramatically reversed during the subsequent period between 1972 and 1980. Sylos-Labini (pp. 150-1) estimated that the elasticity of commodity prices with respect to industrial production was only 0.9 in the first period but, in the following period, it rose to 2.4!

What caused this 'structural change' from relative stability to marked instability? Both Kaldor (1976; 1983) and Sylos Labini (1982) believed the crisis began in August 1971, when President Nixon officially ended the gold convertibility of the dollar and brought the Bretton-Woods system of fixed exchange rates to an end. The elimination of gold as the ultimate 'anchor' for value, Kaldor and Sylos Labini asserted, led to a marked increase in commodity speculation which, in turn, operated to amplify fluctuations in commodity prices. This latter point deserves some elaboration. According to Kaldor (1983), when professional traders held firm expectations regarding the 'normal' price of a commodity (in terms of gold, say), their buying and selling were counter-cyclical and, hence, tended to *lessen* price oscillations. The end of dollar convertibility impaired this general belief in 'normal' prices for primary commodities. The resulting uncertainty about future price levels enhanced the volume of speculative activity and, given the lack of a stable currency, traders increasingly turned to primary commodities as a hedge against inflation. Under these circumstances, the direction of commodity speculation became pro-cyclical and tended to *aggravate* price fluctuations. For instance, when prices of primary commodities were on the rise, speculators, seeking to hedge against this inflationary tendency, moved to increase, not decrease, their stocks, causing prices to rise even further. Given the international monetary instability, commodity speculation now become the driving force of inflation:

> The very jumpiness of commodity prices shows that they are increasingly under the influence of inflationary expectations. The absence of any stable monetary medium which could serve as a hedge against inflation may well lead to spectacular increases in commodity prices, fed by speculations. (Kaldor, 1976, p. 712)

Furthermore, Kaldor predicted that

> the problem of keeping inflation at bay will increasingly be at the centre of preoccupations of *all* industrialized countries, with untoward consequences in terms of waste of resources and unemployment. (*ibid.*)

According to Kaldor and Sylos Labini, stagflation during the 1970s and early 1980s resulted primarily from faulty 'market mechanism.' Given this assessment, it was clear that by rectifying these unfortunate 'mechanical' defects, we could go a long way toward solving the problem. Furthermore, since the problem was only technical, the solution could be effectively achieved by government intervention:

> The primary need is to strengthen the adjustment mechanism between the growth of supply and demand for primary products. This requires that governments (or international bodies) acting singly or in concert should be prepared to carry much larger stocks than private traders are willing to carry on their own; and be ready to intervene in markets in a price-stabilizing manner. (Kaldor, 1976, p. 712)

The details of such proposal were already elaborated by Keynes. During the war years, he recommended the creation of an International Commodity Control Agency, which would act to stabilize the (then) chaotic arena of primary commodities.[17] Although Keynes' proposal was never seriously considered by international bodies, Kaldor (1976; 1983) believed it has remained the most viable solution for the problem at hand:

> I remain convinced -- as I have been for a long time -- the most promising line of action for introduction of greater stability into the world economy would be to create international buffer stocks for all the main commodities, and to link the finance of these stocks directly to the issue of international currency, such as the S.D.R.s, which could thus be backed by, and directly convertible into, major commodities comprising foodstuffs, fibres and metals. Assuming these buffer stocks cover a sufficiently wide range of commodities, their very existence could provide a powerful self-regulating mechanism for promoting growth and stability in the world economy. (Kaldor, 1976, p. 713)

The principal operations of this agency were to be relatively straightforward. When there was excess supply for a particular primary commodity, the agency would increase its purchases and build up its stocks. This would support the price of that commodity and the income of its producers. The commodity purchases would be financed by the issuance of new international money (such as S.D.Rs) and be considered as net additions to world investment. The process would work in reverse when excess demand for the commodity developed. When this happened, the agency would sell some of its stocks.

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[17] See Keynes (1980, ch. 3).

As a result, there would be a corresponding reduction in net world investment and outstanding S.D.Rs, the rise in commodity prices would be checked and the redistribution of income from the industrial to primary sector would be moderated. According to Kaldor (1983, p. 30), linking the buffer stock with the issuing of S.D.Rs was particularly appealing for it would provide the world with a *basic money unit* that was stable in terms of *basic commodities*. In his opinion, reaching mutual stability for both basic money and basic commodities would be a 'tremendous achievement' because it 'would largely deal with the problem of chronic world-wide inflation.'

In summary, the 'pull-push' framework elaborated by Ackley, Kaldor and Sylos-Labini attributed the severe stagflation since the 1970s to a combination of structural deficiencies and exogenous misfortunes. The crisis was sparked by the end of dollar-convertibility, enhanced by commodity speculations and maintained by an asynchronous adjustment mechanism between the 'primary' and 'industrial' sectors. Yet, while this framework provides some valuable insights into global aspects of inflation and stagnation, its excessive emphasis on 'mechanisms' can be highly misleading. Once started, 'pull-push' inflation becomes a simple 'reaction process.' Industrial firms set prices in strict observance for fixed markup-rules. Their inflation is a mere reaction to cost increases emanating from the primary sector. Firms in the primary sector are equally submissive. Their prices obey the invisible hand and rise whenever demand exceeds supply. Hence, in both sectors, firms simply carry out the inflationary process, they do not initiate it. This interpretation raises two important issues to which we now turn.

First, according to the 'pull-push' framework, the inflationary surge in the early 1970s should have occurred regardless of 'autonomous' actions taken by the OPEC cartel and the 'Seven Sisters' (the 7 largest petroleum companies which dominated international oil at the time). Kaldor and Sylos-Labini would of course agree -- indeed they emphasized -- that activities of these actors were central to the onset of inflation in the 1970s, but this emphasis was extraneous to their basic theoretical setting. In the 'pull-push' framework, prices for primary commodities are demand-determined because the underlying markets are competitive. This is also what makes such prices so susceptible to the unsettling impact of speculation. Only when prices are determined by the free play of supply and demand could we expect the end of dollar convertibility to generate a speculative fervour. No such instability was observed in

oligopolistic prices. Hence, the competitive nature of the primary sector is quite crucial for the propagation of 'pull-push' inflation. In this sense, the oligopolistic feature of crude-oil pricing was not only extraneous, but also inconsistent with the basic theoretical framework advanced by Kaldor and Sylos-Labini.

The 'pull-push' framework can be deceiving because it only differentiates the 'primary' from the 'industrial' sector and fails to carry the disaggregation further. It is wholly inadequate to lump Exxon or Royal-Dutch/Shell together with a small mining firm or a tiny agricultural community, as comparable members of the same 'primary' sector. The former can and do take initiative in their pricing policies, while the latter cannot and do not affect prices; energy is a 'key industry' (to use Veblen's terminology) and affects every process of production, while most other primary commodities affect only one or few processes; the large petroleum companies have considerable political sway, while smaller primary producers are relatively powerless. These observations are particulary significant when we consider the suggestions made by Kaldor (and supported by Sylos Labini) to 'solve' world inflation by supplementing the market mechanism with an International Commodity Control Agency. Kaldor and Sylos-Labini may be quite wrong to believe that an international scheme to stabilize petroleum prices is a simple extension of agricultural price-support policies or stock-piling programs. Farmers are likely to welcome government attempts to stabilize prices over which they have no control to begin with; but Mobil, Exxon or British Petroleum will undoubtedly object to an international endeavour to stabilize the price of crude oil. The instituting of such a Commodity Control Agency would constitute a direct challenge to large petroleum corporations, OPEC countries and, in general, to any primary producer with substantial market power.

During the 1970s, there were several international attempts to control the prices for key primary commodities. One fundamental reason why the OPEC cartel was successful where other organizations failed, was its ability to secure the cooperation of all large petroleum companies. In 1974, bauxite-producing countries formed the International Bauxite Association, began to tax the transfer of ores by the multinational mining companies and, in some cases, acquired stakes in their local subsidiaries. The Association never became an effective cartel, however, partly because the large

aluminum oligopoly headed by Alcoa, Reynolds, Kaiser, Alcan, Pechiney and Aluswisse, remained hostile to its cause. Indeed, Australia and Brazil, the largest members of the Association, promoted moderate policies for the International Bauxite Association from fear of confronting the U.S.-based aluminum companies. Another illustration is the effort by the Council of Copper Exporting Countries (which included Chile, Peru, Zambia and Zaire) in 1974 to raise the price of copper by cutting world production. The copper oligopoly, dominated by Kennecott, Anaconda, Revere and Phelps Dodge, declined to cooperate and prices collapsed within a year.[18]

The significant role that large companies play in the 'primary' sector could shed some light on why industrial countries -- who have been able to cooperate on the issue of exchange rates -- have never agreed on the question of international commodity stabilization. Much like small farmers who welcome agricultural price policies, large firms in the primary sector are likely to embrace the international stabilization of exchange rates over which they have no control. The stabilization of their own prices by an International Commodity Control Agency is a different matter, however. While Kaldor and Sylos Labini view the creation of such agency as a desirable improvement to a faulty market 'mechanism,' large petroleum, cooper and aluminum firms interpret it as a direct assault on their own sovereignty. Their objections -- latent or blatant -- may have contributed to the long stalemate in this area of international price stabilization.

Given these comments, we cannot accept the emphasis 'pull-push' theorists place on faulty 'mechanisms.' Speculative activity has most likely *exacerbated* the inflationary bias in commodity prices, but the discretionary actions taken by large corporations and by associations of commodity-exporting countries might have had an equally decisive impact on the course of commodity prices. In particular, the overall behaviour of commodity prices since the early 1970s seems to have been greatly influenced by events in the petroleum arena. In this industry, market power and international politics exert a much greater influence on prices than the free play of supply and demand. For this reason, it is important that we go beyond the conventional 'competitive' aggregation for the primary sector and consider the activities of principal actors.

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[18] See Barnet (1980, ch. 5).

The second weakness of the 'pull-push' theory stems from its emphasis on fixed markups for the industrial sector. According to Ackley (1959, p. 425), the important point was not that markups never changed, but only that such changes had no significant effect on inflation:

> In determination of the individual seller and product markups, demand and competitive conditions play a major role. . . . But these demand and competitive factors operate primarily on the *internal structure* of markups rather than on their *average level*; and they operate *slowly*. At any given time, some markups may be gradually increasing, other narrowing; but this process of individual readjustment is, in my argument, largely independent of aggregate demand in the economy and of whether the price level as a whole is rising or falling. (emphases added)

Put somewhat differently, this explanation implied that, because markup pricing was merely a 'reaction mechanism' with prices being set as a linear transformations of costs, and because the average markup was relatively stable, industrial firms could play only a *passive* role in the inflationary process. Indeed, Sylos Labini (1979, pp. 198-200) lent further support to this view, by asserting that industrial firms generally lost from inflation. In periods of inflation, he argued, there was only a partial shifting of labour cost onto prices (because wage increases were not uniform around the world); furthermore, unit overhead cost, which, according to Sylos-Labini, was part of the markup, tended to swell during inflationary periods. In his opinion, both of these tendencies led to a progressive erosion of net profit margins in the industrial sector and proved that, under modern conditions, 'inflation is not normally advantageous to the firm.'

These views on the passive behaviour of industrial firms are of course common. They are nevertheless disturbing because Ackley, Kaldor and Sylos-Labini all recognize that in the *primary* sector, large firms can have an 'autonomous' impact on their price-markup. It is not clear why we should accept that petroleum companies could push prices 'on their own,' but still assume that large corporations involved with the production of processed food, automobiles, steel, or armament do not take similar initiatives. This popular conviction that industrial firms merely react to cost increases, or that their price initiatives are too insignificant to affect the course of inflation, is based, at least in part, on the apparent long-term stability of industrial markups. Unfortunately, the use of such evidence demonstrates a basic confusion between causes and consequences, a misunderstanding which also plagues 'wage-push' theories. We turn to these theories in the next section and explain why the relative long-term stability

of markups cannot provide evidence on the source of cost inflation.

4.5 Money-Income Inflation: 'Wage Push' or 'Profit Push'?

While Kaldor and Sylos-Labini concentrated on the role of commodity prices in contemporary stagflation, Weintraub (1978) identified the source of malaise in workers' greed and 'impatient aspirations.' The model on which he based his conclusion was fairly simple and could be summarized with several key equations. In a closed business sector, the dollar value for the gross product, or money income (Y), could be written as a function of real output (Q) and the implicit price deflator (P):

(1) $Y = P \cdot Q$,

or

(2) $P = Y / Q$.

Equation (2) could also be rewritten as

(3) $P = y / A$,

where y was the gross money income per employee and A was the gross real output per employee, or average labour productivity. Hence, the rate of inflation (as measured by the percent change in the implicit price deflator) could be expressed both as the difference between the rates of growth of money income and real output, or as the difference between the rate of change of gross income per employee and the rate of change of average labour productivity:

(4) $(\Delta P / P) = (\Delta Y / Y) - (\Delta Q / Q) = (\Delta y / y) - (\Delta A / A)$.

Based on these definitions, Weintraub (pp. 44-5) concluded that,

> Regardless of money supply, money velocity, government expenditures, monopoly practices, import prices, or the volatility of inflationary expectations, P cannot be subjugated unless Y matches the Q tempo.

This, in his opinion, suggested that 'theoretical eminence and emphasis must be assigned to the imbalance of money incomes to physical output volume' as the general 'price-level destabilizer.' To further illuminate the cause of inflation, Weintraub went beyond this overall imbalance, focusing not on aggregate income in general, but on *workers' income* in particular. The reason for this emphasis was twofold. First, employee payments were the largest element of business cost, as well as the source for consumer demand and, second, labour was hired and paid *in advance* of sales, so the incurring of costs preceded the setting of prices. In this context, the ratio between average labour income and average labour productivity became the generator for 'price-level sparks' and this, in Weintraub's words, was 'the essence of the money-income theory of inflation' (pp. 39-40).

To persuade the reader of the validity of his approach, Weintraub reformulated the equations so they conveyed the crucial role wages and salaries played in the inflationary process. The level of nominal income could be expressed as a function of employment (N), average labour income (w) and the average markup of prices over unit labour costs (k):[19]

(5) $$Y = k \cdot w \cdot N .$$

Dividing both sides by Q, we obtain

(6) $$P = k \cdot w / A ,$$

and hence

(7) $$(\Delta P / P) = (\Delta w / w) - (\Delta A / A) + (\Delta k / k) .$$

[19] Note that the markup k was also the reciprocal of the share of labour in total income, such that $k = Y / wN$.

Equation (7) contained the main ingredients of the so-called 'Wage-Cost Markup' theory of inflation (WCM). The equation indicated that any changes to the price level must operate through w, A or k and, according to Weintraub (p. 62), this made the WCM theory sufficiently general to 'absorb all other explanations in a consistent way.'

Weintraub's main presumption was that the markup of price over labour cost was more or less fixed:

> The WCM theory builds on the hypothesis of $k = \bar{k}$, or nearly so. Practically, k changes very little year-to-year or over the long run, so we may ordinarily ignore any fluctuations as inaudible P-noise. It is not vital that k holds rigid; what matters is that its annual variations are generally too minuscule to explain the P-surges that have occurred. Variations in k cannot account for the trebling of the United States (GNP) price level since 1946, or the 75 percent climb since 1967. Indeed, over the long term k has been falling and there is evidence over the last decade that k has slumped in the United States and in the United Kingdom, especially in recent years. This should have fostered *falling* prices rather than an intense surge in prices in that beleaguered country. (p. 46)

Given that k was 'practically subdued,' Weintraub (p. 62) concluded that the final cause behind persisting inflation in the post-war era must have been the increase in average labour income in excess of labour productivity. Yet this explication of wage increases outstripping productivity gains brought us only half way toward a full answer. A full explanation required that we go beyond the *how* and also explain the *why*. In answering this question, Weintraub did not embrace endogenous explanations and, unlike commodity cost-push theorists, preferred to disassociate his WCM hypothesis from market 'mechanisms.' In his opinion, the recent 'unruly income binge' was rooted in the 'autonomous' but rather decadent behaviour of workers:

> [P]art of the explanation is undoubtedly attributable to the more permissive life-styles and the more hedonistic drives for instant gratification in material goods, sex, drugs, easy education, and rewarding careers. . . . To the ordinary citizen the obvious means to material riches consists in fingering 'more' in the pay envelope; while the quest for 'more' has never been absent in the economic person or the labor movement, it has been magnified to 'more and more' -- and more quickly. (p. 63)

A similar view was expressed by Wiles (1973), who argued forcefully against 'closed,' or 'determinate' models for inflation. Such models were deficient for they left no room for discretionary action by economic actors in general, and workers in particular. In Wiles' opinion, the price level did not emerge from some 'objective' economic forces, but rather depended on 'what numbers the trade union leaders pick out of the air when they make wage claims' (p. 392). Since those claims were 'entirely subjective,'

the price level was in fact unpredictable. Inflation in this context was triggered by 'absurd wage claims.' The nature and extent of such claims were greatly affected by slow changes in what Wiles called the 'national character':

> In nations where governments mainly succeed each other by *coup d'état* we must expect wild conduct at (or under) bargaining tables. In a nation where the national character is plainly changing -- rising crime, sex-and-drug permissiveness, less self-discipline in dress speech and deportment, less respect for hard work, less religion, loosening of the nuclear family, breakdown of a deferential class structure, etc., etc. -- we must also expect less restraint at the bargaining table, less concern for consequences. (p. 392)

Weintraub (p. 63) maintained that his explanation for rising money incomes was not a 'blanket indictment' for workers. It was merely a 'recognition' of facts. Wiles (pp. 392-3) was similarly cautious: 'I do not disapprove *per se* of most of the changes listed, quite the contrary,' he insisted. His only claim was that 'good or bad, they raise prices.' This emphasis placed on the primary role of workers in generating inflation is disturbing. Our concern is not with ideological overtones but with shaky conceptual foundations which we now turn to examine.

Weintraub (pp. 54-5) distinguished between 'wage inflation,' which occurred when the rate of change in w exceeded the rate of change in A, and 'profit inflation,' which took place when the value for k was rising. The aggregate data indicated that the w/A ratio has been rising while k has remained stable and, according to Weintraub, this empirical evidence vindicated his theory of 'wage inflation,' while refuting counter-proposition of 'profit inflation.' Unfortunately, the proof was based on inconsistent definitions and was hence quite invalid. Throughout his book, Weintraub had repeatedly stressed that, because the average markup was more or less stable, 'wage inflation' had practically no effect on the aggregate distribution of income between workers and business firms. 'One way and the other,' he wrote, 'the wage share holds constant while inflation is recorded; real incomes, to be sure, still follow the productivity course' (p. 64). 'If the class struggle is the relentless issue,' he added, 'the war is fought over the wrong things in the wrong place and the wrong time,' for '[a]fter the smoke clears the only change is in P' and 'labor wins nothing' (p. 110). But if there was no redistribution of income, nominal wages and profits must have been increasing at the *same pace*, so how could Weintraub insist there was only 'wage inflation' and no 'profit inflation'?

The answer to this question is quite simple. Weintraub mistakenly employed the term 'profit inflation' where alternative expressions such as 'markup inflation' or 'income-share inflation' would have been appropriate. It is rather trivial that if inflation has no marked effect on the distribution of income between firms and workers, the markup of price over wage cost must remain relatively stable. Indeed, if the markup does not change, Weintraub's 'wage inflation' can be portrayed as the mirror image of 'profit inflation.' To illustrate this point, we rewrite Equation (5) in the following way:

(5a) $Y = l \cdot \Pi \cdot N$,

where Y denotes income, N is employment, Π is the average non-labour income ('profit') per employee [such that $\Pi = (Y - wN) / N$] and l is the average 'markup' of price over unit profit, or the reciprocal of the share of profit in total income [such that $l = Y / (Y - wN)$]. Dividing both sides by Q, we obtain

(6a) $P = l \cdot \Pi / A$,

and so

(7a) $(\Delta P / P) = (\Delta \Pi / \Pi) - (\Delta A / A) + (\Delta l / l)$.

In reference to his own model as expressed here in equations (5), (6) and (7), Weintraub (p. 45) wrote that

> [b]y positing (1) $k = \overline{k}$, or $\Delta k = 0$, primarily year-to-year as reenforced by factual evidence, and (2) imputing causal significance from right to left, from unit labor costs (w/A) to P, the truism is transformed into a theoretical conjecture.

This same rationale, when applied to equations (5a), (6a) and (7a) with proper changes in the variables, yields the following explanation:

> By positing (1) $l = \overline{l}$, or $\Delta l = 0$, primarily year-to-year as reenforced by factual evidence, and (2) imputing causal significance from right to left, from unit 'profit' (Π / A) to P, the truism is transformed into a theoretical conjecture.

Based on this revised reasoning, it would seem that the recent 'unruly income binge' stemmed not from workers' excessive demand but rather from the persisting 'profit push' of businessmen! How do these

two interpretations differ? Under 'wage inflation' the increase in unit labour cost occurs first. It reduces the markup of price over unit labour cost and this leads to a *subsequent* price increase which restores the markup to its previous 'normal' level. Under 'profit inflation' (not to be confused with 'markup inflation'), the order of events is reversed. First there is a price increase and a reduction in l. This is *followed* by a wage increase which raises unit labour cost and restores l to its previous 'normal' level. The two processes differ in their *causal* sequence, yet this difference is not always easy to identify in practice. When prices and wages change only occasionally, we may be tempted to use empirical observations as evidence for causality. During periods of inflation, however, when prices and costs chase each other in a seemingly endless spiral, cause and effect are welded into a closed circle and can no longer be distinguished by simple empirical observations.

Weintraub may be right in arguing that labour demands rather than profit aspirations provide the continuous spark for inflation. Yet, such a proposition cannot be proven by showing (as he attempted to do in Figure 3.4 on page 56 of his book) that the wage rate has been rising while the markup of price over labour cost remained stable. Using the same methodology, we can show that unit profit was rising while the share of labour income remained stable. We can then take this as evidence that there was only 'profit inflation' and no 'wage inflation.' Clearly, both of these 'proofs' are inadequate in dealing with a non-observable causal sequence. Changes in the markup can be used to illustrate the *consequences* of inflation but, in themselves, they provide insufficient information about the *causes* of inflation. Workers can initiate the process with their 'excessive' wage demands and end up with the same income share they started with. Similarly, firms can push prices in the hope of raising their profits, only to incur even larger wage increases which, eventually, reduce their profit markups below their original levels!

Given that *ex-post* markups provide little causal evidence, the essence of Weintraub's theory of 'wage inflation' is reduced to a simple *a priori* presumption about enterprising workers and inert businessmen. Like many other structuralists, Weintraub is also convinced that, whereas workers take initiative, businessmen merely 'act to *protect* their own profits from being eroded, and *counter* by raising administered prices directly *after* tabulating the wage pressures' (p. 64, emphases added).

4.6 More on 'Profit Inflation'

The contention that price inflation is unlikely to emanate from a 'profit push' is quite pervasive. Bronfenbrenner and Holzman (1963), for example, devoted less than one page of their 68-page 'survey of inflation theory' to that possibility. Invoking the authority of Haberler (1959) and Hague (1962), they explained that

> a profit-push is likely to be smaller than a wage-push partly because profits constitute a smaller part of price and because such a push is more likely to be 'once and for all,' whereas wage-pushes are more likely to be continuous. (p. 622)[20]

More than a decade later, Laidler and Parkin (1975) found the question of 'profit-inflation' sufficiently marginal to condense its discussion even further, into a 2-line footnote. No references were provided by Laidler and Parkin for, in their opinion, the issue has remained largely unexplored:

> [A] question which has been raised but not answered is: do monopolistic firms exert an independent push on prices in a similar manner to that in which it is suggested that trade unions affect wages? (p. 766fn)

Although the literature on this question is indeed limited, it is quite important for our purpose and deserves more than a passing comment. Most explanations examined in previous sections shared the explicit or implicit assumption that oligopolistic pricing practices merely transmit inflation and do not create it. In this section we look at alternative theories which focus on the primal role of oligopolistic initiative and profit. The works of Blair (1974), Eichner (1973) and Kotz (1982) are particularly interesting and we consider them in turn.

The empirical literature on pricing practices commonly suggested that oligopoly price leaders set 'full-cost' prices in order to meet their target rate of return as a long-term average. The 'full-cost' price was set so that sale revenues would cover all costs and target profit when the company was producing its 'standard' volume. Assuming that the average volume over the cycle would equal this predetermined 'standard,' the company could ignore transitory changes in demand and still achieve its long-term objective for profit. This practice seemed to explain why oligopoly prices declined less than competitive prices in recessions and rose less in expansions. Since the early 1950s, however, oligopoly

[20] See Scherer (1980, p. 353) for a similar expression of this view.

prices tended to rise not only in expansions, but also during recessions, and this latter 'perverse price flexibility' could not be easily explained by the long-run target principle. As an alternative, Blair (1974, p. 468) suggested a 'short-run target return model,' where a price leader would 'seek to attain its target objective not simply over the long run, with good and bad years averaging out around the target, but in each year.' This change of emphasis was significant for pricing practices:

> In most manufacturing industries, of course, demand and thus volume do not remain unchanged over any considerable period of time, and it is when output is falling below the standard volume that oligopolistic price behaviour assumes its most anomalous form. An explanation therefore requires something more than a simplistic adjustment of price to reflect cost changes at a constant volume; it also must reflect the effect of changing volume on costs, profit margins, and price.

What was the relation between total unit cost and capacity utilization for a typical oligopoly? Blair argued that, as capacity utilization increased, total unit cost decreased continuously until a certain 'turning point' -- say 90 percent of capacity -- was reached. When capacity utilization surpassed this point, unit cost started to rise. This particular behaviour for total unit cost resulted from the separate effects of changing volume on the cost of materials, labour and overhead. As output increased toward the 'turning point,' the cost of raw material per unit remained unchanged. Unit labour cost, on the other hand, tended to fall, because increases in output levels raised labour productivity. Unit overhead cost also declined as total overhead expenses were spread across a larger output. Beyond the 'turning point,' all three elements of unit costs started to rise. This occurred because very high rates of capacity utilization were usually associated with an overall economic expansion when tight markets for raw materials, labour, and capital brought higher factor prices.

According to Blair, the 'standard volume' for the oligopolist was typically lower than the 'turning point' in unit costs, say at 80 percent of capacity. In a recession, when output fell below the standard volume (for example, to 70 percent of capacity), there was a narrowing of profit margins and a substantial reduction in total profit because both the markup and sales volume have declined. In order for the firm to realize its short-term profit target, the price had to be raised. Furthermore, the new profit-markup must be higher than before because the profit target had to be attained at a lower volume of sales. If operating volume continued to fall, the firm had to raise its price again.[21] While prices

[21] Blair stressed that a price leader would usually wait until it was convinced the decline in the markup was not short-lived. Consequently, price increases were not continuous and happened in 'steps.' This kind of price behaviour was consistent with numerous observations made since the publication of

tended to rise in recessions, they did not fall in expansions. Instead, they either remained constant or increased. Starting from the 'standard volume,' an increase in capacity utilization caused unit cost to fall, but this did not induce a price reduction. Although the short-run target-pricing principle would have called for a lower price, the danger of triggering a price war was too serious to be ignored. Under these circumstances, the price leader would not lower the price and let its profit markup rise. The increase in profit margins and the fear of 'spoiling the expansion' would in turn work against temptations to ride the tide and raise prices. As a consequence of these countervailing forces, prices during the early stage of expansion would tend to remain stable. When output continued to rise beyond the 'turning point,' however, cost started to increase, putting a squeeze on profit margins. If the squeeze became sufficiently severe to endanger the attainment of target, prices would be raised.

The implication of this model contrasted with conventional views about structural inflation. In reviewing some of the structural literature, Beals (1975) concluded that the relative price inflexibility in concentrated as opposed to atomistic industries occurred in *both* the upward and downward directions. Although prices in concentrated industries fell less than atomistic prices in recessions, they also rose less in expansions and this, according to Beals, implied similar *long-run* behaviour for the two series. Blair rejected this conclusion because, in his model, oligopoly prices did not fall at all. Both competitive and oligopoly prices tended to rise during expansion, but while competitive prices changed their course and fell during recessions, oligopoly prices continued to increase. According to Blair (p. 466), this divergent price behaviour meant that, over the *long-run*, competitive prices would change by very little while oligopolistic prices would display a pronounced upward trend (p. 466). To support his argument, Blair demonstrated that over the cycle extending between December 1969 and December 1971, prices in concentrated industries (having a 4-firm concentration ratio higher than 50 percent) increased by 8.7 percent, while prices in atomistic industries (having a 4-firm concentration ratio lower than 50 percent) declined by 0.1 percent. Hence, contrary to common beliefs, the model and evidence seemed to suggest that the impact of oligopoly on long-run inflation was far from neutral. Indeed, according to Blair, the very cause for long-run inflation tendencies was the uncompromising exertion by oligopolies to meet their profit targets during recessions.

Means' original study.

A closer look at Blair's conclusion reveals a certain inconsistency with his original assumptions about oligopolistic pricing practices. Given that oligopolistic industries use inputs produced in competitive industries, the cost of such inputs must enter into the oligopolist' calculations. If, as Blair concluded, prices of those inputs remained relatively stable over the long run, while prices for oligopoly output experienced a long-run rise, the rate of return for oligopolies could not remain 'on target' as hypothesized and must increase. This inconsistency could be easily resolved, however, if we recognized that the long-term upward trend in oligopoly prices spelled a positive trend in cost for competitive industries. These cost increases should then lead to at least some positive trend in competitive prices. Given these observations, a more plausible conclusion should be that both oligopoly and competitive prices would rise over time, only that the long-term rate of increase for oligopoly would outstrip that of atomistic industries. The criticisms do not change Blair's basic conclusion, however. Even when the long-term trend of all prices is positive, the source of that trend is the anomalous price behaviour exhibited by oligopolies during recessions.

It should be noted that, although Blair emphasized the role of oligopoly *profit* in the onset of inflation, the role he assigned to oligopoly *firms* was largely passive. Such firms changed their prices in response to changes in unit costs and they did so in order to meet some 'predetermined' target rate of return. Blair did not talk about 'profit-inflation,' perhaps because he implicitly assumed that the *size* of the profit target affected only the absolute level of prices and not their rate of change. Interestingly, this common assumption -- while valid for long-run target rate of return models -- was incorrect for the short-run version developed by Blair. In the former case, the firm aimed to meet its target at some 'standard volume' and, hence, the impact of 'normal-cost' inflation on price inflation was indeed independent of the target rate of return itself. When the firm tried to meet its profit target profit in the short run, however, the size of target exerted a *positive* impact on the rate of inflation, particularly when price increases occurred as a result of declining demand. To illustrate this point, consider a firm which produces 100 million units of a certain good at a unit cost of $1. Suppose further that the short-run target for profit is $100 million, so the firm needs to earn a profit of $1 per unit and, hence, the price is set at $2. Now consider a fall in volume to 50 million units with an accompanied rise in unit cost to

$1.5. At this lower volume, the firm would need $2 in unit profit in order to meet its short-run target and it would increase its price by *75 percent* to $3.5. Suppose now that instead of $100 million as a short run target for profit, the firm wanted to earn a higher profit of $200 million. In that case, the original price would have been $3 ($1 for unit cost and $2 for unit profit at output of 100 million) and this would be increased by *83 percent* to $5.5, after the fall in volume ($1.5 for unit cost and $4 for unit profit at output of 50 million units). In other words, the higher target led to a higher *increase* in price. It is interesting to note that in a much earlier paper, Blair (1959, pp. 442-4) emphasized this impact of the short-run profit target on inflation. Drawing on the then-popular examples of U.S. Steel and General Motors, he suggested that attempts by these corporations to achieve their target rate of return at lower operating volume were equivalent to an increase in the target itself. In other words, 'perverse price flexibility' during recessions was at least partly affected by 'profit inflation.'

The view that increases in profit targets were the primary spark of inflation was explicitly developed by Eichner (1973; 1976). The key toward understanding how oligopolies affected inflation, he argued, was the 'plus' factor in their cost-plus pricing formulas. In his opinion, empirical evidence, particularly the hearings of the Kefauver Committee and the study by Kaplan, Dirlam and Lanzillotti (1958), clearly indicated that

> the pricing decision, when some degree of market power exists, is ultimately linked to the investment decision; that indeed, under the circumstances, prices are likely to be set so as to assure the internally generated funds necessary to finance a firm's desired rate of capital expansion. It is this insight which makes it possible not only to provide the long-missing determinate solution to the oligopolistic pricing problem but also to reintegrate micro with macroeconomic theory. (1976, p. x)

How could this insight into the link between investment plans and the price level explain the onset of inflation? According to Eichner, the answer could be found by exploring how large firms financed an *expansion* in their investment projects. An increase in investment by such firms could be financed externally or internally. Additional external funds (over and above what was currently available) could be obtained by issuing new equity or by borrowing. The cost of such funds were determined by prevailing rates of interest. Additional funds could also be obtained internally, by increasing the flow of profit. This was done by raising the price (and the markup) above their previous level. The 'cost' involved with this latter method were more difficult to calculate and depended on the dynamic consequences following the price increase. The initial impact was a rise in revenues and profits over

their previous levels. With the passage of time, however, revenues and profits were likely to decline, mainly because consumers substituted for alternative products and also because new firms, lured by higher profits, entered the industry and reduced the market shares of existing firms. Eventually, profits would drop below the original level prevailing prior to the price increase. These 'foregone' earnings constituted the implicit cost of raising internal funds in the manner described. Given that the flow of both internal funds and implicit cost could be reasonably identified, the company could compute the implicit rate of interest associated with such fund-raising policy. This rate would be equal to the ratio of funds 'lost' in latter periods (properly discounted) to funds 'raised' in early periods (properly discounted). Note that the implicit rate of interest was not fixed and tended to increase with the amount of additional internal funds. The reason was fairly simple: progressive increases in the markup would yield diminishing returns in terms of additional funds being raised while, at the same time, aggravate the effect of substitution and entry on subsequent foregone earnings.

In deciding on its method of financing, the firm would chose the least costly method, namely the one with the lower rate of interest. This choice, according to Eichner, could explain the link between investment and inflation. While the minimum rate of interest on external funds was generally fixed at some positive rate, the minimum implicit rate of interest for internal funds was zero and increased with the amount of desired funds. This assumption was crucial. It meant that, *up to a certain point*, raising the markup was cheaper than raising external funds. Consequently, higher investment would be at least partially financed by higher profit and that called for higher prices. This was how growing investment sparked inflation. Eichner (1973, p. 1195) emphasized his model did not explain the price level for this was 'historically determined.' It only explicated the 'change in the margin above costs from one pricing period to the next.' This, he argued, was quite sufficient to resolve the issue of oligopolistic price movements, particularly after we took into account concurrent increases in wage rates which turned the original 'profit-push' impetus into a wage-price spiral.

Eichner developed his model before the severe stagflation of the 1970s and early 1980s and hence tended to view inflation as a *growth* phenomenon:

> A change in the secular growth rate will, according to post-Keynesian theory, require an increase in the aggregate savings rate. As the 'cost-plus' pricing model just elaborated suggests, this increase in the aggregate savings rate is most likely to be

> achieved through an increase in the margin above costs set by price leaders in the oligopolistic sector, the higher prices then being matched by the other firms in their respective industries. (1973, p. 1197)

Stagnation, on the other hand, tended to aggravate the inflationary process:

> because the direct or 'out-of-pocket' costs of production account for only part of the price, the internal savings being generated in the form of cash flow will be highly sensitive to any difference between the expected sales volume and the actual sales volume. What this means is that while prices in the oligopolistic sector will be set so as to achieve a balance between planned savings and investment, actual savings and investment are quite likely to diverge depending on the extent to which the economy has been pushed off its secular growth path. (*ibid.*)

Yet, this incorporation of stagnation into the framework is rather forced. According to Eichner, large firms which found their financing plans hindered by unforseen stagnation, would increase their markups again in order to obtain the still-missing capital. This scenario may be relevant when stagflation is viewed as an occasional dent in a vigorous trend of long-term growth, but it is not highly plausible for a period of prolonged stagnation. Large corporations are simply unlikely to pursue aggressive expansionary policies under the latter circumstances. Since inflation in this model is generated not by investment but rather by an *increase* in investment, Eichner's explanation must be viewed as inadequate for a protracted period of slump.

The works of both Blair and Eichner were criticized by Kotz (1982), primarily for their treatment of the 'profit motive.' Blair's model was found to be deficient for several reasons. First, it assumed that firms had the power to raise their prices but waited for recessions in order to exercise it. Blair explained this behaviour by arguing that, during expansions, firms were merely seeking 'satisfactory' profits but this was not very persuasive, according to Kotz. Second, the proposition that firms sought to achieve *short-term* targets was at odds with empirical evidence about large firms in concentrated industries. Finally, the size of the target profit and its determinants were left unspecified. Eichner overcame some of these shortcoming by emphasizing long-term investment strategies, but his model was still deficient because it explained only changes in the markup and not the markup itself. According to Kotz, Eichner also left open the question of what caused firms to suddenly seek a faster expansion.

Kotz agreed that target-return pricing was a dominant practice in the oligopolistic sector but insisted that, by itself, this practice provided only a partial basis for inflation theory. In order to 'close' the model, he argued, we must also explain the target itself. In his search for 'determinacy' (to use Wiles' term), Kotz then brushed doubts which haunted the literature since the late 1930s and suggested we recognized -- as most Marxists and neoclassicists did -- that capital was 'always seeking the maximum possible profit' (p. 3). There was, of course, some ambiguity regarding uncertainty and time spans but, in his opinion, the 'rough idea of pursuing the maximum possible profit, over some suitably defined long-run period, does seem applicable to large corporations.' Given this presumption, the task now was to explore the objective determinants of this 'maximum possible profit' and how they affected the inflationary process.

Kotz constructed his model for inflation using the common dual-market framework for monopoly[22] and competitive industries.[23] Monopolistic industries enjoyed higher rates of profit than their competitive counterparts for two related reasons. First, firms in the monopoly sector colluded to set their prices above comparable competitive levels and, second, the resulting profit differentials were maintained by barriers to entry. According to Kotz, the general relationship between the rates of profit in the two sectors could be reduced to the following expression:

$$(1) \qquad (100 + r_m) / (100 + r_c) = \delta \ ,$$

where r_m was the percent rate of profit in the monopoly sector, r_c was the percent rate of profit in the competitive sector and δ was the 'height of entry barriers,' a 'structural variable that determines the extent to which a monopolist can gain extra profits' (p. 6). According to Kotz, this variable, which denoted the '*degree of monopoly power*,' closed the 'critical gap' in markup-pricing theories for inflation.

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[22] The noun 'monopoly' is used by Kotz in reference to both oligopoly and monopoly. We follow the same convention in this section.

[23] Unlike many other inflation theorists, Kotz (p. 14, note 8) explicitly recognized the alternative dual-market framework based on *firms* rather than *industries*. The latter framework was preferred because price was seen as an 'industry variable.' (In the second part of this work, we argue to the contrary, that inflation is an enterprise-based phenomenon.)

Given the rate of profit in competitive industries (r_c) and the height of entry barriers (δ), the *maximum* attainable rate of profit for monopolistic firms was given by the following expression:

(1a) $\quad r_m = \delta\ (100 + r_c) - 100\ ,$

Any attempt to obtain a rate of profit higher than r_m would invite entry and defeat its own purpose. Settling for a lower rate, however, was equally irrational for more could be gained under the circumstances. Thus, according to Kotz, monopolistic firms would set their *target* rate of return (tr_m) to equal the maximum attainable profit (r_m) and, hence,

(2) $\quad tr_m = \delta\ (100 + r_c) - 100\ .$

Given this target, the implications for pricing were straightforward:

> [T]he monopolist, in order to gain the maximum profit rate compatible with deterring entry (and thus the maximum profit rate that is sustainable over the long run), would follow the 'limit pricing' principle: it would set the price just below the level that would induce entry. (p. 6)

Kotz was careful to stress that, since entry was associated with long-run rather than short-run 'excess profit,' the target rate of return would be perused as a long-run goal. Consequently, the 'limit price' set to cover 'full-cost' would not be sensitive to temporary fluctuations of the actual rate of profit around the long-run target.

According to both Kotz and Eichner, inflation was ignited when monopolistic firms increased their target rate of profit. But while for Eichner the increase in profit targets occurred in the context of long-term growth, Kotz viewed such increases as resulting from long-term stagnation. Following 'limit-pricing' practices, large oligopolies would increase their prices when long-run barriers to entry tended to rise and that, in Kotz's opinion, occurred during 'long-run crises.'[24] During a prolonged expansion, the creation of additional capacity by new entrants was facilitated because demand was

[24] Kotz (p. 9) distinguished such crises from short-term recessions. 'In addition to the short-run business cycle,' he wrote, 'capitalism appears to undergo long waves of activity, with prolonged periods of relatively vigorous accumulation alternating with prolonged periods of feeble accumulation. We will refer to such depressed periods as "long-run crises."'

growing. This was no longer the case during a long-run slack. With an inveterate stagnation in demand, new entrants could find buyers for their output only by luring them away from existing oligopolies and this was much more difficult to do. The retaliatory power of established firms and the will to use it against intruders was greatly enhanced under those latter circumstances. Furthermore, financial institutions, who were deeply involved in financing the monopoly sector and benefitted from its higher rate of profit, were unlikely to support new entry which could further aggravate an already difficult situation. Hence, 'the constraint which sets an upper limit to monopoly price is loosened in a period of stagnation' and since 'the entire monopoly sector capital finds that entry barriers rise as a consequence of the crisis . . . the response is to raise monopoly sector prices' (p. 10).

The theory explained how a long-run crisis prompted monopolistic firms to raise their *price markups*. This initial price-spark turned into a general process of *inflation*, first because it induced subsequent increases in both competitive prices and wages and, second, because banks and the monetary authorities, reluctant to aggravate the crisis, were driven to accommodate inflation with expanding credit and money. Inflation was not a stationary process, however, and its nature and intensity tended to change as the long-run crisis lingered.

Beyond the 'front window' of changing prices, Kotz explained, inflation acted to redistribute income between monopoly firms, competitive firms and workers. The inflationary process began because monopoly firms attempted to use their increased 'degree of monopoly' in order to obtain higher rates of profits. Since monopoly power was defined in differential terms, these higher rates of profits could be attained only through a redistribution of income from the competitive sector or the working class. Workers and competitive firms 'resisted' to this attempted redistribution by raising their own prices, but given the increase in entry barriers, their counter-strikes could only prolonged the process of redistribution, not prevent it. As the inflationary spiral continued, the superior power of monopoly firms would slowly manifest itself in higher rates of profit and, as those rates approached the maximum set by entry barriers, the inflationary process would wane. In this way, redistribution acted to lessen the very inflation which created it. There was also another, perhaps more important link between redistribution and inflation. Since the turn of the century, the competitive sector has been continuously shrinking

relative to the monopoly sector, primarily due to the ceaseless process of capital concentration and centralization. As the 'income requirements' of monopoly firms increased and the 'income base' provided by competitive firms decreased, the redistribution *via* inflation between the two sectors became increasingly harder to attain. Thus, while individual inflationary cycles may die down, 'the tendency for monopoly pricing to ignite inflation during prolonged stagnation grows stronger and such inflations become longer lived' (p. 12).

Kotz's emphasis on profit inflation and redistribution is highly illuminating, but his central structural thesis contains a potential methodological flaw which must be addressed. According to Kotz, the variable δ summarized the combined influence of all factors affecting the ease of entry into the monopoly sector. He also insisted that δ could be estimated from data on 'cost differences' or the 'risk of failure of large scale entry' (p. 6). Given Kotz's reasoning, one would expect that the ratio of profit rates in the monopoly and competitive sectors be a *function* of entry barriers δ, but in Equation (1), this ratio is written as being *equal* to the height of those entry barriers. For Kotz's model, a number of implications follow.

If we retain the identity of Equation (1), the theory becomes a simple tautology. We can replace Equation (1) with a functional relationship, but this does not solve the problem either. Consider, for example, the relationship expressed in Equation (1b), where the ratio of profit rates is a function of barriers to entry:

$$(1b) \qquad (100 + r_m) / (100 + r_c) = f(\delta) + u \,,$$

where u is an unknown error term reflecting the combined influence of 'other factors' on the profit-rates differential. This formulation is still problematic because Kotz (p. 6) defines δ to include any element which affects barriers to entry, including those 'whose source is unspecified.' In other words, any institutional or technical feature suspected of having an effect on entry barriers could be included as a component of δ. We may be able to find numerous variables whose values increased during the 1970s and early 1980s, and which display a positive correlation with the left-hand side of Equation (1b).

Designating these variables as 'barriers to entry,' however, remains quite axiomatic.

Even if we can somehow overcome these difficulties, the significance of profit maximization in this context remains unclear. Note that both Equation (1) or its alternative, Equation (1b), are specified in terms of *actual* rates of profit in the two sectors. The equations suggest that barriers to entry affect the actual rates of profit, but they say nothing about the *maximum* rates. In this light, the move from Equation (1a) to Equation (2) implies that the 'target rate of profit' for monopolistic firms is equal to whatever their actual rate of profit happens to be! The possibility that higher rates of profits are attainable in principle yet are not attained in practice is simply assumed away. Hence, it seems that despite his other insights, Kotz failed to fill the 'critical gap' in structural theories for inflation, and the *target* rate of return remains elusive as ever.[25]

4.7 Final Remarks

Structural theories for inflation overcome the distaste of macroeconomics for real structures and institutions. Facets of economic reality which macroeconomists may regard as unfortunate 'imperfections' often constitute basic building blocs to structural theorists. The rejection of perfect competition and the resort to alternative frameworks have enabled structural theorists to unveil and analyze important aspects of modern inflation. Yet the structural approach is still limited in certain important respects.

First, like macroeconomic theories, structural explanations for inflation are also built around 'ideal types' for economic actors. Macroeconomists may prefer to see inflation as arising from actions of 'short-run profit maximizers,' while structural theorists like to emphasize the role of businessmen seeking a 'target rate of return,' firms that follow 'full-cost conventions,' or giant corporations which aim to 'maximize their long-run profits subject to entry barriers.' Theories of inflation depend crucially on the way they treat individual motivation. Thus, the similarity among alternative macroeconomic theories should not be surprising in light of their common assumption about 'profit maximization.' Structural

[25] For other criticisms of Kotz's model, see Foster (1985). A reply is given in Kotz (1985).

explanations, on the other hand, are much more heterogeneous because structural theorists often disagree on what motivates economic actors. Given that the fundamental difference between structural theories concerns the issue of individual motivation, the initial choice among alternative explanations should be based on the relevance of their motivational assumptions.[26] Alas this is easier said than done because the 'true' psychological drives behind economic behaviour cannot be observed! The axiomatic substitution of 'ideal types' for actual human beings means that the structural literature is not immune from the presence of myth.

The structural literature is limited in yet another way. Note that while structural theorists reject the universal validity of perfect competition, their explanations are still based on the existence of equilibrium between desired and actual outcomes. For those theorists, economic outcomes are not necessarily *stable* but they do reflect the *chosen* positions of economic actors. Consider for instance Blair's model for inflation, in which oligopolies are motivated by their desire to obtain a 'short-run target rate of return.' When demand drops, firms *should* increase their prices in order to maintain their short-run target for profit; but the expected increase in prices *will* occur only if firms are indeed successful in achieving their goal. In other words, the theory would provide reasonable predictions regarding the effect of stagnation on prices only when firms achieve an equilibrium between their desired and actual rates of return. Another illustration is provided by the 'normal-price' literature. Here, inflation occurs when firms apply their desired fixed markups to what they perceive as 'normal cost.' Put somewhat differently, inflation ensues when firms fulfil their desires. Because they rely on motivational hypotheses, all of the structural theories examined in this essay assume an equilibrium between desired and actual outcomes. Naturally, whenever economic agents fail to fulfil their goals, in other words, when there is a 'disequilibrium' between desires and outcomes, the theories break down.

Note that we do not suggest that human drives do not affect economic outcomes in general or inflation in particular. On the contrary. All economic phenomena are social and, as such, they always result from human desires. We do say, however, that the present resort by theorists to individual motivation of 'ideal types' may not be the most fruitful way of approaching the question of inflation. The

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[26] Despite Friedman's perspective on unrealistic elements.

focus on individual motivation as a basis for theory requires that people do not alter their economic goals or that changes in those goals be known to researchers; it demands that economic agents share similar aspirations so that they could be approximated by 'ideal types'; it also necessitates that agents succeed in achieving their targets. These are extremely rigid requirements. In our opinion, such presuppositions may be useful in examining narrow aspects of our complex reality but they should not constitute the methodological basis for wider analyses. It is our belief that a broad investigation of modern inflation must allow considerable heterogeneity in the profile of economic actors; instead of stipulating universal 'ideal types' acting in some prescribed regularity, we must describe *actual* behaviour and seek to identify how it changes. If, like Georgescu-Roegen (1979) claims, broad economic phenomena emerge from a process of *qualitative* change, we must look for those changes which underlie the process of inflation. In the presence of continuous inflation, we expect that because some economic agents fulfil their goals, many others remain 'frustrated.' To characterize such process as a movement from one chosen equilibrium position to the next may be quite unhelpful. These concerns must be addressed if we want to better understand the broader causes and implications of inflation.

CHAPTER 5

PRICE AND QUANTITY MEASUREMENTS: THEORETICAL BIASES IN EMPIRICAL PROCEDURES

So far in this work, we have dwelt in some length over the causes of inflation and unemployment. Ultimately, the debate revolves around the prices and quantities of commodities. The main question is *why* these attributes tend to change. The issue of *how* they change, on the other hand, seems far less contentious. Of course, there is some disagreement on this latter question, but that mostly pertains to the adequacy of various measurements for different theoretical problems. When considered in isolation, the measurement of prices and quantities is commonly viewed as an empirical, relatively objective procedure. This conviction is not inadvertent. According to Einstein (1931, p. 66), 'The belief in an external world independent of the percipient subject is the foundation of all science.'[1] If economics is to be considered a science, it, too, must be dealing with factual matter: its theories should be tested against objective data and hence the measurement of such data must, whenever possible, be sufficiently independent of the theoretical debate itself. For instance, an increase in the list price of passenger cars can be explained by changes in tastes or technology, which affect demand and supply in a perfectly competitive market. It could also be rationalized by resorting to changes in producer mark-ups under conditions of oligopoly. However, both theoretical approaches are trying to explain changes in the same statistical price series. Similarly, a theory emphasizing rational expectations can argue that the business cycle results from a particular time-series process, while a theory that stresses institutional aspects can explain the cycle by changes in the rate of profit -- and here, too, proponents of both theories will probably use the same statistical series for real GNP as their principal variable of interest. List prices of passenger cars in the first example and real GNP figures in the second illustration are deemed adequate precisely because their measurement is believed to be sufficiently independent of the corresponding theoretical debates.

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[1] Cited in Feuer (1974, p. 352).

The presumption of theory-neutral measurement seems adequate in simple abstract cases when the 'commodity' being considered remains unaltered. In such cases, it is then sufficient to count how many units were produced in each period and to observe the prices at which they were sold. For instance, suppose Ford Motors produced 100,000 Mustang cars at a unit price of $10,000 in 1975 and manufactured 150,000 units at a price of $14,000 per car in 1985. If we can presume that the Mustang of 1975 was identical to the one produced in 1985, we can, without ever defining what a Mustang is, conclude that there was a 50 percent increase in quantity and a 40 percent rise in price. On the other hand, if we acknowledge that the two models are different, such a direct comparison has little meaning and we must now both define the 'commodity' and describe how it changes over time. The two Mustang models may vary in aspects of production -- such as the technology with which they were manufactured, the labour involved in their assembly, and their material composition. They could also vary in their so-called 'consumption attributes' -- such as weight, size, power, shape, speed, comfort, colour, fuel efficiency, noise and chemical pollution. Under such circumstances, we must somehow denominate all such 'quality' differences in universal, quantitative terms and adjust our computations accordingly. For instance, if because of such changes, a 1985 model contained twice as much 'automobile quality' as the 1975 model, we would have a 200 percent rise in quantity produced and a 30 percent decrease -- not increase -- in unit price! On the other hand, if quality was found to be 50 percent lower in the 1985 model than in the 1975 one, we would end up with a 180 percent rise in price and a 25 percent reduction in quantity![2]

Clearly, whenever the nature of the commodity changes, the *measurement* of such changes in 'quality' is crucial for price and quantity calculations. But then there arises the question of how to measure quality and whether such measurements can remain objective and free of theoretical considerations. This problem is clearly exacerbated as we move from a single commodity to wider

[2] In the first case, when 'automobile quality' is doubled, a purchase of one 1985 Mustang for $14,000 is equivalent to buying two 1975 models for a unit price of $7,000. This imputed price is 30 percent lower than the 1975 price of $10,000. The doubling of quality also implies that output (denominated in 1975 units) rose from 100,000 in 1975 to 300,000 (150,000 · 2) in 1985, or a 200 percent increase. In the second case, when 'automobile quality' is halved, the imputed price for a 1985 equivalent of one 1975 Mustang rises to $28,000 ($14,000 · 2), an increase of 180 percent over the original 1975 unit price. Quantity (denominated in 1975 units) falls to 75,000 (150,000 / 2), or a decrease of 25 percent from the 1975 level.

aggregates. In devising output and price indices for the entire car industry, for instance, we must also account for the addition of new models, deletion of old ones and temporal changes in the industry's product mix. If we move to even broader indices such as real investment and its price deflator, or real GNP and the GNP deflator, our difficulties propagate since the concept of 'aggregate quality' is even more elusive.

The complex issue of comparing different commodities in time and space has occupied economists since the days of Adam Smith. In fact, the need to convert qualitative aspects into quantitative magnitudes of 'invariant' nature relates to epistemological problems of cognition, consciousness, subjectivity and objectivity, which have troubled some of the greatest philosophers since Plato and Aristotle. The predicament only intensified with the rise of capitalism, and prominent thinkers (like Hume, Kant, Hegel and Marx) dealt with them extensively. However, such difficulties remained largely *theoretical* until the present century, when the volume of quantitative statistical data grew substantially. With the evolution of national accounts after the 1930s, there was a pressing need for methods of estimation and measurement that would overcome the problem of historical change. As statistical bureaucracies expanded, techniques were formalized and the older theoretical debates gradually gave way to 'objective' *procedures*, presumably untainted by pseudo-scientific or philosophical disputes.

The purpose of this chapter is to assess some of the literature that sought to resolve problems in commodity measurement, specifically those posed by quality change. Explicit points of controversy in this literature have received considerable attention and we do not attempt to provide yet another summary of these debates. Instead, we direct our examinations toward some fundamental aspects which remained largely unexplored in the literature. Our objective is two-fold. First, we seek to demonstrate that, despite its implicit promise, the literature has failed to produce theory-neutral methods of measurement. Instead of being independent of theoretical debates, the measurements of prices and quantities are in fact deeply embedded in the particular world-view of neoclassical economics. Existing measurement procedures seem to require a society of free, utility maximizing individuals, a perfectly competitive organization of markets and continuous equilibrium. Our second goal is hence to suggest

that current methods may be partly or wholly inadequate when these conditions are not met. In other words, whenever individual preferences are open to coercion and persuasion, whenever collective action and differential power override voluntary atomistic interaction, whenever conflict and dynamic change replaces equilibrium and stability -- our measurements for quantity and price may be telling us a very biased story.

In a certain fundamental sense, then, our data on *how* prices and output change may not be sufficiently independent from our views on *why* they change and that inherent subjectivity must be recognized. Within the present historical epoch, the predisposition of price and quantity data toward the neoclassical economic outlook means that these data may not be altogether suitable to test the neoclassical outlook against competing frameworks. Furthermore, the problem is not really soluble since there is no practical way to encompass *conflicting* explanations into the *same* category of perception. For example, if we adjust price changes as if they were the consequences of quality improvements, we are already assuming that the change in price was not the result of variations in market power. On the other hand, if we were to adjust our price and quantity indices so that they reflect changes in social organization, we would in fact bias those categories against hedonic-based theories. It may hence be better to follow Myrdal (1956, p. 336) and accept that 'our very concepts are value-loaded' and that they 'cannot be defined except in terms of political valuations.' Indeed, according to Robinson (1962, p. 27), the whole subject matter of economics is immersed in political and ideological convictions. 'A unit of measurement,' she observes (p. 66), 'implies and agreed convention that is the same for everybody.' Yet, to the extent that such unit is '[l]ocked in the individual's subjective consciousness, it is not a unit at all.' Ultimately, the neoclassicist's 'unit of happiness is the same kind of mirage as Ricardo's *absolute value* or Marx's *abstract labour*.' Thus, instead of trying to devise some universally accepted indices for prices and quantities, it is perhaps better to accept from the outset that *any* scientific method of measuring these categories must, to some extent, be anchored in our initial values. Indeed, it is these initial values which make our analysis worthy in the first place, so they must be clearly identified for that analysis to carry any weight.

We begin our discussion by introducing, in the first section, the notion of commodity 'characteristics' as the basic building bloc for quality adjustment. Then, in the second section, we turn to examine criteria for discriminating relevant from irrelevant characteristics. In the third section, we explore how this framework is used to periodically adjust the standard price and quantity indices. In the fourth section, we examine an alternative and increasingly fashionable procedure, which uses hedonic regressions as a means of achieving continuous quality adjustment. In the final section, we argue that the evident limitations of existing methods require that we develop alternative indices which may better suit our own theoretical framework.

5.1 Commodities and Their Characteristics: Search for Objective Criteria

Because they seem to change, commodities themselves cannot be used as a uniform standard for temporal comparison and alternative units must be sought. One solution for this difficulty has been to define commodities as collections of smaller building blocks, or 'characteristics,' which are readily measurable. Lancaster (1971) for instance, formalized a taxonomy of characteristics as a basis for a new approach to consumer demand (although this could be equally used in reference to non-consumer goods). He proposed to view the relationship between people and things as a two-staged affair consisting of an *objective* relationship between things (commodities) and their characteristics and a *subjective* relationship between characteristics and people:

> All goods possess objective characteristics . . . The relationship between a given quantity of a good (or a collection of goods) and the characteristics which it possesses is essentially a technical relationship, depending on the *objective* properties of the goods and, sometimes, a context of technological 'know-how' as to what the goods can do, and how. Individuals differ in their reactions to different characteristics, rather than in their *assessment* of the characteristics content of various good collections. (p. 7, emphases added)

Clearly, in order to identify objective characteristics, we must effectively demarcate them from subjective interpretations. This separation is of paramount significance but then we may ask on what practical criteria it should be based? For example, how do we know that an apparent attribute of a medicine is an objective characteristic and not simply our personal conviction? Lancaster's solution is straightforward:

> Operationally speaking, it is *universality* that is important. If everyone *believes* that snake oil has special medical properties, we would analyze behaviour as though this were indeed true even if, in some objective sense, it could not be shown to be true; or even if it could be shown to be false, provided the negative proof was unknown or unaccepted in the society being studied. (p. 18-9, emphases added)

This method is seriously flawed in a number of ways. First, it embodies a double standard for objectivity which may lead to logical inconsistency: if a characteristic was deemed to be objectively true by a criterion of unanimous consent, how could such a characteristic be shown to be objectively false at the same time? Second, the need for 'universal acceptance' is a highly demanding because even minor dissent will render it non-operational. Third and most important, if 'acceptance' and 'belief' are criteria for objectivity what should be the criteria for subjectivity? This latter point deserves further elaboration.

In a modern industrial society, there is abundant information about commodities, some of which appears to be 'generally accepted.' Yet, one may still ponder on how such general acceptance makes the information 'objective.' To illustrate some of the attendant difficulty, consider for instance Lancaster's simple diet example (p. 17) where he tabulates the 'consumption technology' that relates different food items such as milk, eggs, and meat, with some nutrient characteristics like calories, protein and vitamins. The amount of each nutrient per unit of food is said to be objective because it was measured by 'official agencies,' but what happens if such agencies err in their measurements or intentionally falsify the data? Given this possibility, should we not conclude that the 'objective' characteristics of food in fact depend on the social organization of information? Let us carry this example one step further and consider the possibility of scientific progress, where new theories or methods of measurements may produce different numbers of nutrient contents. Could we permit the objective method for measuring protein in milk, for instance, to alter over time, or should we adopt a single method of measurement for all periods? Lancaster provides no clues as for how to address such dynamic historical questions.

While the accuracy of official data and stability of measurement methods in natural sciences may seem to present little practical difficulty, they nevertheless point to the potential hazard in relying on 'universality' as a criterion for 'objectivity.' The difficulties are no longer hypothetical, however, when we consider information that is made universally accepted not by 'official agencies' but *via* means of mass persuasion. In Huxley's *Brave New World*, genetic engineering and brain washing are used to create

legions of twin consumers that share not only the same *preferences* but also an identical *perception* of reality. Clearly, one does not have to go as far as Huxley's black utopia to identify the co-influence stemming from various media of persuasion. When advertisement argues that vitamin pills enhance our long term health, for instance, it concurrently affects our perception of what these vitamins can do and our preference for them. Similarly, when an advertisement encourages us to consume artificial sweeteners but fails to identify their possible link to cancer, it may influence both our preferences and knowledge at the same time. The existence of such ambiguities greatly reduce our ability to use 'universal acceptability' as a criterion for separating objective characteristics from subjective preferences.

All of these questions belong to an age-long and unresolved philosophical debate on the nature of subject and object which, surprisingly, is not acknowledged by Lancaster.[3] He simply takes it for granted that characteristics are objective and hence that their measurement is 'simply a technical matter' which presents no 'operational problems' and should be resolved by engineers (p. 115).[4] The difficulty in his opinion lies elsewhere, namely in determining the *relevant* characteristics.

5.2 The Choice of Relevant Characteristics

Complete characterization of commodities is often impractical according to Lancaster, simply because the number of characteristics may be too large. However, we can still find an adequate approximation with a partial description that ignores immaterial aspects of a commodity, provided such description encompasses all of the *relevant* facets of quality. The natural question arising in this context is how can we distinguish between 'relevant' and 'irrelevant' characteristics? Lancaster stipulates that a

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[3] Ever since the Greek epistemology separated the earthly *appearance* of things from the universal *truth* of the world spirit, philosophers have attempted to bridge this gap between the subjective and the objective. British empiricists like Locke and Hume rejected the notion of universality and argued that apparent uniformity in human thinking was rooted only in customs and habits. German idealists, like Kant, contested this view and argued that perception was universal -- namely common to all humans -- because it required the *a priori* intuition of space and time and various categories such as unity, substantiality and causality. Nevertheless, the Platonic spirit continued to fly unarrested for Kant agreed that objects of experience were indeed never given by themselves and could only be perceived through human experience. Even Hegel's later attempt to unify object and subject into one 'whole' failed to resolve the riddle.

[4] This view is widely held. For similar expressions, see Adelman and Griliches (1961, p. 539), Court (1939, p. 107-8), Rosen (1974, pp. 75-6) and Triplett (1983, pp. 277-8; 1986, p. 37).

characteristic is relevant to a situation if ignoring its existence would lead to different *predictions* about people preferences and choice. But the bases of predictions are subjective. They must rely on a choice among theories and so Lancaster's recipe for the concrete description of commodities is no longer theory-neutral.

An example of the intrusions of such theoretical considerations is provided by Triplett (1983) as part of a broad distinction between input and output characteristics:[5]

> . . . quality variation in an input exists if substitution of different varieties or examples of this input creates variations in output or cost that are not explained by the factors included in the production or cost function. A quality is an input characteristic if it reduces that unexplained variation. (p. 279)

Similarly,

> Something is an output characteristic if it accounts for, or partly accounts for, the unexplained variation in resource usage occasioned by changes in the varieties of nonhomogenous goods produced. (p. 294)

To illustrate Triplett's approach, consider the case of personal computers. 'Computer speed' should be regarded as a relevant input characteristic if variations in speed help to explain changes in the output or 'user-value' generated by the computer. On the other hand, computer speed should not be viewed as a relevant output characteristics if increased speed does not seem to entail higher production cost or an additional use of resources in producing the computer. Following this same logic, 'car size' is not an input characteristic if it does not appear to affect consumer preferences or utility, but it is an output characteristic if it has an apparent impact on production cost.

Two questions arise in this context. First, one may ask which methods -- 'user value' for input, 'resource-cost' for output, or both -- should be used to identify relevant characteristics for any particular commodity? According to Triplett (p. 305) it does not matter. Under conditions of perfect competition and equilibrium, the two methods yield the same numbers because 'the marginal cost of producing a quality change must approximate the incremental value of it to the user.' This must be so, writes Triplett, because otherwise 'a reallocation of resources would take place.'

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[5] This distinction was also central to the earlier work by Fisher and Shell (1972).

These conclusions, of course, are valid only to the extent one accepts the theoretical notions of efficient allocation and equilibrium together with a presumption of perfect competition. Indeed, Triplett acknowledges that in 'reality' the two methods would usually yield different measures for quality because there are 'shifts in functions, interference with competitive allocation, or wrong data' (*ibid.*). The prerequisite of 'competitive equilibrium' in this context has been repeatedly emphasized by most commentators in the quality change debate. Unfortunately, these commentators have generally failed to provide guidance for identifying characteristics when commodities are produced and traded in alternative market structures or in disequilibrium.[6]

A second problem arises because Triplett's recipe is simply incomplete and cannot be readily applied. The procedure requires that we identify the way in which characteristics affect output or input. Unfortunately, such causal relationships cannot simply be 'observed' and must be based, at least in part, on *economic theory*. Furthermore, given a variety of competing theoretical perspectives, the identification of relevant characteristics hinges on the *particular* choice of theory. In our earlier computer illustration, for instance, we need to chose a specific production theory of computer services (to identify input characteristics) and a cost theory of computer manufacturing (to identify output characteristics). Unfortunately, Triplett's procedure provide no guidance on how to select the 'appropriate' theory that should be used in each case.

This latter point is significant for measurement because if distinct theories generate different sets of relevant characteristics they also lead to different measurements of quality. For instance, consider the relation between the required duration of a bachelor programme in economics and the overall 'quality' of the programme in producing graduates. If years of schooling are believed to enhances the 'human capital' of programme participants (in other words, if 'duration' is taken as a relevant input characteristic), an increase from three to four years in the duration of the programme should be considered as quality improvement. On the other hand, if programme duration is regarded as an irrelevant input characteristics, such an increase obviously does not affect the programme's quality. Yet

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[6] For recognition of these prerequisites, see Early and Sinclair (1983, p. 108), Hofsten (1949, pp. 285-86), Rosen (1974), Ulmer (1949, pp. 67-8).

a third perspective may hold that programme duration is a relevant input characteristic because it *undermines* the production of human capital in graduates. From this perspective, increase in duration is definitely a quality deterioration! Evidently, each theoretical perspective in this context implies a different measure for quality change. The choice of one particular measure must then depend on our *theoretical* preferences and hence cannot be considered 'objective.'[7]

Triplett, like other participants in the quality change literature, does not acknowledge the potential impact on quality measurement of such theoretical diversity. As noted above, this literature generally accepts the neoclassical foundations of perfect competition and equilibrium, while alternative views are simply not considered. Furthermore, even within this limited framework, it is customary to talk about *the* production, or *the* utility function which must be empirically 'discovered' as if competing formulations cannot coexist.[8] Unfortunately, even under this imposed theoretical uniformity, the precise functions for consumption, production, cost and utility are admittedly unknown and practical methods of measurement always rely on *ad hoc* procedures.

5.3 Specification Pricing and Quality Change

In practice, most price indices (and associated quantity measures) are based on what is known as 'specification pricing,' where each commodity in the index must fit into some predetermined range of product attributes or 'specifications.' In this way, comparisons are restricted to only those commodities whose specifications remain unchanged over the period and a 'pure' price change can be thus assessed. An important shortcoming of this method stems from its inability to properly account for quality change. Indeed, the Price Statistics Review Committee (headed by Stigler in 1961) was concerned that adherence to strict specifications, in the presence of continuous changes in product mix and commodity quality, would greatly reduce the relevance of the index. As a partial remedy, the Committee

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[7] There is another reason for concern here. For consumer goods, for instance, the choice of relevant characteristics in this method depends on utility functions and consumer preferences. But how can one rely on subjective consumer preferences to describe 'objective' characteristics of commodities? We return to this important question is the fourth section.

[8] For example, see Triplett (1983, p. 274, 302).

recommended we adopt 'more general rules for recognition of comparable qualities' and restructure specifications along 'more flexible lines' (p. 34). Following this suggestion, U.S. agencies, such as the Bureau of Labor Statistics, developed 'subspecifications' within main specifications. These extensions provided greater 'flexibility' in fitting products into existing descriptions but they still did not resolve the pending problem of quality change. Two points of difficulty deserve attention here.

First, the rules governing the development of specifications are obscure. The United Nations' *Guidelines on Principles of a System of Price and Quantity Statistics* do not explain how to distinguish between objective variations in quality and differences in subjective interpretations. In fact, the *Guidelines* allow national statisticians considerable freedom in their choice of characteristics:

> In the case of goods, *all* differences in physical composition, components, size style, packaging and operating characteristics (for example, capacity, power, speed, durability etc.) should be considered quality differences . . . In the case of services, quality characteristics relate to such attributes as the activities constituting the services, the conditions under which the services are rendered, the level of skill and training of the persons rendering the services and, if feasible, the benefit generally expected from the services. (p. 9, section 45, emphasis added)

This latitude in choosing relevant characteristics is somewhat restricted along lines discussed in our previous section:

> As an exception to the rule stated above, differences in the circumstances of production that do not lead to differences in utilization or function should not generally be considered quality differences. (p. 9, section 46)

Unfortunately, the United Nations' manual does not provide guidance for the practical implementation of this latter exception. In the absence of clear criteria, the choice of 'relevant' characteristics (for input or output) to be included in specifications is left to the discretion of statistical-service officials and naturally, arbitrary definitions of quality lead to arbitrary conclusions about *changes* in quality. The ambiguity is further enhanced because most statistical services do not provide adequate narratives for their commodity specifications.[9]

A second difficulty arises in bridging the operational gap between fixed specifications and temporal changes in quality. Even with many layers of 'objective' subspecification, the overall description

[9] On the lack of such narratives, see comments made in the Price Statistics Review Committee (1961) and by Griliches (1967; 1971).

of commodities in a price index is ultimately given and hence does not allow for variations arising from quality change in existing commodities, introduction of new commodities and disappearance of old ones. Most statistical services attempt to overcome these problems and preserve the continuity and validity of specification indices, but procedures employed for this purpose, such as ones described in the United Nations' *Guidelines*, contain strong theoretical biases, particularly toward conventional neoclassical price theory and the presumption of equilibrium.

Under specification pricing, a quality change is said to occur when the product or service no longer fits into the predetermined specification. The extent of the change can vary from a minor modification affecting a single aspect in the specification (such as a 2 percent increase in 'car speed') to a multifaceted metamorphosis (such as a replacement of an old automobile model by a new one). The problem, of course, is how to quantify such changes in some universal units of 'quality.' For this, we need to know the relative contribution of each characteristic to the overall quality of the commodity; that is, we must know the 'consumption technology' or the 'production function,' whatever the case may be. Unfortunately, these structures are unknown so methods of indirect estimation are substituted for direct measurements of quality change.

The common adjustment procedure of statisticians uses observed changes in cost or price to estimate non-observable changes in quality. The U.S. Bureau of Labor Statistics, for instance, relies on cost information furnished by producers to estimate quality changes in the Producer Price Index. For instance, if Westinghouse increases the BTU output of an air-conditioning model and informs the Bureau that this modification requires a 15 percent rise in cost (under the *original* technology and factor prices), the change is taken to represent a 15 percent improvement in quality.[10] The same principle is applied in 'splicing,' a method used when a new commodity replaces an old one. As a hypothetical illustration for splicing, consider the introduction of Sony compact disc (CD) players priced at $400, as potential replacement for turntables of an earlier technology which cost $200 per unit. When it is decided to replace the turntable by the CD player in the Consumer Price Index, the observed price difference is interpreted as a 100 percent increase in quality (namely, in quantity of 'music machines'

[10] For further details on quality adjustment to the PPI, see Early and Sinclair (1983).

produced), while the CPI itself remains unaffected.[11] The rationale behind these methods is, again, very simple. It is presumed that in equilibrium, under conditions of perfect competition, the ratio of qualities between two varieties in time or place is just equal to the corresponding ratio of prices.[12] But then this explanation raises two disturbing questions.

The first difficulty stems from the possibility of disequilibrium. When markets are out of equilibrium, there is no unique mapping between qualities and prices and the popular method simply breaks down. To overcome this obstacle in the case of splicing for instance, the United Nations' *Guidelines* (p. 10) recommend we replace products in a price index when the assumption that price differences between the two products are proportional to quality differences is 'most likely to be true.' In simple words, statisticians are advised to perform splicing when markets are in equilibrium. Unfortunately, criteria for identifying occurrences of equilibrium are yet to be developed and the *Guidelines* concede there is a 'difficulty' here. So how should the quality of air conditioners, 'music machines' or any other commodity be adjusted in the meantime? The United Nations have no solution and admit that such corrections must be 'essentially pragmatic' (p. 10).

The second complication emerges when commodities are produced and exchanged in 'imperfect' markets. Incidence of government intervention, oligopolistic practices, or non arms-length transactions could distort or completely destroy the functional relations between price and quality which are presumed to exist under 'perfect' competition. Again the method breaks down. The United Nations' *Guidelines* note these potential hazards on in passing. They discuss two cases of market 'imperfections' but, far from resolving the problem, their proposed solutions only serve to accentuate it.

One case involves the mandatory installation of anti-pollution equipment on automobiles. Here the *Guidelines* recommend to treat such changes as quality improvements and evaluate them by their

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[11] For an explanation of 'splicing', see The United Nations (1977, p. 9).

[12] The process is not as simple if the older turntable disappears from the market before the new CD player is introduced into the CPI. When this happens, the price for the non-existing turntable that 'would have prevailed' in the time of the swap must be somehow imputed. A similar difficulty arises when a totally new product is introduced into the index.

cost of production. The explanation for this recommendation, however, is highly confused. The United Nations agree that because consumers and producers are given no choice in this matter, changes in cost may not provide an accurate measure for quality improvement. Nevertheless,

> . . . it is still appropriate to treat the required improvements as increases in quality, not price. Price and quantity statistics are intended to provide ***objective*** measures (in so far as these are possible) of what has happened to output and its price. Measuring the utility or welfare that output yield is beyond their scope. (p. 10, emphasis added)

But then,

> It is, of course, true that the very concept of "output" involves some assumption about *utility*; however, certain conventions have been adopted for use in national accounting and it seems preferable to maintain the same conventions here. (*ibid.*, emphasis added)

So despite elaborate theoretical attempts to resolve the issue 'once and for all,' it appears that the philosophical questions of objectivity and subjectivity persist unabated. Within the framework of equilibrium and perfect competition, these issues are conveniently ignored but outside this framework one must resort to 'conventions.'

The *Guidelines* also identify another 'special case of difficulty' involving internal transactions between related enterprises or branches of the same company. Since prices set under these conditions may be 'quite arbitrary,' the United Nations (p. 12) suggest we 'abandon value as one of the primary measures' and replace it with 'a measure of physical quantity,' combined with an estimate of 'what the equivalent market price would have been.' This recommendation is puzzling for two reasons. First, how could we obtain direct measures of physical quantity when, in the presence of quality changes, such measures were deemed infeasible to begin with? Second, what formula should be used to impute hypothetical market prices and what is the validity of such imaginary prices? The *Guidelines* do not explore these questions.

This commentary is significant because the practical estimation of quality change appears to rely exclusively on the assumption of equilibrium and perfect competition while, in reality, perfectly competitive markets are not very common and experiences of rapid dynamic change seem contrary to the notions of stability and equilibrium. Consider, for instance, quality changes in the nature of military hardware purchased by governments. In order to adjust the price deflator for military spending to such changes, the U.S. Bureau of Economic Analysis adopts the usual methodology of 'production cost' and

'splicing.' However, weapon systems are not produced and sold in a perfectly competitive market but, rather, in an environment of monopsony and oligopoly from the buyer and seller sides, respectively. Consequently, the meaning of 'equilibrium' in such a market is unclear. It is also not clear what 'utility function' the government attempts to maximize. The 'cost function' introduces further ambiguities because, in the reality of military procurement, it is often hard to establish the meaning of 'normal profits' and even to separate genuine cost from concealed earnings.[13]

Questions raised by these difficulties are by no means limited to military commodities. Can markets for automobiles, consumer electronics, civilian aircraft, medical equipment, machine tools and ships, for instance, be considered perfectly competitive? What is the level of 'normal profit' to be included in cost functions for industries producing for these markets? What are the 'utility functions' for consumers in these markets? How should we interpret attempts to influence consumer preferences in each of these cases? What is the impact of government intervention (through regulation, taxes and subsidies for instance) on prices in such markets? These questions must be clearly answered before we can interpret the validity of quality adjustments to commodities produced in each market. To our knowledge, however, these issues have not been sufficiently addressed in the quality-change literature. Rather than deal with such basic questions, many researchers have chosen to cultivate and refine existing approaches. We deal with one of these attempts in the following section.

5.4 Hedonic Regressions for Price Indices

The most systematic method of adjustment for quality change can be found in the application of so-called 'hedonic regressions.' The method was first suggested and applied by Court (1939) and was latter used in studies by Stone (1956), Griliches (1961) and others.[14] During the 1980s, hedonic regressions were employed, for the first time, to adjust official price indices for computer equipment and

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[13] For further details on the construction of price indices for military spending, see Ziemer and Galbraith (1983).

[14] For a detail bibliography on 'hedonic regressions', see Griliches (ed.) (1971) and Triplett (1975). References to recent studies are cited in Cole *et al.* (1986) and Triplett (1986).

new one-family houses in the national income and product accounts of the United States.[15] Despite frequent suggestions to the contrary, hedonic regressions do not provide any new insight into the issue of quality adjustment. The hedonic technique is nevertheless interesting because its elaborate nature heightens difficulties which are also implicit in other adjustment procedures.

Like other existing approaches for quality adjustment, the hedonic regression is firmly rooted in the assumption that quality is correlated with price. Indeed, Griliches (1961, p. 57) is resolute when he asserts that

> The reason why [at any one time] different varieties or models sell at different prices *must be* due to some differences in their properties, dimensions, or other "qualities," real or imaginary. (emphasis added)

Under the common system of specification pricing, the primary focus is on a commodity and adjustment for differences in quality are performed only irregularly. The hedonic approach, in contrast, focuses directly on characteristics to enable a more or less continuous adjustment for quality differences. In this approach, the familiar functional relationship between the commodity's quantity (Q) and price (P) is recast in terms of quantity $\{q_i\}$ and 'implicit' prices $\{p_i\}$ for its n different quality dimensions, or characteristics. The general expression for such relation can be summarized by equations (1) and (2):

$$(1) \qquad P = f_1 (Q, t) ,$$

where quantity (Q) can be written as some aggregation of n different qualities:

$$(2) \qquad Q = f_2 (q_1, \ldots, q_n) .$$

In Equation (1), the parameter associated with t is the 'pure' price change that occurs over time, while the parameter associated with Q reflects the implicit impact of overall quantity on the commodity price. In Equation (2), each characteristic q_i is associated with a corresponding parameter p_i which could be interpreted both as the 'implicit' price per unit of this characteristic, as well as the weight, or 'contribution' of that characteristic to the overall quantity of the commodity. This simple framework

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[15] See Cole *et al.* (1986) and Triplett (1986) for more information.

seems to provide a systematic alternative to other, apparently more erratic, quality adjustments discussed in the previous section. A closer examination reveals, however, that this framework does not resolve any of the difficulties haunting the other methods. First, we still do not know which quality variables are 'relevant' for each situation, nor do we know the 'functional form' through which such characteristics presumably affect the price. Second, the emphasis on the seemingly 'technical' nature of hedonic regressions is highly misleading and, in fact, the neoclassical paradigm is as dominant here as elsewhere in the quality-change literature. An illustration of these issues is provided by the work of Griliches (1961) on automobiles.

Griliches examined data for U.S. passenger four-door sedans for the years 1937, 1950 and 1954 through 1960. He related list prices for different models to three numerical quality variables (horsepower, weight and length), as well as to six dummy variables which indicated the presence of other quality attributes as 'standard' features (V-8 engine, hardtop, automatic transmission, power steering, power brakes and whether the model was considered a 'compact' car). Econometric estimations were based on the following linear semi-logarithmic form:

$$(3) \qquad \log P = p_0 + \Sigma_i p_i q_i + u \,,$$

where P is the list price for the model, q_i is the value for the ith quality characteristic, p_i is the implicit price for that characteristic, p_0 is the 'pure' price (equal for all different models) and u is an error term. This functional form was applied to (1) cross-sectional data for each individual year, and (2) cross-sectional data with observations drawn from two or more adjacent years. (In the second formulation, shift variables were added to the regression in order to capture the pure price change that occurred between adjacent years.) Hence, the first scheme allows implicit price estimates to vary from year to year, while the second assumes that these implicit prices are fixed for the entire period.

Clearly, parameter estimates derived in this context depend crucially on the *particular* choice of included variables, functional form and cross-sectional method of estimation being employed. Griliches (p. 53) admits that '[T]here is no a priori reason to expect price and quality to be related in

any particular fixed fashion,' so he cannot explain why any specific scheme is to be preferred over alternative ones. According to Griliches, his own decisions were based on 'empirical' considerations. A large number of different regressions were computed for different combinations of years and independent variables, and the final choice was based on 'an inspection of the data and the convenience of this particular formulation.' In a later article (Griliches, 1971, p. 15), it was suggested that one should chose the framework that provided the 'most *concise* and stable explanation of reality.' But reliance on 'empiricism' here could be quite precarious for two reasons. First, there are no objective criteria for choosing the most 'convenient,' 'concise,' or 'stable' explanation of reality among competing econometric formulations. Second, the *measurement* of quality cannot depend on the *explanation* of price changes and remain theory-neutral at the same time. It is fairly clear that despite its apparent rigour, the decomposition of price into 'quality' and 'pure price' elements in the hedonic regression is far from being 'objective.' Like simpler methods, the hedonic regression also involves a mixture of theoretical and arbitrary decisions.

To study these difficulties further, let us consider the estimates for implicit prices obtain by Griliches (reported in Table 3.4, p. 66). The most striking feature here is the marked variability of coefficient estimates between the different periods. For instance, in 1954-55, the 'implicit price' of 10 horsepower units amounted to 2.4 percent of the overall automobile value. In 1957-58, however, this fell to 0.4 percent, only to rise again in 1959-60 to 1.1 percent. A similar variability is evident for most other parameter estimates. Griliches (p. 64) suggests that this instability in implicit price estimates for various 'quality' attributes is an 'empirical' problem, which stems from a high correlation between the different quality variables and, also, from a lack of variability in some quality attributes between various models. Of course, this response is not the only possible explanation since, in the hedonic framework, implicit prices should be also sensitive to changes in the 'supply' and 'demand' functions for characteristics. Griliches (p. 79) is aware of this possibility, which he equates with the 'classical index number problem of changing weights,' but declares that 'Not much can be done about this in practice'[!] For our purpose however, the issue here is not so much the solution but the proper identification of the problem.

In the hedonic method, 'quality' is perceived to be embedded in an array of characteristics and the hedonic regression purports to provide us with an estimated weight, or contribution of each of these characteristics to 'overall quality' (or quantity). The trouble is that these weights are not fixed, in other words, the 'quality contents' of each characteristic changes over time. But then if the contribution of 10 horsepowers, 1 pound of weight, or 10 inches of length to 'automobile quality' can change from year to year, this means that quality is not solely intrinsic to the commodity and also depends on other, 'external,' factors. What are these other factors which make quality unstable? Griliches points to changes in 'tastes' and 'supply factors' but, in doing so, he confirms the view that quality is essentially a *subjective* matter. The issue is crystallised when we note how his weights for some characteristics fluctuate between positive and negative values (p. 66). The weight for a 100 inches of automobile length, for instance, was 0.07 percent in 1957-58, but, in 1958-59, fell to -0.18 percent. Is it possible for an 'objective' characteristic to represent a positive quality in one year and an 'anti-quality' in the next? In light of Lancaster's treatise (1971) on objective characteristics and subjective preferences, we suspect the answer should be negative.[16] Fisher and Shell (1968, p. 24) are also troubled by this conceptual riddle when they raise the basic question of 'just what we mean by taste change as opposed to a quality change.' They provide a separate theoretical treatment for each of these concepts but, unfortunately, they too fail to indicate how we should distinguish between quality and taste in practice.

Estimates from hedonic regressions are open to reinterpretation for other reasons. Griliches (1961, p. 76) writes that

> One of the problems associated with the use of list prices in this study is the extent to which they may just represent *pricing mistakes* by manufacturers at some point in time. A manufacturer may *overprice* or *underprice* a particular innovation, and there is nothing in our method that would catch it. (emphases added)

Again, before we turn to Griliches' proposed solutions, let us contemplate the problem further. What should we understand from Griliches' reference to 'pricing mistakes,' 'overpricing' and 'underpricing?' Clearly, these concepts are meaningful only when we have a yardstick for 'correct' pricing, but it is common knowledge that such an unequivocal benchmark is provided only by equilibrium in a perfectly competitive market. The presence of this prerequisite leads to three dilemmas. (1) If pricing 'mistakes'

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[16] As we argued, Lancaster's taxonomy contains some serious inconsistencies and ambiguities so the answer here cannot be definite.

are the result of disequilibrium, we can no longer accept the basic assumption made in Griliches (1971, p. 4) on the existence of a 'reasonably well-fitting' relation between the prices of different models and the level of their characteristics. (2) In a perfectly competitive market, prices are determined by the 'invisible hand,' not by individual producers. Under these circumstances, it is not clear how pricing 'mistakes' by manufacturers are possible. (3) If markets are oligopolistic or monopolistic rather than perfectly competitive, the meaning of a 'correct' price is unclear. Should we consider a price to be the 'correct' one when it reflects the 'true quality' of the product, when it gives rise to the maximum profit, or when company managers view it as the 'proper' one under the circumstances? How could we know whether or not the price satisfies any one of these requirements? Each one of these three quandaries casts heavy doubt on the validity of hedonic regressions. Griliches prefers to ignore these questions because they are 'general:'

> [T]he doubt whether the evidence of the marketplace reflects adequately, if at all, the "true" marginal utility of different items or qualities to the consumer can be turned against any other price or commodity. It is not a problem peculiar to the measurement of "quality." (pp. 60-1)

Once this is said, Griliches feels free to proceeds with suggested solutions. His remedies are interesting because they, again, attest to strong neoclassical theoretical biases.

One solution is to relate the temporal behaviour of residuals from the hedonic regression to the market share for each individual model. The residuals are taken as proxies for 'pricing mistakes' as compared to the 'true' implicit prices predicted by the regression. With this interpretation, 'overpricing' (or 'underpricing') should lead to a reduction (or an increase) in the market share of the particular model, as consumers rearrange their purchases to maximize the quality return on their dollar. The problem with this cure is that the proof is already embedded in the hypothesis: if producers are oligopolies, how could the hedonic regression estimates be taken to represent the 'true' implicit price for characteristics? Furthermore, market shares in oligopolistic markets can be influenced by a host of factors in addition to the price of marginal utility. In particular, with massive advertising campaigns by manufacturers, one should be careful before attributing changes in consumption patterns to 'rational' consumer decisions.

Another way of verifying the validity of coefficient estimates derived from data on new automobiles is to compare them with quality estimates based on markets for used cars because, according to Griliches (p. 77), 'prices of used cars are not tied any more to the manufacturers' list prices and are set, presumably, more directly by the "market".' This alternative is deficient in two main ways. First, one may suspect that the presence of a large oligopolistic market for new cars affects prices set in the used-car market. Second, even if we believe that prices in this market are equilibrium outcomes of the interplay of supply and demand in a perfectly competitive environment, we must still be able to distinguish between the price associated with 'quality' embedded in new automobiles and the discount allowed for 'depreciation' of that quality in second hand cars. Cagan (1965) attempted to resolve this difficulty by first estimating a 'depreciation coefficient' from market data and then adjusting quality estimates accordingly. Unfortunately, the depletion of quality over time is no more observable than quality itself so Cagan's estimates of depreciation are only as good as the arbitrary assumptions on which they are based.

These are only two ways by which one can amend reality to fit the preconceived neoclassical framework. With sufficient resolve, many more can be devised. An alternative path is to recognize the reality of an oligopolistic market structure and evaluate the consequences for the hedonic-regression method. Dhrymes (1971), for instance, estimated implicit prices for characteristics of automobiles and refrigerators and found that these coefficients varied between the different manufacturers. This led him (p. 104) to conclude that the estimated coefficients represented

> the manufacturer's own evaluation of the model's features in the context of his own price-quantity selling strategy -- remembering that we deal essentially with an oligopolistic market and that the oligopolist may well be "satisficing" his profits on a cost-plus-markup basis.

Under these conditions, writes Dhrymes (p. 93), 'we cannot, strictly speaking, construct "quality corrected" price indices routinely in the manner suggested by Court (1939) and Griliches (1961).'

5.5 Alternatives to Utilitarianism: Beyond Perfect Competition and Equilibrium

We have argued that the measurement of price and quantity indices is neither objective nor free of theoretical biases. The attempt to develop 'objective' commodity measures in the presence of quality

change is besieged by a constant resort -- explicit or implicit -- to 'subjective' considerations. Both the idea that quality can be measured (objectively or not) and the methods developed for that purpose are closely tied with the neoclassical paradigm. The evidence supporting these conclusions seems overwhelming.

This view may prove disheartening for those who prefer to have 'reliable' and 'objective' data, with which they can describe the world and rigorously test their theories. One may hope that, although there are serious methodological difficulties, they present only minor *practical* problems. Triplett (1975), for instance, surveyed numerous studies on quality change and concluded that there are no clear evidence that price indices are systematically biased in one way or the other. This conclusion, in itself, reflects a misunderstanding of the problem. Such inference is possible only if we already assumed that price indices can, in fact, be denominated in some neutral, *a*-historic units of 'quality.' The nature of this problem is best illustrated in reference to long-term historical comparisons. Economists often examine price and quantity series that extend over a century or more but the meaning of such comparisons is unclear. For instance, how should we interpret the measure of real GNP in 1882 when denominated in '1982 prices'? Most commodities produced in 1882 were simply unavailable in 1982 and hence could not have '1982 prices.' Furthermore, every generation of goods and services introduces new features and eliminates older ones, so even the imputation of implicit prices for characteristics is infeasible. Finally and perhaps most significantly, the 'desirability' of any commodity attribute and the 'satisfaction' it may provide change drastically with social conditions. In this context of vast changes, comparisons of uniform quality units may often seem absurd but the United Nations' *System of National Accounts* (1968, p. 61) nevertheless hopes to circumscribe the problem by arresting history in a straightjacket: it suggests to formulate characteristics so that 'their validity is as far as possible *timeless*.'

Is it at all possible to have theory-neutral, objective indices for price and quantity in the presence of historical change? In our view, the answer is negative but this need not destroy the prospect for empirical economic research. Like Carr (1961), we also believe that any study of society necessarily reflects subjective biases of the observer and that such biases must be recognized, not ignored. In the next part of this work, we propose an alternative framework which seeks to analyze inflation as an

antagonistic process of dynamic restructuring. We emphasize not the individual, but the group; we accentuate not equilibrium, but continuous historical change; we focus not on universal utilitarianism, but on the conflicting duality of creativity and power. From that vantage point, 'timeless,' hedonic-based indices for prices and quantities are not only impossible to construct, but also quite unhelpful. Instead, we will suggest (in Chapter 7) a new family of indices which are biased -- in a clearly defined way, we hope -- toward our own theoretical dispositions.

PART TWO

INFLATION AS RESTRUCTURING

CHAPTER 6

STAGNATION, INFLATION AND RESTRUCTURING

While the first part of this work examined the impact on inflation of economic *structure*, in this part we deal with the interaction between inflation and *restructuring*. Specifically, we suggest that, since inflation is an inherently dynamic phenomenon, its causes and implications transcend the *static* boundaries of given structures and institutions and should be sought for within the *dynamic* context of structural and institutional change. More fundamentally, we submit that if there are indeed causal links between inflation and restructuring, these relationships are not between two separate and distinct phenomena, but rather between two manifestations of the same historical transformation. In other words, we set to examine not inflation *and* restructuring, but inflation *as* restructuring. Thus, in this part of our work we propose a new framework for analysis which is concerned not merely with providing alternative explanations, but primarily with reexamining the very definition and meaning of inflation.

Given the scope of this challenge, it is necessary to situate our analysis within the wider context of modern capitalist development and that is the purpose of the present chapter. Our main focus here is on the relationship between the broad phenomenon of stagflation and the differential process of accumulation and concentration. We argue that the simultaneous appearance of inflation and unemployment which economists began to notice mainly during the latter half of this century, is not at all 'abnormal' or 'anomalous' as many tend to think. Instead, we suggest to the contrary, that stagflation could be seen as a 'natural' outgrowth emerging from the fundamental interaction between large-scale *industry* and large-scale *business enterprise* and that, in this broad sense, stagflation is in fact rooted in the very evolution of modern capitalism.

Our discussion and conclusions derive mainly from a critical interpretation of two important contributors -- Mancur Olson and Thorstein Veblen. The first based his theory on neoclassical principles, attempting to demonstrate their universality across time and place. The second was influenced by the

historical school and concentrated specifically on the institutional features of modern capitalism. Despite the fundamental differences in their respective frameworks, both writers arrived at a similar conclusion, namely, that the phenomenon of stagflation is inherent in the dynamic evolution of collective economic action, particularly in the rise and consolidation of 'distributional coalitions.'

Given the length and breadth of this chapter, it is perhaps useful to precede with a concise overview of substantive issues. Briefly, Olson suggested that stable societies have an inherent tendency to accumulate coalitions which seek to increase their *own* share in the total societal output by limiting *overall* economic growth and employment. With the progressive multiplication and consolidation of these coalitions, the 'natural' rate of unemployment tends to rise and inflation is increasingly revealed as stagflation. Unfortunately, Olson, dealt only with the stagnation part of stagflation, leaving its inflation side largely unexplored and seemingly unrelated to his main thesis. His concepts, however, are still very useful in reinterpreting the much earlier contribution of Veblen. Writing at the turn of the century, Veblen was probably the first and only author to provide a consistent framework which rooted both inflation and stagnation in the dynamic consolidation of distributional coalitions. Although he was of course unfamiliar with the noun 'stagflation' (which was to be coined only in the 1970s), Veblen identified this phenomenon as the most fundamental structural process of modern business enterprise. His analyses suggested firstly, that in a 'mature' capitalist economy, business prosperity necessitates industrial stagnation; secondly, that the extent of industrial stagnation was affected by the process of business concentration and the consolidation of large business coalitions; and, thirdly, that since business restructuring occurred through capital accumulation, the tendency toward industrial stagnation was accompanied by a progressive asset inflation, in other words, that stagnation and inflation tended to appear concurrently as 'stagflation.' Taken together, these three propositions enable us to approach the evolution of modern capitalism as a dynamic, double-sided process. On the *disaggregate* level, there is a relentless process of business restructuring, involving continuous changes in corporate concentration and in the organization of corporate coalitions. The differential effects of this restructuring are revealed on the *aggregate* level in the form of stagflation.

6.1 Distributional Coalitions

It is perhaps convenient to begin our discussion of institutional dynamics with the general theoretical framework proposed by Olson, first in his 1965 work on *The Logic of Collective Action* and, later, in his 1982 book on *The Rise and Decline of Nations*.[1] According to Olson (1982, p. 184), all familiar macroeconomic theories abstracted from the very essence of the problem they sought to solve; while otherwise full of profound and indispensable insight, these theories were also 'fatally incomplete,' each having a 'hole at its very centre.' In the Keynesian theory, involuntary unemployment depended, at least in part, on the downward stickiness of nominal wages, but Keynes never explained why wages were sticky, the level at which they were stuck, or the duration of their invariability. The monetarist explanations avoided the pitfall of sticky wages but these theories failed altogether to explain involuntary unemployment or, for that matter, the existence of any massive and prolonged unemployment. Cost-push theories for inflation and stagflation were important in emphasizing the potential significance of monopoly power, yet they did not clarify why monopoly power should affect the rate of inflation (as distinct from relative prices) and why the rate of inflation varied over time.

In Olson's opinion, these fundamental deficiencies arose largely because economists failed to incorporate the evolution of economic institutions and political cultures into their macroeconomic theories. Excessive emphasis on individual action served to divert attention from the activities of *dominant groups and organizations* which, in the final analysis, were the primary determinants of 'sticky prices,' 'involuntary unemployment,' 'government policies' and, in fact, the very 'rise and decline of nations.' The central position occupied by alliances, associations, combinations and coalitions in the course of social evolution suggests that, in order to get to the root of broad economic phenomena, we must go beyond the restricted context of individual action and incorporate into our analysis the logic and implications of *collective* action.

To do that, Olson begins with the basic rationale for collective action. Common sense suggests that rational individuals will seek to promote their own personal interest, but that does not necessarily

[1] Shorter statements can be found in Olson (1988 and 1989).

mean they will strive to promote the collective interest of a group to which they belong. As members of a *large* group, individuals will usually prefer *not* to engage in collective action. For example, few rational consumers contribute money to consumer protection groups; most voters would not donate money to the political party for which they vote; numerous tax payers strive to minimize their tax payments the spending of which they ultimately enjoy; unemployed workers rarely attempt to organize political pressure groups; and many unionized workers would prefer not to pay their own union dues (provided most other workers do). This apparent 'paradox' between the interest of the group and the action of its members often disappears when the group is relatively *small*. For instance, General Motors may choose to unilaterally spend substantial amounts of money to promote tariff policies which are advantageous not only to itself, but also to the other two domestic automobile producers; or, Bechtel Corporation may invest in promoting an atomic energy policy which will favour not only its own interests but also those of other large firms such as Westinghouse and General Electric. According to Olson, both types of behaviour are entirely rational and the reason is very simple.

For an individual, the gross benefit from participating in collective action commonly appears in the form of a 'public good,' such as a higher wage rate for unionized workers, a higher price for the members of a cartel, or a lower corporate tax rate for members of a business lobby group. Note, however, that in order to obtain such individual benefits, the public good must be made available to *all* members of the group and this could be quite costly. In this context, a rational optimizer would consider participating in collective action only if his expected net benefit is positive; in other words, only if his own contribution toward obtaining the public good is smaller than the gross benefit that contribution is expected to generate for him. Now, *ceteris paribus*, an increase in the size of the group will tend both to augment the cost of obtaining the public good and to reduce the share of the overall gain accrued to any individual member. Put somewhat differently, as the size of the group and the total cost necessary to attain a collective good grow, the effect of any individual contribution on the probability of securing that good tends to decline and thus diminishes the net benefit an individual can expect to derive from participating in such collective action. Since the incentive for group action decreases as the size of the group increases, large groups will find it more difficult to organize and act collectively than smaller ones.

Note that the forgoing argument does not rule out the collective action of large groups. Indeed, such groups do organize and act, but the support of their members is commonly secured not with collective goods, but with so-called 'selective incentives.' In a large group, the net benefit to an individual from participating in collective action is usually negative and, in order to ensure such participation, *additional* incentives must be applied to individual members depending on whether or not they contribute toward attaining the collective good. (Selective incentives may be either negative or positive. A legal penalty imposed on those union members who fail to pay their union dues, or a jail sentence for citizens who evade federal income taxes are examples for negative incentives, while allowing individuals or firms to deduct from their tax returns contributions they made to political parties is an illustration of a positive incentive.) This and the previous considerations lead Olson (p. 34) to two basic conclusions. One is that groups with access to selective incentives will be more likely to act collectively than those which cannot institutionalize such incentives, and the other is that smaller groups will be more prone to collective action that larger ones. Together with these conclusions, the logic of collective action has far-reaching implications to which we now turn.

First, in every society there will be some large social groups which cannot institutionalize the selective incentives necessary to secure the support of their members. These groups will not organize for collective action and consequently will be left out of the social bargaining. Their exclusion casts doubts on the overall merit of free bargaining. The conviction that such bargaining is essential for economic efficiency may be adequate for an atomistic society of separate individuals but, in reality, where some individuals act collectively while most others cannot, the gains for the bargaining parties often come at the expense of those who were left out. According to Olson, this simple consideration serves to indicate that neoclassical assumptions about rational behaviour do not necessarily imply social harmony and overall economic prosperity. In the context of collective action, rational action is in fact a major *antagonistic* force and, hence, even in the absence of any other obstacle, 'a society that would achieve either efficiency or equity though comprehensive bargaining *is out of the question*' (p. 37, emphasis added).

Second, the problem is greatly aggravated by the specific nature of collective action. While every group in society is normally interested in overall efficiency and growth, only a few will find it beneficiary to *contribute* toward such ends. This becomes evident if we view aggregate growth and efficiency as public goods available to all groups in society. Following the logic of collective action, a group should strive to promote broad social ends only if its expected net benefit from such action is positive; in other words, only if the expected gross benefit *to the group* exceeds the cost it must incur in order to obtain these benefits *for society as a whole*. For small groups, the expected net benefit of such action would usually be negative and, hence, although such groups may wish to enjoy macroeconomic prosperity, they will rarely sacrifice their own resources to promote it.[2] Apart from striving to *increase the social pie*, the only other course of action open to small groups is to try and *obtain a larger share of that pie*. The net benefit from following this latter strategy will usually be positive and this, too, follows directly from the logic of collective action. An attempt by a group to redistribute income in its favour is likely to cause a misallocation of social resources and an overall reduction of aggregate output. These are collective misfortunes and are detrimental to all members of society. The benefit from redistribution, on the other hand, accrue only to the group itself. Now, for a small group, the potential gains from redistribution will normally be vastly larger than the share of the social cost the group must incur in the process and, hence,

> the typical organization for collective action within a society will, at least if it represents only a narrow segment of the society, have little or no incentive to make any significant sacrifice in the interest of society; it can best serve its members interests by striving to seize a larger share of the society's production for them. . . . *there is for practical purposes no constraint on the social cost such an organization will find it expedient to impose on the society in the course of obtaining a larger share of the output for itself.* (p. 44, emphasis in the original)

Since most organizations for collective action are small relative to society, Olson concludes that, far from being conducive to growth, these groups are strongly disposed toward acting as *distributional coalitions*, seeking to redistribute existing income and wealth at any cost to the rest of society.

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[2] Note that the argument here refers only to group action aimed directly and exclusively at promoting broad social ends. While striving to achieve other goals, a small group may also have a positive effect on overall efficiency and growth, but this effect is only indirect and hence does not bear on the issue at hand.

Third, distributional coalitions are relatively slow to act and that, too, has grave implications. For a distributional coalition, the most contentious issue in deciding on a common strategy is the 'proper' allocation of cost and gains among group members. Small groups often try to solve the problem *via* 'consensual bargaining,' while in larger groups, where consensus is difficult to achieve, decisions are commonly arrived through 'constitutional procedures.' Both of these processes are time consuming, particularly when groups have crowded agendas. In order to avoid paralysis, many distributional coalitions tend to bypass the allocation problem by opting for a common price policy, leaving the allocation of quantities to the market or to some other abstract forces. This bias toward price fixing has devastating consequences, particularly for market economies, since it undermines the allocative role of the price system. Furthermore, because they are slow to react, distributional coalitions tend to reduce the long-term vitality of their society. Not only do they make the economy less responsive to changes in tastes, technology and natural conditions, but they also obstruct the creative faculties of society by slowing down the assimilation of new innovations. According to Olson, this inherent inflexibility works not only to restrict the absolute levels of output and employment, but also to reduce the economy's rate of growth.

Fourth, the economic significance of distributional coalitions is strongly tied to their profound impact on the political and cultural transformation of society. Distributional coalitions serve their member by lobbying for favourable government policies or by colluding to alter market outcomes. Over time, with the progressive accumulation of such coalitions (as described below), there is hence a gradual reallocation of resources away from production and toward lobbying and collusive activities. This shift occurs also because the very activities of distributional coalition tend to make the legal system ever more intricate; they complicate the web of laws, regulations and decrees and swell the private professions and governmental bureaucracies which strive on them. The progressive transformation from production to redistribution increases the political intervention in markets, augments the economic role of governments and, in general, makes political life more divisive and antagonistic. In parallel, the growing focus on economic collusion and redistributional struggles creates a complicated system of formal and informal 'understandings' between the different distributional coalition. The complexity of these latter institutional arrangements makes productive activity more risky and less appealing. Finally, beyond their direct effects

on economic and political life, the gradual emergence of distributional coalitions changes the direction of social evolution by slowly degrading the cultural status of productive work in favour of 'predatory' activities related to redistribution.

Fifth, the problem of distributional coalitions is far from being static and tends to grow over time. The process of organizing a group for collective action is costly and often could be initiated only in the presence of some unique and exceptionally favourable circumstances. As a result, organized groups and collusions would tend to emerge over a considerable period of time. On the other hand, customs, traditions, habits and the interests of group leaders work to reinforce those collusive organizations which have been successfully established and, short of forced elimination, such organizations could survive indefinitely. The combined effect of these two dynamic attributes is that 'stable' societies would tend to 'accumulate' distributional coalitions over time.

Sixth, the social damage of distributional coalitions could have been somewhat lessened had these groups been sufficiently large but, unfortunately, there are several factors which tend to limit number and significance of large groups. When distributional coalitions are relatively large, they have some incentive to make society more prosperous and also to minimize the social cost associated with their redistributional undertakings. The rationale behind this proposition is, again, straightforward. Both the benefit to a coalition from promoting overall prosperity and the share of the social cost it must bear to achieve a redistributional gain tend to grow with the size of the coalition relative to society. Thus, 'encompassing organizations' which represent a considerable segment of society may often find that the broad consequences of their actions have a substantial impact on their own particular interest. Under certain circumstances, the particular interests of encompassing coalitions may drive them to promote the overall interests of society. This mitigating effect should not be overstated, however. Because they are easier to organize, small groups will establish themselves faster than large ones and will hence tend to have a disproportionate power in society. In a 'stable' society, this power differential will tend to diminish somewhat with the eventual organization of larger groups, but it will not be completely eliminated. Being first to organize, smaller groups would capture strategic positions which then become unavailable to the larger latecomers. Another factor limiting the incidence of large groups is the

tendency of distributional coalitions to be exclusive rather than inclusive organizations. Depending on the circumstances, there is always some minimum size that a distributional coalition must reach before it can achieve its goal. Yet, since the redistributional gain available for the group is usually given, any further enlargement of the group beyond that minimum will only serve to diminish the distributive shares of existing members. Furthermore, by adding new members, the group may find it more difficult to agree and act collectively. Thus, once they are sufficiently large, distributional coalitions will seek to restrict the size of their own membership and, hence, narrow coalitions will rarely develop into 'encompassing' groups.

Building on the simple neoclassical principles of self-interest and rational action, Olson leads the reader into the seemingly inevitable conclusion that a stable society is intrinsically 'self-destructing.' While social stability is a prerequisite for economic prosperity, it also provides the breeding ground for distributional coalitions which relentlessly labour to arrest overall efficiency and growth:

> To borrow an evocative phrase from Marx, there is an 'internal contradiction' in the development of stable societies. This is not the contradiction that Marx claimed to have found, but rather an inherent conflict between the colossal economic and political advantages of peace and stability and the longer-term losses that come from the accumulating networks of distributional coalitions that can survive only in stable environments. (p. 145)

Thus, contrary to the conviction of some conservatives, the fact that social institutions such as special interest groups survive for a long time does not at all mean that they are necessarily useful to society. Moreover, distributional coalitions are not an exogenous 'imperfection' which merely 'distorts' the proper functioning of production and markets. Instead, these special-interest groups are the *normal* outgrowth of the very economic process they work to obstruct.

The logic and implications of collective action, Olson argues, could help explain a diverse array of social phenomena across time and space. One of these phenomena is the perplexing disparity since the Second World War in growth rates of developed democracies. While some countries, like Japan and Germany, experienced phenomenal economic growth, others, most notably Great Britain, showed a remarkably dismal performance. Much of these differences, Olson suggests, could be attributed to the sweeping repercussions of dictatorship, war and occupation for the delicate networks of distributional coalitions. Countries like Japan and Germany had undergone traumatic political upheavals which

weakened and in many cases destroyed their dominant special-interest organizations and coalitions. In Germany, Hitler annihilated the labour unions and the post-war denazification and decartelization programs of the Allied forces considerably weakened right-wing organizations and business collusions. The post-war emergence of labour unions was encouraged by General Clay who, fearing grass-root socialism, decided to encourage the controlled rebirth of the labour movement under the auspices of the old Social Democratic leaders.[3] These unions later evolved into highly encompassing structures rather than into narrow distributional coalitions. In Japan, the militaristic regime oppressed left-wing groups and, after the war, General McArthur acted to officially dissolve the *zaibatsu*. This forced weakening and eradication of distributional coalitions gave Germany and Japan an enormous advantage over other developed countries which had not suffered dictatorship and occupation. With relatively little growth-retarding institutions, these two countries were well posited for an 'economic miracle' of rapid growth (which they sustained only until distributional coalitions again became dominant in the 1970s.) In this sense, victory was a mixed blessing for the Allied countries. The best example is the case of Great Britain which, among developed democracies, enjoyed the longest impunity from the hardship of revolution, dictatorship and invasion. The economy of Great Britain has been suffering from lacking vitality and slow growth, but this 'British Disease,' Olson reminds us, is a relatively recent phenomenon which emerged gradually since the late 19th century and became acute only after the Second World War. In fact, during the Industrial Revolution, Great Britain had the fastest growing economy in the world and that, according to Olson, was greatly facilitated by the relative openness and mobility in British society, particulary when compared with the semi-feudal structures which still dominated Continental Europe. Since the middle of the 19th century, however, Europe has been inflicted with a barrage of wars and revolutions which decimated existing growth-impeding institutions, while Great Britain continued to enjoy uninterrupted stability. Consequently, even the *laissez faire* regime which prevailed in Great Britain between the middle of the 19th century and the inter-war period was insufficient to prevent the inescapable accumulation of distributional coalitions and these, in Olson's opinion, eventually debilitated the British economy and contributed to the decline of the British Empire.

[3] See Barnet (1983, ch. 1).

Other developed economies were also affected by the history of their distributional coalitions. France, for instance, has been subject to recurrent political instability which, although harmful to capital accumulation, restricted the evolution and accumulation of distributional coalitions and helped to preserve the long-standing vigour of the French economy. The Norwegian, Swedish and Swiss economies have attained very high per capita income levels and that makes their continuous growth somewhat surprising. Yet, these cases, too, could be partially explained by their institutional structures. Given their relatively stable history, Norway and Sweden did accumulate considerable distributional coalitions but, for most part, these tended to be highly encompassing groups which were only marginally detrimental to overall growth. In Switzerland, the accumulation of distributional coalitions has been checked by exceptionally restrictive constitutional arrangements which make it difficult to pass new laws and consequently limit the lobbying power of the coalitions. The case of the United States is more difficult to assess because of its size and diversity, but something could still be said on the experience of individual regions. By comparing the history of the different states, Olson found that their growth rates were negatively related to the time elapsing since their first year of statehood. In his opinion, this variable could serve to indicate the extent to which distributional coalitions had accumulated and thus its negative correlation with growth rates is hardly surprising.

Modern theoretical language and examples from recent history may give the false impression that distributional coalitions are a relatively recent institution, but, in fact, the decline of such coalitions could help explain the very emergence of modern capitalism. During the medieval era, the economic development of Europe was constrained by the gripping hold of guilds. These associations of master craftsmen, merchants and journeymen served their members with typical distributional-coalitions tactics, using their monopoly power and political influence to advance their own interests at a considerable cost to most other members of society. The eventual expansion of mercantilist trade and the subsequent emergence of capitalistic production was conditioned, to a large extent, on the decline of the guild system which started to disintegrate as the process of 'jurisdictional integration' gained momentum. The broadening of markets beyond the traditional limits of the major cities, the freeing of trade and increased factor mobility and, finally, the progressive centralization of previously decentralized political institutions, all had devastating consequences for the guilds. Improved transportation enabled

enterprising capitalists to move their activities from major cities to smaller urban areas and to the countryside, where the absent of the guilds made production much cheaper. The freer trade and enhanced factor mobility broadened the market and hence destroyed the guilds' cartelistic advantage which could be sustained only within narrower trade boundaries. Lastly, the centralization of political power undermined the existing networks of political lobbying on which some of the guilds' power had rested. By contributing toward broader jurisdictions, these transformations slowly stripped the guilds of their destructive faculties and hence turned them into increasingly irrelevant social institutions. According to Olson, a similar institutional restructuring was apparently crucial in many other cases of jurisdictional integration. For example, the continuous geographical expansion of North American markets in the 19th century curbed the accumulation of distributional coalitions and that helps to explain the phenomenal vitality of the American economy at the time. Similarly, the jurisdictional integration of European economies into the Common Market was so successful partly because the removal of trade barriers and the centralization of certain important political institutions deprived distributional coalitions from some of the cartelistic and political privileges they previously enjoyed in their own countries.

Note the significance that Olson attaches to 'free markets' or 'free trade' goes beyond their presumed impact on specialization and the division of labour. These latter processes have attracted much attention from economists and are certainly crucial for prosperity, but such economic processes could not fully develop *unless* free markets and trade also succeed in checking the pernicious emergence of distributional coalitions. That *laissez faire* can indeed fail in this task is perhaps best illustrated by British economic policies in India, where

> more than a half-century of laissez-faire did not bring about the development of India or even get it off to a good start. The laissez-faire ideology in its focus on the evils of government alone *clearly leaves something out.* I submit that it is the distributional coalitions, which over millennia of history in India had hardened into castes. (p. 179, emphasis added)

Ironically, this same failure occurred in Great Britain itself:

> During the nineteenth and early twentieth centuries, precisely when and where laissez-faire policy was at its peak, Great Britain acquired a large proportion of its dense network of narrow distributional coalitions. It was in this same period, too, that the British disease emerged and British growth rates and income levels began to lag. (p. 180)

Thus, contrary to the presumption of many economists, a lack of government intervention is not a sufficient recipe for economic success, simply because free markets do not assure freedom from distributional coalitions:

> As I read it, the ark and covenant of the laissez-faire ideology is that the government that governs least governs best; markets will solve the problem if the government only leaves them alone. There is in the most popular presentations of this ideology a monodiabolism, and the government is the devil. If this devil is kept in chains, there is an almost utopian lack of concern about other problems. . . . The government is by no means the only source of coercion or social pressure in society. There will be cartelization of many markets even if the government does not help. Eliminating certain types of government intervention and freeing trade and factor mobility will weaken cartels but will not eliminate them. (p. 177-8)

Finally, and perhaps most importantly, 'the absence of government intervention (even if it were invariably desired) *may not be possible anyway*, because of the lobbying of special-interest groups.' (*ibid*, emphasis added)

The robustness of Olson's propositions seems remarkable indeed. The logic and implications of collective action provide a common denominator linking diverse historical phenomena such as the emergence of European capitalism, the post-war economic miracle of Japan and Germany, the long-term stagnation of India and the British disease. That does not mean, of course, that all other theories should now be conveniently discarded. A monocausal explanation for the complex processes of growth, stagnation and decline is not only infeasible, but also undesirable and Olson is very careful to stress that his theory has no such claim of omnipotence. As he sees it, the problem of existing theories is not that they are incorrect but rather that they are *incomplete*. Two centuries of economic theorizing have indeed provided highly revealing (often indispensable) insight into most broad economic phenomena but that is still insufficient. To comprehend the dynamic nature of broad economic processes, we must also look under the surface for the latent institutional causes of economic change. Unless we specifically deal with the dominant groups in society and *how they evolve*, our economic understanding will remain critically flawed.

6.2 Distributional Coalitions and Macroeconomics: Beginnings

One area in which such *dynamic* institutional insight is desperately needed but conspicuously lacking is the modern macroeconomic theory for unemployment and stagflation and, according to Olson, this is also where the theory of distributional coalitions gains its strongest conformation. Since Keynes, most macroeconomists who have dealt with involuntary unemployment found it convenient to rely on some notion of price 'stickiness.' Using a conventional diagram of supply and demand, involuntary unemployment is said to exist when, at the prevailing price, the quantity supplied of a given factor exceeds the quantity demanded of that factor and this discrepancy occurs when the price exceeds its market-clearing level. From this perspective, it is clear that, while involuntary unemployment may arise for a variety of reasons, it could *persist* only if prices remain 'sticky,' failing to converge to their equilibrium vector. Any explanation for involuntary unemployment must hence answer the basic question of *why* prices are sticky and this is precisely where most macroeconomic theories fail. From an overall social viewpoint, sticky prices are Pareto suboptimal. With prices being 'too high' and quantities being 'too low,' there is an unrealized hedonic 'surplus' which sellers and buyers could exploit through mutually advantageous transactions at the equilibrium price. In this context, where buyers and sellers have a mutual interest in equilibrium prices, sticky prices are highly embarrassing because they indicate that buyers and sellers in fact *fail* to act in their own common interest! The paradox is of course more apparent than real and its solution lies with the logic and implications of collective action.

While society as a whole could do better without sticky prices, small, special-interest coalitions -- particularly collusive oligopolies and labour unions -- often see things quite differently. In the labour market, the unemployed are too numerous and dispersed to organize for collective action and that means they could not obtain employment in return for some negotiated wage-transfer schemes with the labour unions. Under these circumstances, the best course of action open for labour unions is to try and bloc mutually advantageous transactions between employers and the unemployed and, once this has been achieved, to strive for higher-than-equilibrium wage rates, which of course may perpetuate the unemployment problem. Similarly, since oligopolistic firms cannot establish income-transfer schemes with the multitude of unorganized consumers even if they wanted to, their best strategy is to fix their

prices above competitive levels and, given sticky input prices, that, too, leads to involuntary unemployment.

The detrimental impact of collusive practices on unemployment is of course well known and has often been used by mainstream macroeconomists to explain sticky prices and other anomalies (see Chapter 2). Unfortunately, familiar anti-union sentiments and occasional references to restrictive business tactics are hopelessly insufficient as a basis for macroeconomic understanding. The problem arises because most macroeconomists treat 'monopoly power' not as an integral part of their theory but rather as an exogenous institutional 'distortion.' Given their excessive passion for 'generality,' some orthodox macroeconomists find it undesirable to base their (otherwise) universal models on what they see as exceptional structural 'imperfections,' and it is this very attitude which keeps the answers to their most burning questions safely out of reach. While students of economic structures and institutions have long realized the dynamic *historical* nature of their subject, macroeconomists have laboriously striven to strip their theories so that they could discover the static *timeless* laws of their discipline. With Keynes applying his multiplier principle to both Great Britain of the 1930s and to the slave society of Pharaonical Egypt, and with Friedman declaring that inflation was always and everywhere a monetary phenomenon, macroeconomists were led to believe that their field was indeed independent of both history and institutions. This *a*-historical framework might have been valid had macroeconomists succeeded in explaining the cross-section variability in the performance of different countries, or why macroeconomic performance changed over time, but, unfortunately, these are questions for which macroeconomics has no convincing answers. Some macroeconomists have indeed suggested that differences in national labour practices and changes in government policies could account for spatial and temporal variations in macroeconomic performance, but these *ad hoc* explanations do not solve the problem. Instead, they lead the macroeconomists who use them into a theoretical limbo since standard macroeconomics has nothing to say on the *causes* for structural diversity and institutional change.

If sticky prices and involuntary unemployment indeed depend on the extent of 'monopoly power,' we must deal with the dynamic evolution of such power. If inflation is the outcome of expansionary government policies, we must explain the institutional forces leading to such policies.

Unless we deal with the dynamic causes of such structural developments, we could say very little on why some countries have suffered greater unemployment than others, or on why stagflation seems to have intensified over the last several decades. In short, a theory which relies on institutions must also explain how those institutions arose, and since macroeconomics definitely needs to deal with *structure*, it must also deal with *structural change*. Viewed from this perspective, the theory of distributional coalitions offers much more than a static explanation for sticky prices and involuntary unemployment. It may also help us understand why these and other broad macroeconomic phenomena *evolve* over time.

Olson's logic of collective action says that distributional coalitions will tend to fix prices rather than quantities as has often been supported by evidence on the activities of business collusions and labour unions. It also implies that coalitions will be sluggish and, hence, that their prices will remain 'sticky' for considerable periods. Given their delayed reaction to changing circumstances, distributional coalitions will be slow to lower their prices, even when such reductions serve their group interest. When circumstances call for price increases, however, there will be tolerance and even encouragement for unilateral price hikes by individual members because that helps to bypass the lengthy decision-making process. As a consequence, coalition prices will exhibit less downward than upward flexibility and, that, too, is consistent with abundant evidence about ratchet-like oligopolistic pricing practices. Finally, the incidence of relative price inflexibility across different industries should be positively affected by the prevalence of narrow-interest coalitions. Such coalitions are easier to organize when groups are relatively small and, as many studies seem to indicate, price flexibility indeed tends to be inversely correlated with the degree of industrial concentration.

These assessments lead Olson to infer that, in the final analysis, distributional coalitions and not deficient demand are the *ultimate* source of involuntary unemployment. To explicate this conclusion, he points to a major qualitative change occurring in the way in which the U.S. economy has been responding to deficient aggregate demand. During the 19th century, there were substantial drops in aggregate demand and these indeed led to recessions and unemployment. Yet, in comparison to the Great Depression, the declines in real output and employment were relatively minor and brief. The reason was fairly simple. As a 'young' society with an expanding frontier, the United States has

accumulated comparatively few distributional coalitions that could generate sticky prices and, in this context, even massive declines in aggregate demand were quickly translated into falling prices and left only a smaller mark on real variables. Things began to change with the closing of the frontier and the great surge in corporate concentration during the 1890s and, indeed, it was in that very period that the term 'unemployment' first came into common use. By 1929, on the eve of the Great Depression, the United States has already accumulated a dense network of distributional coalitions. When aggregate demand collapsed in the early 1930s, these dominant coalitions prevented the necessary price deflation and propagated the depression. The crisis was further aggravated by the official sanctioning of industrial 'self government' under the auspices of the National Recovery Administration, and by the legal promotion of unions and minimum wages *via* the National Labor Relations Act and the Wagner Act.

These and other historical examples suggest that aggregate demand has only an indirect effect on involuntary unemployment and that the precise magnitude of this effect is largely determined by the breadth and strength of distributional coalitions. Over time, as distributional coalitions accumulate and become more dominant in society, the 'price effect' of falling aggregate demand tends to diminish, the 'output effect' tends to rise and involuntary unemployment increasingly appears as a 'chronic' problem. Similarly, young societies, or those which have recently emerged from the turmoil of tyranny, revolution or foreign occupation, often recover fairly quickly from the recessionary effects of deficient demand (or other adverse shocks), whereas older, stable societies, where distributional coalitions had more time to accumulate and establish price-fixing mechanisms, experience much longer and painful recessions from which their recovery is commonly incomplete.

From this perspective, the emergence of worldwide *stagflation* in the 1970s does not seem anomalous at all. According to Olson, it is simply the next logical step in a continuous historical process. During a quarter century of relative political stability throughout the western world, the progressive accumulation of distributional coalitions slowly reduced the price effect of recessions until it eventually became positive. As Phillip Cagan describes it:

> the change in rates of change [of prices] from each expansion to the ensuing recession became less negative and, in the last two cycles, the change became positive -- that is, the rate of price increase in the recession exceeded that in the expansion, perverse cyclical behavior not exhibited before. The distinctive feature of the post-war inflations has not been that prices rose faster in periods of cyclical expansion -- many previous

> expansions had much higher rates -- but that they declined hardly at all, or even rose, in recessions. . . . The startling failure of the 1970 recession to curb inflation *was not a new phenomenon . . . but simply a further step in a progressive post-war development.* (Cagan, 1979, cited in Olson, 1983, pp. 219-20, emphases added)

Under conditions of stagflation, it becomes even more evident that the primary cause of involuntary unemployment is not deficient demand. Since the 1970s, price increases were usually larger than the contemporaneous fall in real output which means that aggregate demand (in nominal terms) was in fact *rising* together with unemployment.

Olson's rationale for stagflation could be clarified by separating the long-term change in the rate of unemployment from its short-term fluctuations. Distributional coalitions act by setting their own prices, but the distributional outcome depends also on what happens to other prices. 'Optimal' pricing in this context requires an accurate prediction of future prices, but that is not easy to achieve because coalitions are usually slow to act. Olson maintains that, with their tardy reaction, distributional coalitions will generally *underestimate* changes in the future rate of inflation and that, in his opinion, helps to explain the familiar Phillips Curve relationship between unemployment and inflation over the business cycle. The mechanism is fairly simple. At any point in time, society suffers from a certain 'normal' rate of unemployment inflicted by coalition activity. Now, suppose that the rate of inflation increases 'unexpectedly.' The unanticipated rise means that existing coalition prices will now be lower than what the coalitions would have desired and that will cause the rate of unemployment to fall below its 'normal' level. The same process will work in reverse during periods of unexpected disinflation or deflation. As the rate of inflation declines faster than anticipated, sticky coalition prices will prove to be higher than 'optimal' and that will cause the rate of unemployment to exceed its 'natural' level. Provided that coalitions indeed tend to underestimate increases and decreases in the rate of inflation as Olson claims, unemployment will then be inversely related to variations in the rate of inflation. In this context, the stagflationary drift of the Phillips Curve arises primarily from the rising trend of coalition activity. Over time, the progressive accumulation of distributional coalitions and the consequent spread of sticky prices tend to increase the 'normal' or 'natural' rate of unemployment and that makes society increasingly susceptible to depression during deflation and to stagflation in periods of disinflation.

Unfortunately, this treatment of inflation and stagflation is deficient in a certain important respect. While Olson explains the impact of inflation on distributional coalitions, he leaves the more important question of how the coalitions affect inflation completely unexplored. This shortcoming, we argue, is not incidental, but stems from certain notable weaknesses in Olson's framework which must be addressed. To begin with, it is not clear why distributional coalitions should tend to underestimate the rate of inflation when it is rising and overestimate it when it is falling. Suppose, for example, that the rate of inflation is 8 percent and is about to rise to 12 percent. Why should we assume that a price leader such as Philip Morris will tend to underestimate the coming change? Is it not possible for this company to predict that the future rate of inflation be 14 or 16 percent rather than 10, for instance? Or, consider a coming reduction in the annual rate of inflation from 20 to 15 percent. Is there any reason to assume that the steel lobby, in pressing the U.S. government for tariff protection, will not base its actions on an anticipated rate of inflation of 10 percent rather than say, 17 percent? Similarly, why should we expect economists working for the United Auto Workers Union to underestimate the wage increase needed to protect the real wage of their members? Could they not overestimate it instead? As we have shown in Chapter 4, the notion that slow reaction somehow leads to expectational errors and, moreover, to a particular pattern of errors, is clearly unfounded. For Olson's model this obviously means that sticky coalition prices no longer explain the alleged Phillips Curve. For our purpose, however, the problem stems not so much from Olson's somewhat simplistic model, as from his fundamental assumption about coalition activity.

The notion that distributional coalitions generally suffer from inflation reflects a certain inconsistency in Olson's perception of 'power.' Distributional coalitions are portrayed as essentially rigid organizations with an inherent inability for rapid action. Since they are relatively cumbersome and slow to react, the coalitions are vulnerable to changing circumstances and hence have a strong vested interest in maintaining the *status quo*. Unfortunately, these characteristics are not entirely compatible with the manner in which distributional coalitions supposedly obtain and retain their power. Inherently slow action could explain why distributional coalitions are interested in impeding growth and arresting economic vitality, but it is not clear how cumbersome groups which chronically linger behind changing events could ever accumulate and sustain the power necessary to achieve those very aims. More

importantly, it is hard to envision how distributional coalitions could become increasingly dominant just by *responding* to events and without taking *initiatives* toward altering them. As Olson himself argues, distributional coalitions will dominate the economic scene only as long as they continue to achieve redistributional benefits for their members and, in a dynamic society, that requires not only protecting existing benefits, but also striving to *create* new opportunities.

In focusing on how coalitions *react* to changing circumstances, Olson seems to have ignored the dynamic implications of his own theory. Distributional coalitions may indeed suffer from and object to changes which they have not initiated but, over time, that type of change becomes decreasingly significant. As distributional coalitions accumulate and fortify their grip of society, *they themselves become the primary source of economic and political change*. The common bias of identifying change with 'progress' may mislead us to presume that, being retardants to growth and impediments to prosperity, the coalitions must abhor all types of change. As we argue later in this essay, this view is entirely unfounded. Not all coalitions are born equal and they do not necessarily use the same redistributional tactics. In a capitalist economy, for example, the success of labour unions may depend on preventing change, but other groups, particularly business coalitions, often thrive by generating instability. If those latter coalitions become the dominant force in society, economic change will increasingly reflect their own actions and, in that context, care must be taken not to interpret coalition initiatives as 'responses.'

These comments help to illuminate Olson's inadequate treatment of inflation. As we have claimed earlier, his basic assumption whereby inflation creates 'suboptimal' distributional outcomes for the coalitions, is logically unsound and hence undermines the consistency of his Phillips-Curve model. That, however, is hardly the main point. The more significant implication of that assumption concerns not the effect of inflation on unemployment, but the cause of inflation itself. In arguing that distributional coalitions suffer from their slow *response* to inflation, Olson effectively suggests that those coalitions could not be the primary *source* of inflation and this is where the problem lies. Given this starting point, it is of course quite logical to focus on unemployment from which the coalitions benefit, and to neglect inflation from which they lose. From this perspective, there is certainly no need for a specific theory of inflation and, indeed, Olson makes no suggestion that the phenomenon may be

somehow related to the evolution and activities of distributional coalitions. These presumptions are unacceptable, however. Inflation is neither a natural phenomenon, nor is it an exogenously inflicted 'disease' coming from the outside of society. It is a social process propagated by social institutions and, as such, we have no reason to assume it is independent from distributional coalitions. To suppose that, despite being the primary institutional force in society, distributional coalitions merely 'react' to inflation, does not seem like a very plausible point of departure. The contention that distributional coalitions affect economic fluctuations, productivity and long-term growth but leave no mark on inflation, requires some convincing theoretical and empirical evidence; it certainly cannot be taken as a basic truism.

Olson's concentration on the 'real' variables of growth and unemployment and his disregard for the 'nominal' process of inflation may also have additional, deeper roots. While he ridicules Keynes' and Friedman's claim for generality, his own theory seems no less ambitious. It presents distributional coalitions as a *universal* institution which tends to develop in *every* stable society, from Babylonia and Byzantium, through China and India, to Great Britain, the United States and the Soviet Union. Olson is, of course, careful to emphasize that those narrow-interest groups are unique to the historical context in which they emerge and operate; but given the professed breadth of his theory, he also insists that, underneath this heterogeneity, there lies a single unifying principle, namely, that all coalitions seek a redistributional gain and that they do so by inflicting a substantial loss on society. Moreover, the coalitions' gain and society's losses are assumed to be qualitatively identical. Since both isolated individuals and organized groups are presumably driven by the same hedonic goal of utility maximization, the benefits for the coalitions and the cost for society could be denominated in the same universal units of 'purchasing power' (see the diagram on page 198 of Olson's 1982 book). This reliance on utilitarian principles could not be entirely accidental. Beyond being consistent with Olson's neoclassical leanings, it is also crucial to support his claim for historical generality. Distributional coalitions are said to be a natural outgrowth of *every* stable society and the hedonic quest for material gain appears as the only common denominator which could bridge the vast differences existing between slavery, feudalism, mercantilism, capitalism and socialism. Unfortunately, generality is not always useful, as Olson aptly pointed out. By specifying the logic of collective action in 'timeless,' *a*-historic terms, Olson fell into the same methodological trap against which he warned his fellow economists. Being

based on universal principles, the theory of distributional coalitions is well suited to explain the 'real' phenomenon of growth and decline because these are denominated in material terms common to every society; the theory is *too* general, however, for dealing with the 'nominal' phenomenon of inflation since that process is unique to *monetary* economies.

While price movements have probably occurred since the early appearance of markets, inflation emerged as a broadly based process only as economic activity became increasingly denominated in monetary terms. The great European inflation of the 16th century began after the discovery of America and the consequent outflow of silver and gold, but it is highly doubtful that this inflation would have happened without the concurrent emergence of European capitalism. Such a broad, *macro*economic inflation certainly could not have occurred earlier, in the middle ages for example, when more than 95 percent of the population were living of the land, under an autarkic system of feudal institutions. With only limited, mostly barter exchange, it is clearly meaningless to talk about a 'comprehensive increase in money prices.' An inflationary increase in money prices could constitute a significant phenomenon only in a predominantly monetary economy and it is indeed hardly surprising that the first theory of inflation -- The Quantity Theory of Money -- did not precede capitalism.

Olson suggested that the birth of capitalism was marked by the decline of medieval distributional coalitions. In his opinion, manufacturing and trade started to flourish as society was slowly liberated from the redistributional shackles imposed by the guilds. Yet the death of old distributional coalitions did not at all diminish the extent of redistribution. According to alternative interpretations (such as Galbraith, 1975, pp. 10-13, for example), capitalism was in fact conceived in an unprecedented massive redistribution of income from wages to profits and the chief vehicle for that process was no other than inflation. This link between inflation and redistribution does not necessarily imply a parallel link between inflation and distributional coalitions, but it certainly does not preclude it. What seems clear, however, is that in order to investigate the potential relationship between distribution coalitions and inflation, we must abandon some of Olson's historical generalities and focus directly on capitalism.

6.3 Industry and Business

The first and probably only economist to view inflation as stemming directly from the evolution of distributional coalitions, was Thorstein Veblen. Writing at the turn of the century, his analysis was markedly different from the dominant theoretical vogue of his time. While the neoclassicists searched for harmony of interests as the means and ends of economic activity, Veblen sought to unravel the antagonistic cultural traits which moved human history. In his opinion, society was governed not by a *universal* drive for hedonic pleasure, but rather by a *conflicting* duality of creativity and destructiveness which coexisted in human nature. With the rise of capitalism, this duality has slowly manifested itself through a growing demarcation between 'industry' and 'business.' The 'instinct of workmanship,' that combination of creative curiosity and a basic desire for human progress, has thrived within the material and technological processes of the 'industrial system.' The inherent urge to acquire power and dominate others, on the other hand, revealed itself in the institutions of property and authority governed by the principles of 'business enterprise.' Gradually, as capitalism developed, the requirements of industry became increasingly incompatible with the needs of business and that brought the conflict between productivity and authority, or between workmanship and ownership, into the economic centre-stage. In the 20th century, with the emerging 'new order' of big business, the conflict has culminated in the stagflationary growth of massive distributional coalitions. The larger use of credit fostered a rapid drive toward corporate concentration, and with the industrial system being 'inordinately productive,' the newly-formed coalitions of 'absentee owners' could sustain and expand only with persisting inflation and chronic stagnation.

Veblen's pioneering analysis of ownership sparked a considerable interest in modern market structures, yet, interestingly, his profound insight into the interaction between ownership and inflation received little or no attention at all. In some respects, it appears as if this critical part of his theorizing was transparent and left no mark on its readers, at least on those who dealt with inflation. It is true that Veblen was sometimes vague in his formulations and that he zealously refrained from any formal 'modelling,' but as we demonstrate in the following sections, his analytical framework for inflation and restructuring rested on a logically consistent basis which remained remarkably relevant throughout the

20th century. The exceptional vitality of Veblen's analyses stems in large part from his emphasis on *processes*. He examined not machine production, but the machine process; his analysis of capital was focused on the processes of capitalization and recapitalization; he was preoccupied not so much with prevailing institutions of ownership and power, as with their historical evolution; and he dealt not so much with prices, as with the inflationary process. In his work, Veblen always went beyond the static perspective for economic structure, seeking to explore the dynamic processes of restructuring. And so although his writings were anchored in his own time and elucidated with contemporary examples, they nevertheless seem 'timeless' and remain illuminating even after almost a century of capitalist development.

The basis underlying Veblen's approach to inflation and restructuring was the fundamental distinction between industry and business. The industrial sphere constituted the material and technological framework of capitalism. When considered in isolation of contemporary business institutions, the ultimate purpose of industry, its *raison d'être*, was an ever-growing quantity and quality of produced goods and services. The methods and aims of industrial production were dominated by the so-called 'machine process.' According to Veblen, the machine process involved more than the simple employment of machines; more broadly, it existed '[w]herever manual dexterity, the rule of thumb and the fortuitous conjunctures of seasons have been supplanted by a reasoned procedure on the basis of a systematic knowledge of the forces employed . . . even in the absence of intricate mechanical contrivances' (1904, p. 6). Although machines were operated by individual employees working for individual firms, the machine process was essentially a *communal* activity, for two basic reasons. Firstly, modern industrial production was contingent on what Veblen called the 'technological heritage' of society. Technical knowledge of ways and means was obviously embedded in individuals, but the development and use of such individual knowledge already presupposed a general body of 'community knowledge' grounded in the 'accumulated wisdom of the past' (1908b, pp. 326-29). 'Evidently,' wrote Veblen (1923, p. 64), 'the state of industrial arts is of the nature of a joint stock, worked out, held, carried forward, and made use of by those who live within the sweep of the industrial community. In this bearing the industrial community is a joint going-concern.' Secondly, with the advancement of this technological heritage, production activities grew not only more complicated but also more

interdependent and, consequently, the machine process became something more than a simple juxtaposition of separate productive undertakings:

> No one of the mechanical processes carried by the use of a given outfit of appliances is independent of other processes going on elsewhere. Each draws upon and presupposes the proper working of many other processes of a similarly mechanical character. None of the processes in the mechanical industries is self-sufficing. Each follows some and precedes other processes in an endless sequence, into which each fits and to the requirements of which each must adapt its own working. *The whole concert of industrial operations is to be taken as a machine process*, made up of interlocking detail processes, rather than as a multiplicity of mechanical appliances each doing its particular work in severalty. This comprehensive industrial process draws into its scope and turns to account all branches of knowledge that have to do with the material sciences, and the whole makes more or less delicately balanced complex of sub-processes. (1904, pp. 7-8, emphasis added)

Given this growing interdependency of both knowledge and processes, the efficiency of industrial production increasingly came to hinge on synchronization and standardization. There was a continuous pressure toward an interstitial adjustment of input and output flows between suppliers and buyers and a constant movement toward greater standardization of both production lines and consumption needs.[4] As a highly integrated system, industrial production was strongly disposed toward elaborate planning and close cooperation. Ultimately, it called for 'solidarity in the administration of any group of related industries' and, more generally, 'for solidarity in the management of the entire industrial traffic of the community' (1904, p. 17).

The principles of business differed from the practices of industry, both in methods and goals. Business enterprise meant *investment for profit*. It proceeded through purchase and sale toward the ulterior end of accumulated pecuniary wealth. While industry was a process of production, business was a matter of ownership. Whereas in the industrial sphere, production was carried by the instinct of workmanship, in the business sphere ownership was manifested through the faculties of power. Where industrial activity required integration, cooperation and planning throughout society, business enterprise spelled conflict and antagonism among owners and a cleavage running between businessmen on one

[4] Galbraith's later attack on 'consumer sovereignty' and his notion of the 'revised sequence' closely resemble Veblen's views on the subject: 'The frequency, duration, intensity, grade, and sequence [of consumed goods and services] are not, in the main, matters for the free discretion of the individuals who participate. Throughout the scheme of life of that portion of mankind that clusters about the centres of modern culture the industrial process makes itself felt and enforces a degree of conformity to the canon of accurate quantitative measurement' and 'those who would benefit by the advantages offered must adapt their schedule of wants and the disposition of their time and effort' (1904, p. 14).

side, and the underlying population of working consumers on the other. These profound differences were crystallized into two different 'languages.' Unlike industrial activity, business traffic and business achievements were counted not in terms of some tangible, material units, but rather in strictly *pecuniary* terms:

> The all-dominating issue in business is the question of gain and loss. Gain and loss is a question of accounting, and the accounts are kept in terms of the money unit, not in terms of livelihood, nor in terms of serviceability of the industrial and commercial plants. For business purposes, and so far as the business man habitually looks into the matter, the last term of all transactions is their outcome in money values.(1904, p. 84)

Economists caught in a pre-capitalist habit of thinking have long struggled to reduce business magnitudes to 'real' utilitarian terms but, according to Veblen, such efforts were haplessly misdirected. The pecuniary nature of business terminology was not just a mere accounting convention. More profoundly, it reflected the very essence of business enterprise. The language of utility and serviceability, Veblen pointed out, belonged only to the tangible realm of industry and had nothing to do with the reality of business enterprise:

> In all these civilized countries where the price system has gone into effect men count their wealth in money-values. So much so that by settled habit, induced by long and close application to the pursuit of net gain in terms of price, men have come to the conviction that *money-values are more real and substantial than any of the material facts in this transitory world.* So much so that the final purpose of any businesslike undertaking is always a sale, by which the seller comes in for the price of his goods; and when a person has sold his goods, and so becomes in effect a creditor by that much, he is said to have 'realized' his wealth, or to have 'realized' his holdings. *In the business world the price of things is a more substantial fact than the things themselves.* (1923, pp. 88-9, emphases added)

All of this seemed to confirm that modern economic activity involved not one, but two distinct 'realities': one in which material facts were denominated in terms of heterogeneous units of input and output, and another where all substantial facts where incarnated in the universal category of money values.[5]

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[5] At first sight, this distinction between industrial and business principles may resemble Marx's two modes of circulation. Industrial activity could be viewed as driven toward augmenting use value through a simple circulation (C-M-C'), whereas business enterprise might be perceived as an expanded circulation of exchange values (M-C-M'). This apparent similarity is deceiving, however. While Marx differentiated between simple and expanded circulation, he (and Marxists ever since) still tried to bring them back into a *common denominator* by expressing prices in labour values. For Veblen, on the other hand, there was a *complete separation* between industrial output and business values. Furthermore, as an integrated 'community activity,' industrial production could not be decomposed into separate 'factor contributions' and certainly could not be reduced to units of 'abstract labour.' And finally, in the new order of big business, prices reflected not competitive forces but distributional powers. As we argue below, these considerations served to eliminate the so-called 'transformation problem' (of converting values to prices) before it even arose.

This fundamental distinction carries far-reaching implications for our study of inflation. Note that, in the most general sense, the 'overall price level' could be seen as the ratio between aggregate money values in the business sphere and the congeries of commodities produced in the industrial sphere. Although Veblen did not address this point explicitly, his dual framework clearly implies that the category of 'price' is neither an industrial magnitude, nor a business variable. Rather than belonging to either business or industry, commodity prices in fact constitute the ultimate link between these two spheres of activity. Veblen, much like the eminent classical economists before him, looked for the fundamental social causes behind the appearance of prices and inflation. If we interpret his framework in this light, we could say that, at any one time, the overall price level is much like a hieroglyph, a general code reflecting the underlying relationship between business and industry.[6] Following this logic, it then turns out that changes in the aggregate price level which we habitually perceive as commodity 'price-inflation' (or 'price-deflation') are in fact the universal image of an underlying dynamic interaction between the sphere of business and the realm of industry. In the specific context of mature capitalism, inflation becomes increasingly dependent on the ever-changing institution of absentee ownership and on the evolving forces of industrial creativity, and it is the *interaction* between these two pivotal processes which must be placed at the focus of our inflation analysis.

What was the nature of relationship between industry and business according to Veblen? When considered solely on its own terms, industrial activity was defined in terms of workmanship, cooperation, standardization and planning; yet, in practice, these aspects exerted only a secondary impact on the conduct of industry. In capitalism, industry was carried not for the purpose of serviceability and livelihood, but for profit and, in that context, the industrial system was subordinated to business ends. With capitalist development, 'those elements in the industrial world that take the initiative and exert a far-reaching coercive guidance in matters of industry go to their work with a view to profits on investment, and are guided by the principles and exigencies of business' (1904, p. 2). On the whole,

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[6] This may seem reminiscent of Marx's discussion of the *social code* embedded in *labour values*: 'Value . . . does not stalk about with a label describing what it is. It is value, rather, that converts every product into a social hieroglyphic. . . . The determination of the magnitude of value by labour-time is therefore a secret, hidden under the apparent fluctuations in the relative values of commodities' (Marx, 1906, Vol. 1, pp. 85-7). Yet, as we already noted and will further demonstrate below, Veblen's framework differed from Marx's analysis in certain fundamental respects.

wrote Veblen (1904, p. 26), '[i]ndustry is carried on for the sake of business, and not conversely,' and this particular line of dependency dominated the way in which modern capitalism evolved and functioned.

Now while it might not be entirely clear at first sight, this view, whereby business aims dominated industrial activity, in fact inverted a conventional line of economic reasoning. Note that being a quest for profit, business enterprise was essentially a *claim* on earnings. It was wholly and only an act of *distribution*. Commodities against which profits constituted an effectual claim were created elsewhere, in the industrial sphere of activity. Yet, given that industry was carried for the sake of business, it followed that, contrary to popular convictions, the primary line of causality ran not from production to distribution, but from distribution to production! From this perspective it was then clear that, in order to understand the fundamental processes of capitalism, our inquiry must start not from the realm of industry, but from the sphere of distribution.

Contrary to the neoclassical theory of marginal productivity promoted by his teacher J.B. Clark, Veblen maintained that the distribution of income had nothing to do with 'factor productivity,' simply because economic inputs did not possess any individual productivity to begin with. As we already noted, Veblen viewed industrial activity as an integrated community process in which the 'technological heritage' of society played the paramount role. In his opinion, 'technology,' or the 'immaterial equipment' of society as he also called it, was not just another factor of production which supplemented 'land,' 'capital' and 'labour'. Instead, it was the *vital* cultural substance which made raw materials, machines and physical human labour useful in the first place: 'To say that these minerals, plants and animals are meaningful -- in other words, that they are economic goods -- means that they have been brought within the sweep of the community's knowledge of ways and means' (1908b, p. 329). Without 'technology,' the physical factors of production were economically meaningless objects.

The fundamental importance of this 'technological heritage' could be illustrated with several simple examples. A peasant from biblical Mesopotamia, for instance, would have been useless in a 20th-century Ford factory, not because he could not press a button or raise a lever, but because he

would have been utterly displaced in the broad cultural sense. By the same token, an IBM engineer thrown into the Amazon forest is unlikely to survive not so much because of his physical inaptness, but more due to his alien cultural upbringing. Similarly with raw materials. Stone, which once was a prime raw material for utensil making, is quite useless in the production of modern tools. On the other hand, a crucial present-day raw material like petroleum would have been a largely useless substance in the agricultural manor of the feudal era. Finally, much like physical labour and raw materials, tools and machines also do not have any intrinsic productivity of their own. The usefulness of a modern robot depends crucially on the current 'state of technology.' With the arrival of a new production method, the older robot is most likely to end in the 'junk heap.' The new technology makes it economically obsolete and, although it may have lost none of its operating power, it is no longer a 'capital good.' As Veblen (1908b, p. 348, emphases added) put it, the 'specific technological expedient which it embodies ceases to be effective in industry, in competition with "improved methods." It ceases to be an *immaterial asset*. When it is in this way eliminated, the material repository of it ceases to have value as capital. It ceases to be a *material asset*.' This logic also works in reverse. A modern factory producing semiconductors would have been a worthless (and, in fact, meaningless) collection of physical objects during Veblen's time, firstly, because it could not have been operated and, secondly, because its output would have had no perceptible use. In these and every other case, the transformation of a physical object into an economically useful capital good can neither lead nor lag behind the existing 'state of industrial arts.' As with the other inputs, tools and machines become 'productive' only within a historically-specific technological context.

From a neoclassical perspective, all of this may be interpreted as suggesting that there is perfect complementarity between technology, labour, land and capital goods, which in turn prevents us from discerning their individual productivity. This, however, was not what Veblen had in mind. In his opinion, our inability to estimate individual factor productivity had nothing to do with factor complementarity and he never suggested that labour could not be effectively substituted for capital goods or vice versa. The real problem with 'Professor Clark's Economics,' Veblen argued, was that, irrespective of factor proportions, production was always a community process and hence there was simply no such thing as *individual* factor productivity. The basic belief that labour, land and capital goods made *distinctly*

separate contributions to the industrial process was fundamentally wrong. These inputs were obviously essential for production, but only because they were part of a comprehensive social and cultural process:

> The brute forces of the human animal are an indispensable factor in industry, as are likewise the physical characteristics of the material objects with which industry deals. And it seems bootless to ask how much of the products of industry or of its productivity is to be imputed to these brute forces, human and non human, as contrasted with the specifically human factors that make technological efficiency. (1908b, pp. 349-50)

All of that did not mean, however, that the distribution of income was unrelated to the process of production. According to Veblen, such a relationship did exist, but its nature was totally alien to the 'productivity doctrine.' While the common view held that distribution was a corollary of creativity, Veblen maintained it was a consequence of 'sabotage.' Whereas the customary perception was that income stemmed from the productive *contribution* of an input, Veblen suggested that it was in fact related to the potential *damage* the owner of that input could inflict on the industrial process. It is this 'negative' relationship between production and distribution which we now turn to explore.

6.4 Ownership, Earnings and Capital

Veblen addressed the question of ownership as belonging to the realm of social norms. Although the modern institution of private ownership appeared as an unassailable 'fact,' it was in essence a convention, a habit of thinking which has slowly developed and crystallised into an unquestionable legal structure. Writing within the conventional framework of their own epoch, economists have seldom doubted (at least not until the 20th century) the basic belief that ownership was grounded in productivity:

> This is taken, without reflection or question, to be the legitimate basis of property; he who has produced a useful thing should possess and enjoy it. . . . The main position is scarcely questioned, that in the normal case wealth is distributed in proportion to -- and in some cogent sense because of -- the recipient's contribution to the product. (1898, p. 32)

The roots of this conventional reasoning were so deep that they even transcended the wide divide between radical and conservative economists. For both sides in the economic debate, the ultimate justification for actual or desired ownership was the creative faculties of the owner:

> With the socialists it has served as the ground of their demand that the laborer should receive the full product of this labor. To classical economists the axiom has, perhaps, been as much trouble as it has been worth. It has given them no end of bother to

> explain how the capitalist is the 'producer' of the goods that pass into his possession, and how it is true that the laborer gets what he produces. (*ibid.*)

Over time, with the development of industry and the consolidation of capitalist institutions, the notion of ownership-by-creativity gained the ultimate status of a 'Natural Right' conferred by a coercive 'Order of Nature.' Gradually, it has risen above criticism and assumed a nearly axiomatic status, becoming not only a dominating principle of law, but also an integral part of the 'common sense.' These observations, of course, were concerned only with the conventional status of ownership. Viewed as a habit of thinking, the Natural Right of Ownership was obviously an undisputable social fact. From an analytical perspective, however, the question of whether or not ownership was based on productivity was open to serious doubts:

> This natural-rights theory of property makes the creative effort of an isolated, self sufficing individual the basis of the ownership vested in him. In so doing, it overlooks the fact that there is no isolated, self sufficing individual. . . . Production takes place only in society -- only through the co-operation of an industrial community. . . . Since there is no individual production and no individual productivity, the natural-rights preconception that ownership rests on the individual productive labor reduces itself to absurdity, even under the logic of its own assumptions. (1898, pp. 33-4)

The source of this logical inconsistency, Veblen maintained, was a persisting failure to acknowledge the fundamental distinction existing between industrial workmanship and business power.

Given that production was always a social process, the overall productive capacity of a capitalist society was contingent on the size of its population and, most importantly, on the state of industrial arts. Examined from this broad, *long-term* perspective, stated Veblen (1923, p. 65) '[t]angible assets, considered simply as material objects, are inert, transient and trivial, compared with the abiding efficiency of that living structure of technology that has created them and continues to turn them to account.' Throughout history, the occasional destruction of material equipment and resources was usually a relatively minor inconvenience in the rebuilding of productive capacity. (Indeed, even in the 20th century, when physical accumulation reached unprecedented levels, it took war-stricken Germany and Japan only few years to launch their 'economic miracles.') That did not mean, of course, that tangible equipment and resources were inconsequential. In the very *immediate* term (the so-called 'short run'), existing capital goods and natural resources were indispensable to the conduct of industry and this was where ownership came into the picture:

> For the transient time being, therefore, any person who has the legal right to withhold any part of the necessary industrial apparatus or materials from current use will be in

> a position to impose terms and exact obedience, on pain of rendering the community's joint stock of technology inoperative for that extent. Ownership of industrial equipment and natural resources confers such a right legally to enforce unemployment, and so to make the community's workmanship useless to that extent. ***This is the Natural Right of Investment.***' (1923, pp. 65-6, emphasis added)

Seen in that light, the causal link ran not from the creation of earnings to the right of ownership, but rather from the right of ownership to the appropriation of earnings. 'Capital goods' yielded profits not because of their individual productivity, but because they were privately owned *to begin with*. Business enterprise thrived not on creative contributions, but on the implicit threat or explicit exercise of economic power embedded in ownership. The logic behind these arguments was quite simple. As a community joint-venture, the cooperative undertaking of industry required the use of tangible assets. From an industrial perspective, any withdrawal of these equipment and resources would have the negative consequence of undermining the effectiveness of industry and of cutting the livelihood of the industrial population. From a business perspective, however, the threat and occasional exercise of such 'withdrawal of efficiency' was a wholly beneficial tactic. Since tangible assets used by the industrial community were held under private ownership, the negative effect of their potential withdrawal on industry could be capitalized into a positive business value. In this context, the various forms of profit were not at all a 'remuneration' for the productive contribution of the owned assets, but rather a 'ransom' claimed by their owner for allowing the industrial system to function:

> Plainly, ownership would be nothing better than an idle gesture without this legal right of sabotage. Without the power of discretionary idleness, without the right to keep the work out of the hands of the workmen and the product out of the market, *investment and business enterprise would cease*. This is the larger meaning of the Security of Property. (1923, pp. 66-7, emphasis added)

Thus, the flow of profit, rent and interest derived not from the owner's creative *contribution*, but rather from his established right to forcefully *curtail* the community's creative capacity. For Veblen, the Natural Right of Ownership was vested in nothing more than the vested power to incapacitate.

This language may have seemed exceptionally strong, but according to Veblen, that, too, reflected conventional habits of thinking. The attribution of earnings to 'forceful seizure' and 'sabotage' appeared offensive primarily because it referred to the *contemporary* institution of capitalism. Yet, as Veblen (1908b, p. 334) pointed out, the ownership of industrial capital was not a 'fact of nature antecedent to all human institutions,' but rather a very late historical innovation which has evolved from

earlier forms of private property. Despite their differences, all forms of ownership, including capitalist ownership, were based on the same principle of coercive appropriation dating back to the initial emergence of predatory social customs:

> The earliest occurrence of ownership seems to fall in the early stages of barbarism, and the emergence of the institution of ownership is apparently a concomitant of the transition from a peaceable to a predatory habit of life. It is a prerogative of that class in the barbarian culture which leads a life of exploit rather than of industry. The pervading characteristic of the barbarian life that precedes it, is the element of exploit, coercion, and seizure. (1898, p. 44)

In itself, the institutionalization of forceful seizure has always been intimately connected to the technological evolution of society and, in particular, to the extent and nature of the tangible implements necessary to carry on production. In the earlier stages of social development, forced appropriation was limited if only because there was very little to appropriate. The technological heritage of society was manifested through the use of relatively simple appliances and there was no real advantage in seizing a bow or a spear which could easily be replaced. Eventually, however, as the 'immaterial assets' of the community start to develop and grow,

> it becomes worth while -- this is to say, it becomes feasible -- for the individual with the strong arm to engross, or 'corner,' the usufruct of the commonplace knowledge of ways and means by taking over such of the requisite material as may be relatively scarce and relatively indispensable for procuring a livelihood under the current state of the industrial arts. (1908b, p. 332)

Historically, property rights and the principle of ownership as a habit of thought were conventionally settled on those material items which enabled their owner to partially appropriate the community's industrial efficiency. The first form of property rights, according to Veblen, was the ownership of people, particularly women.[7] With the early division of labour between hunting and domestic work, slaves became an increasingly important repositories of knowledge and slavery became the most common form of private property. The subsequent evolution of agricultural technology turned domesticated animals and land into the most important requisite of production and, gradually, their ownership surpassed slavery in social significance. Now, the important point in this historical retrospect was, that unlike the

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[7] Veblen (1898 and 1899) tried to demonstrate that the primal origin of both private property and the patriarchal household was the early ownership-marriage of women. In this regard, it is interesting to note that much of the Hebrew vocabulary for property and martial/sexual relationship stems from the same linguistic roots. For example, the Hebrew verb BAAL means literally 'to own' as well as 'to marry,' 'to have a sexual intercourse with a woman,' 'to rule over' and 'to master.' Similarly, the noun BAAL means 'an owner' and 'a possessor,' as well as 'a husband,' 'a master' and 'a lord.'

ownership of capital, slavery and the feudal institution of landed wealth were never justified on grounds of productive contributions. As Veblen (1908b, p. 335) pointed out,

> it needs no argument to enforce the proposition that it is a *record of economic dominion* by the owners of the slaves or the land, as the case may be. The effect of slavery in its best day, and of landed wealth in mediæval and early modern times, was to make the community's industrial efficiency serve the needs of the slave-owners in the one case and the land-owner in the other. (emphasis added)

Why was it, then, that economists who found no difficulty in associating earlier forms of ownership with vested power and forced seizure, still insisted that the ownership of capital was different, stemming from the productive contribution of the owner? The answer to this question, argued Veblen, was rooted in the transitory institutions which existed during the *transformation* from feudalism to capitalism.

As the feudal seizure of agricultural produce grew more 'efficient,' a small but growing portion of the underlying population lost its feudal allegiance and drifted toward the expanding industrial towns. These so-called 'Masterless Men' constituted the backbone of handicraft and it was their daily experience which provided the backdrop for the emerging ideology of ownership-by-creativity:

> Out of this workday experience appears to have arisen the common-sense notion that ownership is a 'natural right'; in the sense that what a man has made, whatever 'he hath mixed his labor with,' that has thereby become his own, to do with it as he will. . . . So the thing is his by virtue of having made it. 'Natural' ownership is workmanship wrought out and established in material objects. (1923, p. 48)

As their name suggested, the Masterless Men of the handicraft era worked for themselves with their own material appliances. They were free to do with their produce as they saw fit, in other words, they could sell it for an 'income.' In that way, the petty trade occurring in conjunction with handicraft helped institutionalize pecuniary earnings as a natural extension of ownership-by-creativity. Sale and purchase became part of the Natural Right of Ownership and the earning of income was then seen as a proof of productivity.

Yet, the substitution of a new liberal ideology of Natural Rights for the earlier feudal convention of Divine Rights did not alter the ultimate essence of ownership. In both of these forms, ownership was and remained an *individual* right to appropriate part of the *common* social output. This could be seen from the very notion that one could 'gain' from trade. The idea that buying and selling could generate a profit had no root in the productivity doctrine which traced income to workmanship

rather than exchange. The origin of this convention (before the subsequent elaboration of utilitarian arithmetic for 'consumer-surplus' and 'producer-surplus') seemed much closer to the long feudal and merchantilist experience of gain by seizure. More importantly, the system of handicraft which had such a profound impact on economic thinking did not last for very long and, while the economic creed of Adam Smith was gaining prominence, the institutions on which it was based were quickly fading into oblivion. The apparent overlap between ownership and workmanship which existed during the relatively brief era of handicraft, disappeared with the coming industrial revolution. As with the earlier systems of property, capitalist ownership too was an outgrowth of technological developments, in particular, the emergence of production on a *large scale*:

> In the leading, aggressive industries which were beginning to set the pace for all that economic system that centered about the market, the unit of industrial equipment, as required by the new technological era, was larger than one man could compass by his own efforts with the free use of the commonplace knowledge of ways and means. (1908b, pp. 340-41)

The 'productivity doctrine' of income distribution was embedded in and dependent upon the existence of a freely competitive system of 'equal opportunity' but, with large-scale industry, the very possibility of 'equal opportunity' and perfect competition has become *technologically obsolete*. The modern machine process required an ever-growing concentration of tangible assets which meant that the 'natural right of property' could no longer be akin to the cannons of 'natural liberty' and 'equal opportunity.' In other words, the capitalistic development of large-scale industry *inevitably* led to the separation of distribution from production:

> So soon as the capitalist régime, in this sense [of large-scale industry], comes in, it ceases to be true that the *owner* of the industrial equipment (or the controller of it) in any given case is or may be the *producer* of it, in any naïve sense of 'production.' He is under the necessity of acquiring its ownership or control by some other expedient than that of industrially productive work. The pursuit of industry requires an accumulation of wealth, and, barring force, fraud, and inheritance, the method of acquiring such an accumulation of wealth is necessarily some form of bargaining; that is to say, some form of *business enterprise*. . . . Taking the situation by and large, looking to the body of business enterprise as a whole, the advantageous bargaining from which gains accrue and from which, therefore, accumulations of capital are derived, is necessarily, in the last analysis, a bargaining between those who *own* (or control) industrial wealth and those whose *work* turns this wealth to account in the productive industry. (1908b. p. 342, emphases added)

In the early stages of capitalism, production and business were still interwoven, and the 'captain of industry' was seen as a creative factor, acting both as a master workman, as well as a businessmen. With the expansion of traffic, however, business became increasingly separate from production. The managing

of production was delegated to hired managers and professionals, so as to enable the owner to concentrate on the demanding tasks of business. Gradually,

> [t]he visible relation between the owner and the works shifted from a personal footing of workmanship to an impersonal footing of absentee ownership resting on an investment of funds. Under the new dispensation the owner's guiding interest centered on the earning of the concern rather than on the workmen and their work. (1923, p. 59)

Seen from this perspective, capitalism meant not merely the accumulation of 'capital goods' under *private ownership*, but more profoundly, a division between business and industry affected through the rise of *absentee ownership*.

The institution of absentee ownership altered the nature and meaning of 'capital.' With the new order of large-scale industry, the capitalist became an absentee owner of pecuniary wealth, an investor of funds whose activity no longer belonged to the realm of industry. Instead of being a creation of capital goods, investment now meant a business transaction in which the investor acquired a claim over a stream of money income. Likewise, accumulation no longer meant the augmentation of physical means of production, but rather the expansion of financial values. Under absentee ownership, the object of investment and accumulation -- capital -- was stripped of any physical characteristics and assumed the universal appearance of money value. While many economists still viewed capital as an amalgamation of machines, structures, and semi-finished commodities, for the businessman capital signified something totally different. In the eyes of a modern investor, capital meant a *capitalized earning capacity*. From the businessman point of view, his capital consisted not of the factories, mines, railways, or retail establishments under his absentee ownership, but of the present value of the expected earnings which would accrue to him by force of that ownership.

Absentee ownership and pecuniary investment emerged during the transition to capitalism, initially in commercial ventures and, subsequently, in industrial undertakings. The practice of pecuniary investment spread rapidly and persistently yet, for more than a century after the publication of Smith's *The Wealth of Nations* (1776), this development left little or no impact on the writing of economists who, for the most part, remained preoccupied with the tangible substance of capital goods. It was only with the overwhelming growth of big business in the end of the 19th century, that economists finally began

to catch up with reality and started to ponder about the business view of capital. Though even then, the notion that capital values represented a capitalization of earning capacity was rarely seen as a contentious issue. Indeed, until the Cambridge Controversy of the 1960s, most economists saw no contradiction between the value of capital and its physical appearance. The conventional view was (and remained) that there existed a causal, positive relationship between price and quantity/quality. In the final analysis, things were valuable because they were useful and capital goods posed no exception to that rule.[8] According to the classical and then neoclassical 'productivity doctrine,' income stemmed from and was proportional to the productive services of individual factors. From that perspective, the nominal value of a capital good should indeed be equal to the sum total of its future productive contributions, denominated in nominal terms and discounted to their present value.[9] The value of 'capital' and the tangible substance of 'capital goods' were seen as two sides of the same coin. In the writings of Veblen's contemporaries, such as J.B. Clark and Irving Fisher,

> much is made of the doctrine that 'capital' and 'capital goods' are conceptually distinct, though substantially identical. The two terms cover virtually the same facts as would be covered by the terms 'pecuniary capital' and 'industrial equipment.' They are for all ordinary purposes coincident with Mr. Fisher's terms 'capital value' and 'capital' . . . [According to J.B. Clark] 'Capital is this permanent fund of productive goods, the identity of whose component elements is forever changing. Capital-goods are the shifting components of this permanent aggregate' . . . Mr. Clark admits . . . that capital is colloquially spoken and thought of in terms of value, but he insists that in point of substantial fact the working concept of capital is (should be) that of 'a fund of productive goods,' considered as an 'abiding entity.' (1908d, pp. 195-6)

It is needless to say that such logic did not stand well with Veblen. The neoclassicists, he observed (1923, p. 59), were captured in a pre-capitalist habit of thinking and thus 'endeavored to formulate the new facts in terms derived from an earlier state of things.' By superimposing the concept of capital on a hedonistic-utilitarian system of refined barter, mainstream economists were trapped in a historical absurdity. They were using 'the alleged facts of primitive industry, when there was no capital, for the elements out of which to construct a capital concept, instead of going to the current business situation' (1908d, p. 197). Clark's notion that capital was 'a fund of productive goods' was almost a contradiction

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[8] The hedonic basis of prices is still dominant, as evident from our discussion in Chapter 5.

[9] The Cambridge Controversy illustrated that such a computation was logically inconsistent. It was showed that in order to find the rate of return on capital we must first know the value (or 'quantity') of capital and that already assumed a given rate of return. Put somewhat differently, the value of capital, considered as a capitalization of earning capacity (or productive contributions), was a function of earning capacity and the rate of interest, yet the rate of interest was nothing but the ratio of earning capacity to the value of capital, which meant that the value of capital depended on . . . the value of capital!

in terms. If capital and capital goods were indeed the same 'thing,' how could capital move from one industry to another, while the capital goods, the 'abiding entity' of capital, remained locked in their original position? Similarly, how could a business crisis diminish the value of capital when, as a material productive substance, capital goods remained unaltered? Or, how could existing capital be denominated in terms of its productivity, when technological progress seemed to destroy its pecuniary value? For Veblen, the answer to these questions was straightforward. Capital was simply not a double-sided entity. It was a pecuniary magnitude and *only* a pecuniary magnitude, and it was generally independent of the specific industrial function performed by 'underlying' capital goods.

The value of capital depended on pecuniary earnings, and the right for such earnings, as Veblen repeatedly emphasized, was based on business ownership, not industrial production. 'It is the ownership of materials and equipment that enables the capitalisation to be made,' he wrote (1923, p. 61), 'but ownership does not of itself create a net product, and so it does not give rise to earnings, but only to the legal claim by force of which the earnings go to the owners of the capitalized wealth.' The earnings on which capitalization was based were business earnings, the income of an entire 'going-concern.' In the final analysis, these earnings depended not on the *productive* contribution of the owned capital goods and not even on the overall productivity of the company's industrial apparatus. Instead, they hinged on the *institutional* ability of the individual firm, operating as a business undertaking (rather than as an industrial unit), to appropriate part of the community's technological efficiency. In other words, what was being capitalized was not the *ability to produce*, but the *power to appropriate*.

The contention surrounding the link between profit and power persisted partially because the historical consolidation of property rights slowly turned the forceful appropriation of profit into a relatively peaceful process. Under modern capitalism, the right to profit became a common and legal norm which, in turn, reduced the need for explicit use of violence. Yet the fact that profit was now an accepted social norm did not mean it no longer depended on power. The change was primarily of form, not substance. Instead of relying on the use of violence, the exercise of economic force was now

institutionalized through the conventional subordination of industrial activity to business ends.[10] Under the system of business enterprise, production was controlled toward generating the largest possible profit for the absentee owner[11] and, as it turned out, that could be achieved only through the *strategic limitation* of productive activity. It was in this strategic limitation of industry, or 'sabotage,' as Veblen liked to call it, that economic force was now manifested.

Given the negative connotations arising from this strong use of language and given the popular notion that business enterprise in fact *promotes* industrial initiatives and productive creativity, it is necessary to try and clarify the meaning of 'sabotage' here. Seen as an entire social order, the regime of business enterprise has surely been far more productive than any earlier mode of social organization, yet, according to Veblen, this immense productive vitality was an industrial rather than a business phenomenon. In the final analysis, business enterprise was possible only in conjunction with large-scale industry, but the potential capacity of large-scale industry was not at all conditioned upon business institutions. The practices of business -- purchase, sale and the institutions which surrounded them -- were of course related to industry, but only in point of control, never in terms of production and creativity. From this *a priori* vantage point, business could never 'boost' industry. Even companies which are considered to be at the cutting edge of technological progress, do not promote industrial creativity, but merely relax some of the constraints which are usually being imposed on such creativity. A business enterprise will certainly seek to incorporate new methods or products, but only insofar as they confer an adequate differential advantage. The research and development laboratories of Sony and Intel, for example, have generated many more and better innovations than have been actually used for profitable ends. The production of DAT (digital audio tape) recorders in the early 1990s, for instance, has been postponed (to the point of making the technology outdated) because several large firms could not come to a consensus regarding its effect on recording profits.[12] Similarly, there is usually a substantial lag

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[10] The violent use of force was never abolished, of course. Instead, it was reduced to the status of a latent sanction to be invoked against those found in breach of legal business conventions.

[11] The drive toward the 'largest possible profit' is not synonymous with the neoclassical notion of 'profit maximization.' Instead, it merely denotes the subjective goals of businessmen which may or may not be related to the objective opportunities open to them.

[12] Sony was caught in the ambivalent position of standing to gain from its DAT development and lose from the impact it might have on its CBS Records unit.

between the development and subsequent introduction of a new Intel microprocessor, depending on the success of existing models and the threat from potential competition. Moreover, the very development of new technologies and products is often conditioned by their potential effect on existing profit and capitalization. Thus, the petroleum companies, for example, would be interested in new drilling technology but opposed to the development of alternative sources of energy, while the automobile companies would favour the development of manufacturing robots, but object to innovations which could facilitate efficient public transit.[13] The common thread going through all of these examples is that business enterprise can and does benefit from the 'state of industrial arts,' but only by *restricting* it to its own ends.

Why is it so essential for business to restrict the activities of industry? In order to further clarify the imperative of such 'strategic limitation,' it is convenient to speculate on what might happen in the complete absence of industrial sabotage. Consider the following hypothetical illustration. Suppose that, in 1990, General Electric had ordered its production managers and development engineers to start producing at the highest possible rate and to continue in pursuit of that creative goal for an unlimited period of time, irrespective of 'what the market could bear.' In particular, these professionals would have been expected to develop the best possible products (rather than products that just 'beat the present competition'), to bring these products to the production line as soon as possible (rather than to follow the standard product-cycle tactics) and to produce as much as they possibly could (rather than as much as the market could 'absorb'). In other words, they would have been expected to utilize productive capacity to its *fullest possible potential*. Note that the meaning of 'full capacity' here differs from conventional uses of this term. Popular indices for capacity utilization, such as the ones currently published by McGraw Hill, the Board of Governor of the Federal Reserve Board, the U.S. Bureau of Economic Analysis and the Wharton School, consider the magnitude of 'full capacity' as representing what is feasible *under the existing social order of business enterprise and production for profit*. Veblen, on

[13] Business attempts to control the overall direction of industrial development are well known. During the 1970s and 1980s, for example, the large petroleum companies lobbied extensively against the development of non-fossil fuels and even took on themselves to 'develop' such fuels in order to minimize their potential repercussions. Earlier in the century, companies such as General Motors, Goodyear, Firestone, Exxon and Chevron went even further, by purchasing and then dismantling 100 electric railway systems in 45 U.S. cities. See Barnet (1980, ch. 2).

the other hand, thought of full capacity as a physical limit imposed by purely *technological* considerations. For him, it denoted what could have been produced had the community's industrial efficiency, its labour force and its physical resources been 'managed with an eye single to turning out a serviceable product, instead of, as usual, being managed with an eye single to private gain in terms of price' (1919b, p. 79).[14] He then provisionally estimated that 'under ordinary conditions of business-like management the habitual net production is fairly to be rated at something like one-fourth of the industrial community's productive capacity; presumably under that figure rather than over it' (1919b, p. 81).[15] We have no comparable estimates for General Electric, but if prior to the new directive set in our hypothetical illustration the company operated only 25 or even 50 percent of its maximum potential capacity, the new policy of producing at full capacity would have at least doubled the company's output and culminated in business havoc. Markets in which General Electric occupied the first or second position, such as aircraft engines, circuit breakers, defence electronics, electric motors, engineering plastics, factory automation, industrial power systems, lighting, locomotives, major appliances and medical diagonistic systems,would be 'flooded,' while other markets in which the company held a lesser stake would also be 'glutted' with forthcoming supply.[16] Initially, General Electric might increase its market shares and perhaps even its profits, but that situation could not last for very long. Sooner or later, the relentless pressure of oncoming goods would lead to an inevitable breakdown of oligopolistic cooperation and the onset of downward price spirals in all respective markets. Now, improved production technology could operate to reduce unit cost but that would make a bad situation even worse. Since the company was now committed to producing as much as it could, the prompt implementation of new production techniques would cause an additional increase in output, leading to further declines in prices. Furthermore, the growing demand for specific raw materials, special machinery and particularly for expert manpower, might exert an upward pressure on unit cost.

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[14] For an excellent review and appraisal of the literature on capacity and excess capacity, see Foster (1986, ch. 5).

[15] An estimate of 25 percent for normal capacity utilization may not be as far fetched as it seems. Blair (1972, p. 474), for example, provided internal company data suggesting that, contrary to common views, General Motors normally utilized not 80 percent, but less than one half of its existing productive capacity. This figure would have been even lower, had we accounted for superior technology and resources which, although readily available, were considered unprofitable to use. These conjectures are also supported by other estimates described in Foster (1986, ch. 5).

[16] On the relative market positions of General Electric, see for example Sherman (1989, p. 40).

Eventually (and that could happen fairly quickly), the combination of collapsing prices and perhaps even rising cost would drive the profits of General Electric down to zero and, if the engineers continued to reign in that fashion, losses would start to mount. Moreover, although the disturbance was generated by the peculiar behaviour of a single company, the interconnectedness of business activities would likely drive many other firms toward the same fate.

With this partial scenario in mind, consider now what might have happened if *every* firm behaved in that unusual way, allowing the 'instinct of workmanship' to determine the level of industrial activity. According to Veblen (1923, p. 373),

> such a free run of production, such as the technicians would be ready to set afoot if they were given a free hand, would mean a full employment of the available resources of industry, regardless of what the traffic would bear in point of net profit from sales; it would bring on such an inordinate output of vendible goods and services as to glut the market and precipitate an irretrievable decline of the price-level, and consequently also a fatal decline of earning-capacity. . . .

Surely, some firms, particularly those operating in areas in which rapid increases in output are not feasible, might increase their profits, but the vast majority of companies would quickly go out of business. It appears that the immediate cause behind such a business breakdown was an increase in 'competition,' but that does not get to the root of the issue. Businessmen could compete vigorously and still earn a profit, provided that production remains subordinated to business ends. In our imaginary example, the collapse ensued not because of a greater competition per se but, ultimately, because industry was no longer subordinated to business ends. It was by surrendering their control over production that absentee owners lost their vested power to extract profits. In this light, it becomes clear why, in Veblen's opinion, 'such a free run of production has not been had nor aimed at; nor is it at all expedient, as a business proposition, that anything of the kind should be allowed' (1923, p. 373). While profits are certainly inconceivable when there is no production, they are also impossible under a 'free run' of production. Again, for profits to exist, business enterprise must *partially restrict human creativity and livelihood below their full potential capacity.*

Veblen identified a variety of business methods of industrial sabotage. In principle (although not always in practice), we could classify these as belonging to one of two categories: (1) *universal* practices carried routinely and uniformly by all firms as part of their usual business activity, and (2)

differential practices carried by only a single company or group of companies. Veblen's taxonomy in this area was somewhat different than ours but, as will become evident in the following section, the classification into universal and differential practices is useful because it forms the conventional basis on which assets are capitalized. We turn now to consider this classification, beginning with its first category.

The 'universal' forms of industrial sabotage were not at all clear at first sight and for a very good reason: they were implicit in the 'normal' way of doing business. Routine business practices and conventions obviously made no pledge to industrial sabotage. An unsuspecting observer might plausibly argue that businessmen appeared to be interested in earning profits, not in limiting industrial output and, as evidence, point out that business firms normally did not try to restrict their own sales. In fact, contrary to the 'sabotage thesis,' the standard practice in modern business was to set a price and then produce *as much as needed* in order to satisfy demand! But was this practice as benign as it seemed? Veblen's answer to that question was negative, for while firms usually did not strive to limit their own production, their pricing policies led to that very result: 'The broad principle which guides producers and merchants, large and small, in fixing the prices at which they offer their wares and services is what is known in the language of the railroads as "charging what the traffic will bear"' (1904, pp. 53-4). Prices were set in order to achieve a certain target for profit, which could be obtained only when industrial output fell short of its full potential, which was exactly what happened when firms charged 'what the traffic will bear'! In the normal course of modern business enterprise, industrial sabotage was brought about only indirectly, thought the vehicle of profitable pricing practices.

The link between pricing policies and profit leads us to the question of 'power.' The notion that production was restricted by the ability of firms to *set* profitable prices implied that such firms possessed a certain 'monopolistic' power. Indeed, Veblen took it for granted that, even in the absence of business cooperation, modern forms of business competition were usually 'imperfect,' or 'monopolistic,' something which Chamberlin (1933) and Robinson (1933) started to emphasize only three decades later, after the onset of the Great Depression. In his words,

> [I]t is very doubtful if there are any successful business ventures within the range of the modern industries from which the monopoly element is wholly absent. They are, at any rate, few and not of great magnitude. And the endeavor of all such enterprises that

> look to a permanent continuance of their business is to establish as much of a monopoly as may be. (1904, p. 54)

Veblen emphasized that the term 'monopoly' was used in the 'looser sense which it has colloquially, not in the strict sense of an exclusive control of the supply.' In other words, he used 'monopoly' as an umbrella term to cover the multitude of market institutions currently included under the modern terminology of 'monopolistic competition' and 'oligopoly.' Unfortunately, however, basing the link between profits and industrial sabotage solely on the presence of explicit 'monopolistic' institutions could be a double-edge sward, simply because it fails to explain profits under conditions of 'perfect' competition.

The difficulty arising in the case of perfect competition is fairly straightforward: How could firms which have no discretion over prices be said to exercise industrial sabotage? The answer to this question is surprisingly simple, provided we could transcend some conventional habits of thinking. Instead of concentrating on what an individual owner of a perfectly competitive firm is doing, let us contemplate on what he is unwilling to do. Take the example of mining, where world prices for many primary commodities could not be affected by individual firms. Could we argue that the existence of 'market' prices for such raw materials removes the spectre of business sabotage? The answer is clearly negative, for, even in these cases, normal production levels are set not by technological feasibility, but by business profitability. That is, the actual output of a single firm, as well as the number of firms in operations, are bound not by the state of industrial arts, but by what could be sold at a 'reasonable' profit. In fact, this is exactly what standard neoclassical theory has to say to an owner of a perfectly competitive firm: in the long-run, allow your managers to produce only if you expect to earn at least the 'normal' rate of return on your investment. Otherwise, you should shut down. Now, for those who endorse the neoclassical view, where the 'normal' rate of return is, by definition, equal to the marginal revenue product of capital, this mechanism simply assures the efficient allocation of resources. On the other hand, if we accept Veblen's fundamental distinction separating industry from business, production from earnings, and capital goods from capital, it becomes clear that the unwillingness to produce for less than some conventional rate of return is the very manifestation of industrial sabotage. And, so, even though the perfectly competitive firm does not determine prices, it is still true that the productive activity

of such firms -- individually and in the aggregate -- is usually *limited* by what could be produced at the on-going 'normal' rate of return.

The 'normal' rate of profit, of course, was not a given, stable magnitude. Different businessmen held different views about what constituted the 'ordinary' rate of return, and their views varied across time and place. The important point, however, was that they all believed that, under normal circumstance, profits were intrinsic to the way of doing business.[17] While under earlier economic systems, the gain from investment was taken as 'fortuitous matter, not reducible to a stated rate,' with the advent of capitalism, '[a]t any given time and place there is an accepted ordinary rate of profit, more or less closely defined, which, it is felt, should accrue to any legitimate and ordinarily judicious business venture' (1904, p. 88). Thus,

> in place of the presumption in favor of a *simple pecuniary stability* of wealth, such as prevails in the rating of possessions outside of business traffic, there prevails within the range of business traffic the presumption that there must in the natural course of things be a *stable and orderly increase* of the property invested. (1904, pp. 85-6, emphases added)

All of this suggested that the immediate cause leading to the most fundamental form of industrial sabotage was not some definite 'monopolistic' institution, but simply the unshaken *belief* among businessmen that the ownership of capital goods vested them with a 'natural' right to profit. For the absentee owner,

> [t]he returns actually accruing to him under competitive conditions would be a measure of the differential advantage held by him by virtue of his having become legally seized of the material contrivances by which the technological achievements of the community are put into effect. (1908d, p. 200)

The progressive proliferation of business principles turned the convention of 'normal' profit into one of the most potent vehicles of industrial sabotage. Even in the absence of any explicit binding arrangement, businessmen still felt compelled to restrict industrial activity. Their expectation for a 'normal' profit institutionalized a steadfast unwillingness to let excessive industrial production undermine those profits.

The 'normality' of profits was so thoroughly accepted that the industrial sabotage on which these profits were based was no longer self-evident. The business imperative of limiting production

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[17] The classical economists went even further, making the 'normal' profit a necessary cost of production.

below its potential capacity was obscured by defining capacity along the conventions of business rather than those of industry. The view of 'full capacity' as denoting the output consistent with the 'normal' rate of profit meant that a certain level of industrial sabotage was now considered to be 'natural' to the working of the economy. This conventional view is evident in prevailing attitudes toward persistent unemployment. Over the 100 years between 1890 and 1989, the average rate of unemployment in the United States was 7.1 percent. Even if ignore the period of the Great Depression (between 1930 and 1940) as being 'exceptional,' the average for the remaining 90 years was still 5.7 percent.[18] But given that 6 or 7 percent for the average rate of unemployment was consistent with 'business as usual,' many economists grew accustomed to talk about such levels as representing the 'natural rate of unemployment' (see Chapter 2).

The significance of these propositions is far reaching. They indicate that *all* profitable firms must enjoy a certain explicit or implicit monopolistic power. If all profits, including those earned under perfect competition, could be attributed to the vested capacity of absentee owners to limit, or 'monopolize' productive activity by 'doing business on their own terms,' we could say that the *overall* share of profits in the national income is thus a manifestation of the *average* 'degree of monopoly' prevailing in the economy. Note that this interpretation for the 'degree of monopoly' is more comprehensive than the one elaborated by Kalecki during the 1930s and 1940s. In Kalecki (1943), for example, the 'degree of monopoly' indicated the ability of capitalists to affect income shares under conditions of mark-up pricing. Based on Veblen's interpretation for monopolistic power, however, we propose that the 'degree of monopoly' is relevant not just under mark-up pricing, but for the distribution of income in general.

Let us now take the discussion one step further. Observe that the normal way of doing business which gives rise to the average 'degree of monopoly' is merely a reflection of all the concrete practices employed toward earning profits. Underlying the ability to earn a 'target' rate of return or to obtain the

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[18] There were only 10 years during the entire century in which the rate of unemployment fell below 3 percent and another 15 years in which it lay between 3 and 4 percent. (These figures are based on data from the U.S. Department of Commerce, published in *Historical Statistics of the United States, Colonial Times to 1970*, Part 1, Series D86, p. 135, and from *Citibase*, 1990, Series LHUR, p. IX-1-6.)

'normal' rate of profit are the actual activities of businessmen, and these are commonly *differential* in their aim. What businessmen believe they are entitled to under normal circumstances is not what they seek to get in practice. The primal drive of business enterprise is not to strike the average, but to exceed it. Business performance is denominated in relative, not absolute terms, and it is 'getting ahead of the competition' which constitutes the final aim of all business endeavours. This compelling desire to earn *more*, grow *larger* and expand *faster* than the 'others' is perhaps the most fundamental drive of business and, in that sense, even members of the tightest oligopolistic coalition are fiercely competitive.[19]

In order to surpass the average and beat the competition, firms must go beyond the universal methods of normal business. Doing what everyone else is doing does not get you very far in business. To get ahead, you must do better than your rivals; you must employ a *differential* business practice. The essence of such practices is that they confer on their undertaker an advantage unavailable to other firms. To be effective, a differential practice must not only provide a benefit for the firm, but also prevent that benefit from accruing to other companies. In fact, the immediate goal of most differential practices is simply to undermine the business ability of other firms!

The list of business endeavours designed to establish a differential advantage is potentially endless, but it is useful to go through several examples to clarify their common nature. Irrespective of their concrete form, differential practices are invariably institutional in their nature, seeking to alter the existing structure of business arrangements in favour of their promoters and to the detriment of whoever it may concern. For example, the hundreds of patents Xerox registered on its copying machines, or those awarding Bayer an exclusivity over the production and sale of Aspirin, were sought by these companies in order to prevent other firms from using the relevant inventions;[20] the exclusive franchising until the

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[19] As noted in the preceding section, business performance is measured not in units of 'effective consumption,' but in purely pecuniary terms. While absentee owners may look on consumption as the ultimate end toward which their efforts should eventually converge, the daily management of business enterprise, and particularly of big business, is completely independent of such hedonic considerations. Indeed, it is hard to envision the Ford family, or a large institutional investor driving to fire chief executive officer Petersen because the Ford company lost money during a severe recession, but it is easily conceivable that they would seek replacement if, despite a large rise in 'real' profits, the company fell from second to third place among the leading automobile producers.

[20] Veblen (1908c, pp. 364-65) emphasized that, although 'the invention or innovation covered by the patent right is a contribution to the common stock of technological proficiency,' the patent right itself 'must be considered a detriment to the community at large, since its purport is to prevent the community

late 1970s of bottling rights by companies like Coca-Cola and Pepsi-Cola, or of dealerships by General Motors were both aimed explicitly at limiting the number of participants in those business areas;[21] the charted monopoly over telephone services which AT&T enjoyed until 1984 effectively barred other companies from providing these same services; the concession of the Aramco partners (Exxon, Texaco, Mobil and Chevron) over Saudi oil closed this source for other petroleum companies; the registration of a five-edge star as a trade mark by Texaco or the advertisement of toothpaste by Proctor and Gamble help to differentiate an essentially homogenous product in order to protect or increase the compnay's market share on account of its competitors; the attempts by Bechtel corporation to influence the lending policies of the Export-Import Bank helped to increase the loans Bechtel obtained from that bank to the obvious disadvantage of all other potential borrowers, and its activities with the Atomic Energy Commission helped it win contracts against other engineering firms;[22] the ability of General Dynamics to avoid paying any Federal income taxes during the period between 1975 and 1984 (although its reports recorded profits in 9 out of these 10 years) put this defence contractor at a considerable advantage against similar firms who were unable to win such concessions;[23] the voluntary quotas on automobile imports from Japan to the United States, were beneficial not only to the U.S.-based producers, but also to the Japanese makers, who continued to restrain their exports even after the agrement ended in 1985: both the domestic and Japanese firms used the output restriction in order to boost profit markups.[24] Despite their diversity, all such arrangements are similar in that they increase the profits of their undertakers above what they otherwise would have been and, given that these practices are differential in nature, the said rise in profit invariably leads to a *redistribution* of income in favour of those who initiate them and on account of everyone else.

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from making use of the patented innovation, whatever may be its ulterior beneficial effects or its ethical justification.'

[21] For numerous other illustrations of patents and exclusive franchising, see for example Kefauver (1965, ch. 1) and Scherer and Ross (1990, chs. 15 and 17).

[22] See McCartney (1988, chs. 9 and 14).

[23] See Wildstorm (1985).

[24] See 'U.S. Car Quotas: How Less is More for Japan,' in *Business Week* (November, 7, 1983, pp. 61-2), 'A Misstep by the Auto Makers,' by the Editors of *Business Week* (January 19, 1985) and 'Why Carmakers Will Mourn if Export Quota Die,' in *Business Week* (February, 18, 1985, p. 46).

At first sight, it may seem that, because they are concerned with *redistribution*, differential business practices merely shift income from one group of firms to another and hence should have no detrimental effect on industry. This neutrality is more apparent than real, however. Some practices, such as the ability to avoid taxes or to win a government contract, indeed appear to be purely 'distributional,' but the industrial effect of most differential tactics is not neutral in the least. In issuing patent rights, in awarding exclusive dealings, in organizing a cartel, or in establishing tacit collusion, the undertakers improve their relative position precisely by undermining the *industrial* activity of their existing or potential rivals. Moreover, these differential tactics form the ultimate basis on which the universal principles of full-cost pricing and the 'normal' rate of return seem to rest. The link between differential and universal practices appears on two levels. First, under so-called 'imperfectly' competitive conditions, the ability to price products toward a target rate of return depends directly on the presence of some differential institutions to prevent unruly increases in production. Now, given that under modern business enterprise, 'imperfect' competition is the rule rather than the exception, it follows that 'monopolistic' market arrangements will have a disproportionate effect on what is considered to be 'normal.' In particular, the average ratio between profits and capitalization prevailing under these arrangements influences the conventional views among businessmen on what constitutes the 'normal' rate of return.[25] But this 'normal' rate is precisely the one governing industrial activity under 'perfect competition,' which leads us to the second point, namely, that the universal behaviour of purely competitive firms is in fact regulated by the differential 'monopolistic' arrangements existing elsewhere in the economy! This important relationship is so obvious that we often tend to ignore it. An alternative to investing in an agricultural or mining venture where there are no 'monopolistic' institutions, is to buy the shares of IBM, Daimler Benz or Exxon, where returns are clearly affected by differential 'monopolistic' arrangements. In other words, a small investor will expect his financial investment in a perfectly competitive industry to yield a return determined by oligopolistic giants![26]

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[25] Capitalization, which bears heavily on the issue, is of course not 'exogenously' given. The process of capitalization is discuss in the following section.

[26] We should emphasize that this link depends on viewing investment and capital as purely financial magnitudes. In other words, the indirect impact of monopolistic institutions on so-called perfectly competitive markets depends on the extent to which such markets are brought into the modern system of financial investment. In this connection, it should be noted that the institutional arrangements prevailing during the emergence of commercial and then industrial capitalism could rarely be characterized as being 'purely competitive.' The concessions, charters, certificates and franchises awarded to early commercial undertakings, together with the relative scarcity of machinery which typified the

As an interim summary, we can say that business profits are possible because absentee owners can strategically limit the industrial process to their own ends. The control of production by business is carried out routinely, either by pricing products toward earning a 'target' rate of return at 'normal' capacity or by conditioning industrial activity on the prospects of earning of a 'normal' rate of return. Underlying both of these universal business principles are the numerous differential practices of individual firms or groups of firms, who try to redistribute income in their favour by altering the institutional circumstances under which they operate. The aim of most (though not all) differential tactics is to undermine the industrial activity of existing or potential business rivals. The aggregate effect of such practices is hence detrimental to the industrial community at large.

The conceptual dichotomy separating universal from differential means of industrial sabotage fits neatly with the two basic cleavages which Veblen identified in the modern context of business enterprise: the one between absentee owners and the industrial community and the other among absentee owners themselves. Absentee owners struggle over differential pecuniary gains and their struggle is carried by means of mutual industrial sabotage. On a disaggregate level, the distribution of profits among absentee owners is roughly related to the balance of *business* damage they inflicted on each other. On an aggregate level, however, the total profits earned by all absentee owners depend (although not in any linear way) on the overall *industrial* damage arising from the business warfare raging among them. In other words, business goals revolve around the distribution of profits, while business methods assure that these profits will be available in the first place.

The discussion so far suggests one primary reason why Veblen's analysis did not acquire too many followers: it leads to the conclusion that, in a certain fundamental sense, business capital is a *negative* industrial magnitude! Provided that this conclusion is indeed warranted, it serves to undermine the basis on which both the neoclassical and Marxian schools of thought rest. The neoclassicists viewed capital as a physical entity operating in harmony with the other factors of production toward a mutual

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early rise of industrial production prevented competition from becoming 'perfect' in the neoclassical sense of the word. This form of market (or something approximating it) emerged only later, as capital goods became more 'abundant,' that is to say, when capital became a pecuniary magnitude.

hedonic goal of utility maximization. Capital values represented a capitalization of productive contributions and hence capital must be viewed as a positive force advancing a common social interest. Marx, by contrast, identified the antagonistic social basis on which capital rested, but he too considered the pecuniary accumulation of capital as a powerful engine of industrial progress. Profits in the Marxian scheme were derived through the exploitation of labour but, given Marx's competitive framework, the endurance of each individual capitalist was contingent on a relentless drive to improve productivity. To remain in business under the overriding discipline of market-determined prices, capitalists had no choice but to continuously seek and incorporate the best production methods. Some producers might have enjoyed a 'monopolistic' advantage conferred by the use of a better technology but, in the absence of protective institutions, their differential gains were necessarily temporary. The ultimate drive for higher productivity was not monopoly, but survival. So, although profits and capital accumulation were based on an antagonistic system, the conditions under which capitalists operated compelled them to use their capital in the most productive possible way.

This view of capital as a productive agent is still endorsed by most neo-Marxists. In laying the foundations for a theory of *Monopoly Capital*, Baran and Sweezy (1966) argued that the emergence of oligopoly as the typical organization of capital made technological progress even more appealing, because the benefits of such progress were increasingly accrued to the giant corporation in the form of higher profits (or surplus), rather than to society at large in the form of lower prices.[27] This view on the productive essence of capital should not be confused with Baran and Sweezy's main argument on the inherent tendency of monopoly capital to generate industrial stagnation. The overall stagnation tendency arose not from the industrial environment in which oligopolies operated, but from the aggravating impact of monopoly capitalism on the so-called 'realization problem.'

Even British contributors to the Cambridge Controversy of the 1960s were still ambiguous on the industrial footing of capital. Sraffa's demonstration that there was no unique association between the rate of profit and output per head suggested that the value of capital depended on the distribution of

[27] Veblen (1904, p. 242) was well aware of the ability of large corporations to appropriate most of the pecuniary advantage of technological progress, only that, in his opinion, that advantage stemmed not from technological progress per se, but from the ability to strategically limit it for business ends.

income and not the other way around, and this, according to Robinson (1971, p. 20) 'destroys the presumption that the rate of profit measures the contribution of investment to national income (let alone to human welfare).' Given the conventional link between accumulation and economic growth, the positive connotations assigned to such growth were now called into question. With the 'conspiracy of silence' finally broken, the central issue became 'the manner in which a capitalist economy operates.' In other words,

> does the balance of power in bargaining between employers and workers determine the share of wages in net proceeds, or is it rather the requirements of profits that determine what is left over for wages from a given level of physical output? (*ibid.*)

Yet, these questions remained confined to the realm of distribution and failed to address the possible link between the distribution of income and the control of industry. Robinson admitted that, until the late 1970s, she was simply unaware that Veblen in fact anticipated much of her claims but, unfortunately, even then she failed to identify where their arguments differed.[28] While the Cambridge Controversy raised the possibility that capital *could* be unproductive, Veblen contended that, from an industrial point of view, it was *necessarily* counterproductive.

Veblen's broke away from the neoclassical and Marxian schemes by *a priori* separating business from industry. That lead him to argue that profits *required* business to 'monopolize' industry by limiting output below its full potential. Without that right for a 'conscious withdrawal of efficiency' there would have been no profit and thus no investment and capital. In other words, profits and capital were determined not only by what was produced, but also by what was *not* produced! From this perspective, the institution of capital was, in its very essence, a fetter on industrial progress.

It is essential to accentuate again the *a priori* nature of this position. For Veblen, the modern machine process was the latest stage in a relatively unbroken process of technological progress unfolding since the dawn of human civilization. The technological heritage of society evolved only from the 'instinct of workmanship.' Institutions of social power and subordination could never enhance that instinct, but only limit it to a greater or lesser extent. Given the scope of his inquiry, Veblen considered business enterprise and the price system as a transient mode of social organization. Ultimately, business

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[28] See Robinson (1979, p. 60) and Robinson (1980a, pp. 115-16).

enterprise was a consequence rather than the cause of machine production and, hence, could be replaced with an alternative system of economic organization. Whether such alternative institutions would be less disruptive to the instinct of workmanship and human welfare than business enterprise, was and remained an open question.[29] The important point was that Veblen's *a priori* separation of production from distribution implied that *any* extra-industrial system of distribution could operate only by limiting productive activity. In other words, even if business enterprise were shown to be the least industrially harmful of all potential modes of distribution, that still would not turn capital into a 'productive' magnitude. Within the context of business enterprise, profits for absentee owners could be appropriated only because ownership allowed the strategic limitation of output and that meant that business capital was necessarily a restrictive industrial institution.[30]

6.5 Corporation Finance and the Structural Roots of Inflation and Stagnation

The appearance of business capital as a manifestation of distributional power is intimately linked with the emergence of the modern corporation since the latter half of the 19th century. The gradual separation of business from industry occurred as owners became *absentee* owners, that is, as profits became a question of industrial *control* rather than productive activity. The ability to 'control' industry was contingent on the institutional arrangements of business enterprise, particularly on the extent and nature of cooperation among absentee owners. The critical foundation of such cooperation was the modern corporation.

According to Veblen (1923, p. 82) the corporation was 'an incorporation of absentee ownership, wholly and obviously,' that is, a business concern, not an industrial unit:

> It is a means of making money, not of making goods. The production of goods or services, wherever that sort of thing is included among the corporation's affairs, is incidental to the making of money and is carried only so far as will yield the largest net

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[29] Veblen's own suggestions enumerated in the *Engineers and the Price System* (1921) were never tried. The post-war Communist experience removed some of the industrial limitations of business enterprise, only to replace them with other, perhaps more detrimental ones.

[30] Knight (1921, pp. 188-89), for instance, could argue that Veblen's notion of capital as a limitation of technological knowledge and industry was 'absurd,' precisely because he refused to separate business from industry. Indeed, for him 'productivity is a matter of limitation,' that is, a direct consequence of property rights.

> gain in terms of money, -- all according to the principle of 'what the traffic will bear,' or of 'balanced return,' which underlies all sound business, and more particularly all corporation business. (1923, p. 85)

Mainstream economists have tended to explain the rise of corporations in technological terms. The popular view was that the corporation was the most 'efficient' mode of business organization in that it enabled society to enjoy the benefits offered by economies of scale. The corporation was economically rational and that supposedly made it historically inevitable.[31] If we followed Veblen in separating business from industry, however, this kind of reasoning could no longer be accepted, simply since 'the use of a large scale of production is a technological devise, whereas the corporation is a business arrangement' (1923, p. 84). From this perspective, the causes which led to the rise and growth of corporations must be denominated in business terms, that is, in terms of pecuniary gains on investment. Under certain conditions, a larger scale of production might indeed be more productive and hence socially beneficial, but that in itself was quite irrelevant. The crucial question was not whether the corporation was more productive than other forms of business organization, but whether it was more profitable. 'To employ a large scale of production,' argued Veblen (1923, p. 85), 'is a sound business proposition only so long as this larger scale will bring an increased net gain in the aggregate price of the output' and that, of course, *may or may not* be true under different circumstances.

More importantly, contrary to the conventional wisdom, the expansion of corporate finance had no immediate impact on the process of industry. The common view identified the mobilization of finance with the expansion of productive capacity:

> It is . . . a part of the folklore of Political Economy that the corporation -- jointstock company -- has exerted, and continues to exert, a creative force in productive industry, in that it draws out of retirement many small accumulated hoards of savings, and so combines them and puts them to work when they would otherwise remain idle. By this means the active capital is augmented by so much; which is believed to augment the materials and appliances of industry by so much, and thereby to increase the volume of work and output in a corresponding degree. This faith in the creative efficiency of capital funds and capitalized savings is one of the axioms of the business community. It is a safe presumption that no sound business man would question it. Savings will produce goods as soon as they are invested and capitalized. (1923, p. 86)

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[31] There has been very little change in the popular conventions regarding this issue. Samuelson, Nordhaus and McCallum (1988, p. 453) are typical in emphasizing the 'efficiency rationale' behind the corporation: 'Large-scale production is technically efficient, and a large corporation is an advantageous way for investors to pool the irreducible risks of business life. Without limited liability and the corporation, a market economy simply could not reap the benefit that comes when large supplies of capital need to be attracted to efficient-sized corporations. . . .'

But was that view at all warranted? For Veblen, the answer was definitely negative. What was being mobilized and capitalized were pecuniary savings, not useful industrial items:

> In practical fact, the savings in question have existed and continue to exist only in the form of records of ownership, commonly evidences of debt. What was transferred in the transactions by which the savings are taken over into corporate capital is commonly some form of credit instrument; and the transaction results in an augmentation of the volume of outstanding credit instruments. Whether there are any physically useful goods anywhere held in store back of these funded savings -- physical goods which are in any special sense 'represented' by these funds -- is an open question, with the presumption running strongly to the contrary. [By and large] . . . the saved up funds foot up to an absentee claimant's undifferentiated claim on a share in the outstanding stock of merchantable goods at large. Any multiplication of such claims, or any mobilisation of an added number of them, adds nothing to the stock of goods on hand; it only reduces the share per unit of effectual claim. (1923, pp. 86-7)

Business investment, then, is merely a credit transaction 'by which the corporation financier comes in for the use of additional funds and is enabled to increase the capitalization and the purchasing-power of the business concern for which he acts' (1923, p. 87). These funds may or may not be used to purchase some physical 'capital goods,' but even when they are used for such a purpose, that merely transfers the ownership of the said capital good. The actual manufacturing of capital goods is not a business activity; it is an industrial process controlled for business ends.

The confusion between the act of financial investment and the increase of industrial capacity is reflected in common views about the nature of corporate securities and assets. An investor in corporate securities can purchase either bonds or shares.[32] Business and legal conventions establish a certain 'hierarchy' of risk among these two types of securities. Bonds are considered less risky, firstly because they give their owner some precedence in the disbursement of profits and, secondly, because their holder has a statutory priority over the tangible assets of the corporation in case of bankruptcy. Equity shares are more risky because they provide no legal right for dividends and, more importantly, they are often covered only partially or not at all by any type of tangible asset. It is indeed customary to view equity shares as representing primarily the intangible assets of the firm.

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[32] For the purpose of our analysis here, 'bonds' consist of all credit extensions on fixed charges, including debentures, mortgages and direct loans a corporation receives from other corporations, financial institutions and individuals. Similarly, 'shares' refer to all credit extensions made with no commitment for repayment, including all forms of common and preferred stocks sold to investors.

This correspondence between assets and securities is, of course, only a matter of informal business conventions, since corporate balance sheets do not associate specific assets with particular liabilities. Yet, the very habit of distinguishing between tangible and intangible assets seems to suggest that, from the outset, some forms of financial investment have nothing to do with the creation of productive capacity. The intangible assets of a corporation consist of items such as patents, government charters, legal quotas and franchises, as well as the catch-all article of 'goodwill.' These items of 'immaterial wealth,' as Veblen called them, do not and cannot 'produce' anything. Instead, they are the institutional manifestations of differential practices of earning profits. If a granting of a patent generates expectations for higher profits, these expectations could be capitalized through the issuance of new shares, or an augmentation of the market value of existing shares. Similarly, a merger between two very large business rivals would normally not increase their ability to produce goods and services, but it may produce anticipations for higher profits which could then be capitalized with new shares backed by fresh 'goodwill.' In other words, to the extent to which corporate shares represent intangible assets, they merely institutionalize the corporation's own differential or 'monopolistic' practices and, hence, investment in such equities is only an evidence of distributional power. Given that differential tactics commonly operate by *limiting* the use of productive capacity, it is clear that equity investment based on such practices could not be thought of as *creating* new capacity.

At first sight, the dissociation between investment in equity and the formation of industrial capacity may seem to suggest that such capacity must hence be created by the issuance of debt instruments. Unfortunately, this convention, too, is open to serious doubts. Tangible assets consist of physical items, such as machinery, structures and semi-finished commodities, but they also include various 'contractual obligations' like government securities, commercial paper of other firms, outstanding loans, accounts receivable, bank deposits and cash. These 'contractual obligations' have nothing to do with the productive capacity of the corporation which owns them. They are classified as 'tangible' assets, but it is patently clear that their pecuniary value hinges on purely 'immaterial' arrangements, particularly on the solvency of the corporation's debtors and the ability of the corporation to 'compel' these debtors

to pay when the time comes.[33] In other words, many of the items which we customarily classify as material items of wealth are in fact highly intangible in nature. Or, putting it bluntly, some corporate debentures may be covered with 'nothing but air.' The increase since the early 1980s in the use of 'junk bonds' to finance corporate takeovers is a clear case in point. The immediate facts created by business amalgamations are purely institutional in nature, belonging solely to the realm of business restructuring; and to the extent that 'junk bond'-financed mergers have a subsequent bearing on industry, their significance usually lies not in creating, but in dismantling industrial capacity! The conspicuous example of 'junk bonds' is perhaps somewhat atypical, yet it could be argued that, in a certain fundamental sense, the pecuniary value of *all* bonds rests on a similar 'immaterial' basis.

Consider now those bonds which are indeed 'covered' by industrially productive assets such as plant, equipment and inventories of finished and semi-finished goods. The market value of such bonds may exhibit some positive relationship to the market value of the underlying articles of tangible wealth, but that in itself may have very little to do with the productive capacity of these industrial items. What buyers may be willing to pay for 'means of production' such as a supertanker, a copper mine, a light-bulb plant or an inventory of microprocessors depends on business rather than industrial considerations. To a potential owner, these items are valuable only to the extent of their anticipated income-yielding capacity and, in general, the prices of these 'investment goods' could not exceed the present value of what they are expected to yield in profits.[34] The income-yielding capacity of 'capital goods' depends directly on the control of industry by business, either 'at large' or 'in detail.' For example, the maximum price for an earth-removing machine used in a competitive mining industry would be governed by 'normal' returns expected to accrue under such conditions, while the price of a new passenger jet would not exceed the present value of the 'target' income that a typical oligopolist like

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[33] Note that the ability of the corporation's debtors to fulfil their obligations need not be related to their own productive capacity. Governments can repay their debts through taxation, additional borrowing, or by printing money and these payments could be made even if there are no productive increases occurring anywhere in the economy. As far as the corporation's business debtors are concerned, their solvency usually depends not on their productive activity per se, but on their ability to strategically limit such activity toward profitable ends.

[34] The profit expectations and the discount rate used in capitalizing them may be (and often are) partially or even entirely subjective, but that has no bearing on the present argument.

Texas Air or United Airlines expects to earn by using these aircraft.[35] That prices for capital goods depend on profitability and only indirectly (or often not at all) on their productivity becomes evident during a business crisis. The collapse in the price of crude petroleum during the mid 1980s, for example, led to a 'glut' of supertankers. What solvent shipping companies (or speculators) were willing to pay for such tankers depended on their expected earning capacity and, given the grim business outlook, that was often well below the relevant replacement cost. Bond holders of bankrupt shipping companies hence found out that, although the tankers 'backing up' their debentures were as 'productive' as ever, what they could recover by selling the tankers was only a fraction of their original investment.[36]

A similar line of reasoning led Veblen to conclude that there was no fundamental difference between debt and equity. Even in the 'ideal' case where bonds covered only the tangible means of production and shares represented only the intangible assets, these evidence of ownership were both capital only to the extent of their capitalized *earning capacity*. Part of this earning capacity was habitually attributed to the 'capital goods' held by the corporation and covered by debt. The earnings were imputed by applying to the price of capital goods the prevailing 'normal' rate of return, but that, of course, was a business procedure, not a theoretical explanation. Rather than stemming from the material facts of industry, the 'normal' rate of return and, hence, the very prices of tangible assets were largely a manifestation of the economy's average 'degree of monopoly.' In other words, the value of bonds expressed the universal control of business over industry. The same logic applied to the case of equity which covered the remaining earning capacity of the corporation. The customary view was that excess earnings over and above the imputed 'normal' stemmed from some positive 'business qualities' which the firm owned through its formal binding arrangements and informal 'goodwill.' Yet, what turned these

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[35] Since we are talking about upper limits, our conclusions are independent of the particular circumstances under which investment goods are being produced. That is, even if Boeing, McDonnell Douglas and Airbus organized into a formal cartel, the prices they could charge for their commercial jets would necessarily be limited by what the airlines could pay for such aircraft; or perhaps more precisely, such prices would be constrained by what the airlines would consider as 'acceptable,' given the business circumstances and their own targets for profit. In this sense, the prices of capital goods reflect the balance of distributional powers between those who sell them and those who buy them. The *ex post* outcome determines the respective shares of profit accruing to the various business concerns operating along the vertical process of production.

[36] The effect of a business boom on the value of bonds is not symmetrical. As we explain below, a rise in the price of tangible collateral would tend to increase the number rather than price of such bonds.

binding arrangements and goodwill into valuable assets in the first place were differential business practices aimed at increasing profits at the cost of whoever may be concerned.

These arguments suggested that the *entire* body of business capital rested on the intangible foundations of 'power.' From the point of view of the absentee investor, business capital was nothing but a claim on profits and, as we have seen, profits were determined not by the industrial productivity of underlying assets, but by prevailing business arrangements. If there was a difference between stocks and bonds, it was hence mostly a difference in the extent to which business power has been institutionalized. Bonds were commonly used to capitalize those business arrangements which were more or less thoroughly accepted as the 'normal' order of things, while stocks were usually issued to capitalize the 'singular' business arrangements which differentiated between individual or groups of firms. Even this difference between stocks and bonds was only temporary and tended to disappear over time, when the depreciation of tangible assets and the amortization of intangible assets converted both of them into the universal form of money assets.

Given these views on the nature of business capital, we can now turn to examine the *dynamic* aspects of its accumulation. Received economic doctrines tend to interpret the process of capital accumulation in 'backward-looking' terms. For the classicists and neoclassicists, capital was a physical means of production, accumulated in the past for future use.[37] For the Marxists, capital was not a physical thing, but a social relationship embedded in physical articles yet, they, too, regarded accumulation in terms of 'dead labour.' The value of capital was denominated in units of human effort (or socially necessary labour time) spent in producing capital goods and in reproducing the labour force.[38] Even the neo-Marxists who dwelt on the significance of monopoly capitalism retained that same framework. Although they no longer argued for a link between value and prices (even in the

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[37] See for instance, Marshall (1920, pp. 647-51) and Schumpeter (1954, pp. 631-37).

[38] See for instance, Wright (1977, p. 200). Cross-section differences in the organic composition of capital created a 'transformation problem' of converting input values into input prices, but this does not bear on the issue here. The discrepancy between prices and their respective labour values was essentially a question of inter-industry redistribution which did not impinge on the basic presumption that prices could still be denominated in units of dead labour. See for example, Sweezy (1942, ch. 7), and the more recent summary in Catephores (1989, pp. 87-106).

absence of the 'transformation problem'), they still viewed the price of capital in terms of the cost of producing its fixed and variable components, irrespective of how such cost were determined. Veblen's framework for capital was radically different in that it anchored the pecuniary value of capital not in past or even current prices, but in *future* prices. For Veblen, the current value of tangible capital goods (and certainly of intangible ones) was ultimately determined not by what it cost to produce (or institutionalize) them, but by what they were expected to generate in profit.[39]

In a sense, it was Veblen more than the neo-Marxists who succeeded in adapting Marx's view of capital to the new order of business enterprise and monopoly capitalism. The 'backward-looking,' cost-based interpretation of capital was perhaps adequate during the era of so-called competitive capitalism. The early development of capitalism occurred within the framework of a *money* economy. Although the separation of business from industry began already in the early stages of capitalism, it was initially quite limited in scope and all but negligible in its impact on the dominant habits of thinking. Until somewhere around the mid-19th century, the business institution of capital was still very much mingled with the industrial reality of capital goods and, hence, the value of capital could rightly be seen in terms of its cost of production. The circumstances started to change, and rather rapidly, with the widespread growth of business corporations in the latter part of the 19th century. The methods of corporation finance converted a money economy into a system based on *credit*. The primary significance of this transformation arose not from the use of credit to defer payments, but from the impact of credit on the institution of ownership. Under the earlier system, the owner-producer operated means of production valued in money prices. With the progressive incorporation of business activity, however, the archaic 'captain of industry' has slowly disappeared as the tone-giver, giving rise to the 'captain of business,' an absentee owner of financial capital whose value was denominated in credit prices. Corporate ownership was increasingly created through the extension of credit and, in Veblen's opinion, it was this 'larger use of credit' which more than anything affected the dynamic development of modern

[39] At a danger of some repetitiveness, it should be emphasized that this view could not be reconciled with the neoclassical approach, where the equilibrium between the marginal revenue product of capital and the rate of profit assured that the past be ratified by the future. For Veblen, there was no such thing as marginal productivity and, in any case, the cost of producing a commodity and the price at which it was sold were both business, not industrial magnitudes.

business enterprise. Clearly, if 'capital' was to be viewed as reflecting the contemporary system of social relationships, its nature as credit could no longer be ignored.

With corporate ownership being increasingly based on credit extensions, capital accumulation was becoming more and more a 'forward-looking' process. In a chronological sense, the accumulation of corporate capital tends to occur not after, but *before* profits are earned. This becomes quite evident when we examine the financial activities of large corporations where there is a more or less complete separation between industry and business.[40] For firms like General Dynamics, Lockheed, Philip Morris, Pepsico, or Chevron, assets tend to expand through the issuance of stocks and bonds and these are sold on the basis of a *putative* increase in earning capacity, in other words, on the *anticipation* of rising profits. To raise cash through equity or debt, Chevron need not show a higher profit or even begin drilling. An announcement of a new oil project, or heightened expectations for rising petroleum prices are usually sufficient to enable new credit extensions; in order to borrow on the bond market, Philip Morris and Pepsico do not have to increase their market share and profit, but rather persuade investors that they will do so in the future; similarly, companies such as General Dynamics or Lockheed do not have to actually manufacture and sell new aircraft before they can issue more shares or bonds. The very anticipation of a new Pentagon contract or a widespread belief in an imminent Middle East conflict could be enough to generate a warm market reception for newly issued securities. Of course, in order to constitute a solid basis for new capitalization, profit expectations must be 'institutionalized' to some extent; in other words, they must be widely shared among investors, or they should at least outweigh expectations for falling profits. Furthermore, investors must regard the presumed increase in profit as sufficiently 'permanent.' Yet, regardless of all such considerations, at the point of credit extension, these expectations are purely hypothetical. In this sense, the accumulation of credit capital is very much a 'capitalization of make-believe.' That is clearly evident from fluctuations in the stock and bond markets, where *de facto* capital prices are largely a matter of 'folk psychology,' as Veblen (1904, p. 149) already observed, but it is also true for so-called *de jure* capitalization as recorded in corporate financial statements. The expansion and contraction of corporate liabilities may be slower and less erratic than

[40] In the case of smaller firms, in which the major owner also operates as an industrial entrepreneur, 'forward-looking' credit extensions may still be obscured by parallel 'backward-looking' capitalization of cost.

the fluctuations in market quotations, but they, too, ultimately hinge on forward-looking suppositions. '[I]n the enlightened modern business usage,' wrote Veblen (1904, p. 127, emphasis added), all forms of capital are nothing but 'capitalized *presumptive* earning-capacity.'

It should be stressed that none of the foregoing suggests that capital values are somehow independent of current realities. Indeed, a prolonged drop in profits is likely to make it difficult for IBM to raise new capital, or a decision by ITT to cut its dividends could trigger an immediate drop in its share prices. Given this relationship, it seems reasonable to ask why does it matter that capitalization looks 'forward' to profit rather than 'backward' to cost? The answer to this question is somewhat subtle. Note that current events affect capital values only to the extent to which they bear on future expectations. In principle, then, the chronological sequence begins with accumulation and only ends with profits. In this sense, the modern methods of capitalization turn the process of accumulation into a *leading* economic force. The meaning of 'leading' should not be confused with 'significant' or 'primary.' All received economic doctrines emphasize the paramount role of capital accumulation but, since they view capital in backward-looking terms, its accumulation necessarily appears as the 'goal' or the 'end result' of a sequence, rather than its initial step.[41] Under the new order of business, however, capital values are forward-looking and accumulation occurs 'up front.' With the 'larger use of credit,' business activity tends not to end but to *begin* with capital accumulation and that shifts the focus of attention from the effect of current economic magnitudes on accumulation, to the impact of accumulation on the current development of business and industry. The accumulation of capital has two immediate corollaries to which we now turn.

The first consequence of accumulation is an *inflation of the aggregate money value of corporate assets*.[42] This effect could be explicated by considering the two processes through which corporate

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[41] In tangible terms, accumulation is said to occur as new means of production are produced and added to the existing stock. In value terms, capital is accumulated by adding to the initial value of constant and variable capital (or to the value of machines and the wage fund) the surplus value (or profit).

[42] Note that we specifically refer to the *aggregate* value of corporate assets, rather than to their *average* value. In order to measure the average value of corporate assets we need to divide their aggregate value by their total 'quantity' and that may not be so easy to do. The conceptual difficulty is well illustrated by the attempt of Alchian and Klein (1973) to devise a price index for assets. Following the footsteps of Fisher (1911), they assume that the 'price level of "life"' must reflect prices of both

assets tend to expand. The first process involves the direct *creation* of new ownership titles. It occurs when a corporation obtains or institutionalizes some intangible assets and then distributes shares or bonds to 'cover' them. This type of accumulation is characteristic of business restructuring. It often happens in the initial act of incorporation, when the owners give themselves shares to cover the original 'goodwill' of their association; it also takes place when a merger or an acquisition is believed to have 'generated' new intangibles which could then be covered with new stocks and bonds allocated to original owners and third parties. This form of capital accumulation stems from the creation of 'new,' previously-nonexisting assets and hence adds to the aggregate value of outstanding corporate assets. The second mode of accumulation occurs indirectly, through the *transfer* of ownership titles, whereby the investor advances cash in return for commercial paper or some other evidence of debt. From the investor's perspective, the reduction in cash balances is compensated by an increase in corporate securities, leaving his total assets unchanged. From the corporation's point of view, however, the transferred cash constitutes a 'new,' previously-nonexisting asset (covered with new liabilities) and is hence an addition to the aggregate value of outstanding corporate assets.

It is fairly clear, then, that the accumulation of corporate assets creates 'new funds.' Much like bank deposits -- corporate bonds, stocks, bank loans, accounts payable and other records of ownership are all pecuniary magnitudes and, when they expand, they inflate the aggregate sum of money values existing in the economy.[43] Furthermore, since the accumulation of capital is 'forward-looking,' the

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future as well as current consumption services. In their opinion (p. 173), this means that '[a] correct measure of changes in the nominal money cost of a given utility level is a price index for wealth,' and hence that a truly comprehensive price index 'must include asset prices.' The basic presumption is hence that the 'quantity' of assets could be counted in terms of some future hedonic services, but then Alchian and Klein are quick to admit that these services could not be observed in practice! In other words, that it is impossible to determine whether a change in the aggregate value of assets is a pure price change, a pure quantity (quality) change, or some mixture of the two. Alchian and Klein point out that the concept of 'quantity' is also ill-defined in the computing of standard price indices for current services, but that, of course, does not solve the problem (see Chapter 5).

[43] Bank deposits are records of ownership. They cover part of the capitalized earning capacity of a corporation (the bank) and are hence capital for all intent and purposes. There is nevertheless a difference between the creation of bank money, which is sometimes restricted by reserve requirements, and the expansion of non-bank liabilities, which is potentially limitless. To illustrate that there is no technical ceiling on the expansion of such 'new funds,' consider a hypothetical scenario with only two corporations -- AAA Inc. which has $1 million worth of machines capitalized in the form of shares, and BBB Inc. which has $1 million in cash, also capitalized in the form of shares. The owners of AAA Inc. could use their assets as collateral to borrow $1 million in cash from BBB Inc. Following the transaction, the total assets of BBB Inc. remain unchanged, but those of AAA Inc. now stand at $2 million. In the second stage, BBB Inc. could generate expectations for new profits and use them to sell $1 million worth

inflation of pecuniary values occurs without a concurrent change in the congeries of goods and services, or in the capacity to produce them. It is like diluting water with water. As we argue below, the accumulation of capital may or may not lead to changes in industrial conditions, but if it does, the change will occur *after* accumulation has taken place. Following Veblen, we can hence argue that, *ceteris paribus*, capital accumulation is a purely inflationary process. The meaning of this statement must be interpreted with caution. We do not claim here that accumulation raises or will raise the average price paid for goods and services (although that may very well happen). Instead, we simply state that, at the moment of accumulation, there is an inflation of the aggregate sum of pecuniary values without any change in the existing quantity of goods and services.

This line of reasoning may seem reminiscent of the 'quantity theory,' but the similarity is more apparent than real. While accumulation is always an inflationary process, it is never a uniform one and, so, contrary to the monetarist perspective, the inflation of capital values is anything but 'neutral.' Indeed, the second immediate corollary of capital accumulation is a *redistribution in the control of pecuniary values*. The expansion of assets occurs either when the corporation takes over another firm, thereby adding to its own assets what was earlier controlled by the acquired entity, or when it increases its assets without there being a corresponding change in the value of assets controlled by other companies. In both of these cases, the increase in the corporation's assets is *differential*, meaning that the corporation now controls a larger share out of the aggregate pecuniary values in the economy.[44] In other words, the

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of shares to AAA Inc., thereby increasing its own assets to $2 billion. In the third step, AAA could create expectations for further increases in future profits and use them to sell $1 million in bonds or shares to BBB Inc., raising its assets to $3 million, and so on. Since there is no required reserve ratio preventing non-financial corporations from having all their assets invested in financial papers, this kind of expansion could (at least in principle) go on for ever.

[44] To illustrate both forms of redistribution, consider the 1986 takeover of RCA by General Electric. (Details are from *Moody's Industrial Manuals*, 'General Electric Company,' 1986, Vol. 1, pp. 348-64.) To finance the deal, General Electric borrowed $5.4 billion, thereby augmenting both its total assets and its total liabilities by a corresponding sum. The borrowing brought no parallel increase in corporate assets elsewhere in the economy and hence raised the relative share of General Electric in the aggregate value of outstanding assets. Next, General Electric paid $6.4 billion (the borrowed funds plus $1 billion of its own cash) to acquire all of RCA's outstanding stocks from its current shareholders. This action eliminated RCA as a going concern and erased the value of its shares from the economy's balance sheet. If we stopped at this point, it might have appeared as if General Electric was simply transferring values from its own creditors to the shareholders of RCA, thereby leaving the aggregate value of outstanding assets more or less intact. That is not what happened, however. The elimination of RCA as a going concern redistributed all of its assets -- about $6.7 billion -- to General Electric, but the sum added to General electric's balance sheet was $2.7 billion *larger* than the $6.7 billion erased from the RCA accounts! The reason was that what General Electric paid was deemed to be higher than the 'fair

accumulation of capital is a process not of ***inflation***, but of ***inflationary redistribution***. It involves not merely the expansion of assets but, more profoundly, the ***restructuring of economic power through the differential revaluation of pecuniary values***.

According to the foregoing, the accumulation of corporate capital is a purely business process, consisting of an inflation of assets and a redistribution in their control. Yet business is never independent of industry which means that a theory for business accumulation must include both its industrial causes and industrial consequences. In the United States, 'forward-looking' accumulation of corporate capital emerged as a result of some fundamental economic changes occurring in later half of the 19th century. First was the decline in the pace of population growth. Between 1790 and the Civil War, the U.S. population grew very rapidly, expanding at an average annual rate of 3.0 percent. The conquering of the western 'frontier' brought a sharp drop in that rate. From the Civil War until the turn of the 20th century, the population expanded at an average rate of only 2.2 per annum, and that fell even further, to 1.6 percent, between the turn of the century and the onset of the Great Depression.[45] The second significant development occurring in the latter half of the 19th century was the rapid expansion of 'industrial arts' and the consequent surge in productivity growth. During the 1860s, there was still a substantial positive gap between the rates of growth of population and productivity. In manufacturing, for example, labour productivity rose at an average annual rate of only 0.5 percent, while the population expanded at an average annual rate of 2.7 percent. This gap was closing very rapidly, however. In the 1870s, the rate of population growth declined to 2.6, while productivity growth almost doubled, to 0.9 percent. Then, during the 1880s, while the population continued to grow at an annual rate of 2.6 percent, productivity growth more than doubled again, to 2.1 percent. Finally, during 1890s, when the rate of population growth dropped to 2.1 percent, the gap turned negative because productivity was now

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market value' of RCA's shares. In other words, the acquisition was seen as creating $2.7 billion worth of 'goodwill' which were duly added to the assets of General Electric. All in all, the accumulation of $9.4 billion by General Electric involved a direct reshuffling of $6.7 billion worth of existing assets previously controlled by RCA, and a creation of an additional $2.7 billion worth of new assets.

[45] Computed from data published by the U.S. Department of Commerce in *Historical Statistics of the United States, Colonial Times to 1970*, 1975, Part 1, Series A2, p. 8.

expanding even faster, at 2.3 percent.[46] According to Veblen, the interaction of these parallel processes had a decisive impact on the nature of business institutions. Until the latter part of the 19th century, markets (both domestic and foreign) tended to expand faster than productive capacity and the main concern of individual firms was how to satisfy the growing demand for their goods:

> [D]uring all that period which can properly be called the era of free competition the industrial system never reached such a pitch of efficiency that it could properly be called inordinately productive; that is to say, production was not at that time continually in danger of outrunning the capacity of the market. . . . The growth of population and the growing extension of trade into foreign parts afforded an outlet for an ever increasing production of goods, at reasonably profitable prices, that is to say at increasingly profitable prices. So that business considerations during that time called for no vigilant restriction output, on the whole; and the sagacity of the captain of industry was therefore habitually directed to a cheap and large output of goods. . . . (1923, pp. 72-3)

The situation started to change toward the end of the 19th century. The post Civil-War period witnessed an unprecedented increase in the use of new raw materials, in the development and assimilation of innovations and new production techniques and in the diversity of products -- all of which contributed to a notable acceleration in the expansion in productive capacity. On the other hand, the decline in population growth significantly reduced the growth of demand. This combination of rising productivity growth and slower increases in population meant that, from a business perspective, the industrial system became 'inordinately productive.' If the earlier pattern of competitive production were to continue, industry would tend to generate much more output that what could be sold at profitable prices. In other words, it would bring business enterprise to an end.

The 'unruly' development of the machine process threatened to undermine the very control of industry by business. If until the latter part of the 19th century, profits arose from the private ownership of 'scarce' industrial capacity, from that period onward, business was faced with a chronic predicament of 'excess' capacity. The industrial apparatus was still privately owned, but its was no longer scarce, at least not in relation to what could be sold under prevailing conditions. In order to maintain profitability, there was now a constant need to reestablish scarcity, either by raising sales above capacity, or by

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[46] The figures for population growth are from *Historical Statistics of the United States, Colonial Times to 1970*, 1975, Part 1, Series A7, p. 8. Data on productivity growth are based on the Frickey Index for manufacturing production, published in *Historical Statistics of the United States, Colonial Times to 1970*, 1975, Part 2, Series P17, p. 667, and on the number of production workers in manufacturing establishments, published by the U.S. Department of Commerce in its *Census of Manufacturing, 1982*, Vol. 1, Summary and Subject Statistics, pp. 1-2.

curtailing capacity to 'what the market could bear.' The difficulty for business was that a shift toward such 'institutional' scarcity could not be accomplished when firms acted at cross purposes. An increase in production might be profitable for one or several firms only insofar as all other firms did not try to do the same thing. Similarly, there was no point in curtailing your own capacity if other businesses maintained or increased theirs. Whereas firms previously acted as competitive *producers* in an 'open' market, they now had to struggle as competitive *sellers* in a 'closed' market and, under these circumstances, atomistic competition was a sure way for extinction. Excess capacity was an *aggregate* problem and hence could be solved only through *concerted* action. According to Veblen (and many others since then), it was this persistent need for collective restriction of output which underlies the new order of business combinations.[47]

Large scale coordination of business activity first emerged in the United States around the 1870s. It started with the early organization of national business and trade associations, continued with the formation of trusts and reached its institutional maturity with the rise of 'big business' during the first wave of mergers and acquisitions extending between the late 1880s and the early 1900s.[48] By the first decade of the 20th century, the institutional dynamics of U.S. business were more or less thoroughly transformed from unregulated competition to oligopolistic interaction. The transformation did not make business less 'competitive' as firms were still seeking, perhaps more than ever before, to beat the average and outperform their rivals. The fundamental change was rather in the mode of competition. Instead of pursuing their goals by means of *individual* competition, firms were continuously drawn into collective action and their struggle was increasingly carried through business *coalitions*.

The most significant development enabling the formation of such coalitions was the emergence of corporations as the common form of business organization. Business combinations were initially

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[47] The largest combination of its time -- the 1901 formation of U.S. Steel -- was explicitly motivated by the spectre of excess capacity, as were many other mergers at the time (see Ross and Scherer, 1990, p. 155 and Chandler, 1959, p. 285). Even when there was no immediate danger of excessive output, business combination facilitated industrial rationalization when the need eventually arose.

[48] On the beginning of 'big business' in the United States, see Chandler (1959). Extensive discussions of the early merger movement could be found in Markham (1955), Nelson (1959) and Lamoreaux (1985). Additional reviews and selected bibliographies are given in Scherer and Ross (1990, ch. 5), and in Bowring (1986, ch. 3).

formed through loose associations, pools and trusts, but these were often unstable and not very successful.[49] As Olson (1965 and 1982) convincingly argued, collective action is usually difficult and often impossible for large groups and an excessive number of firms was indeed a primary factor contributing to the relative fragility of these early combinations. There was hence a pressing need to reduce the number of firms and the most effective way to do so was through the merging of existing companies into larger ones.[50] Mergers, however, were not only structural transformations, but also financial transactions. They involved the buying and selling of capital which meant that firms had to have a pecuniary value. Capital had to become 'vendible' and that was achieved through the widespread incorporation of business firms, the rapid development of stock and bond markets and the growing use of credit instruments during the final decade of the 19th century. It was in that period that the separation of business from industry was finally completed, with investors becoming absentee owners of 'forward-looking' capital values.

These economic transformations set a qualitative pattern which characterized the dynamic interaction between business and industry throughout the entire 20th century. By and large, industrial productivity continued to expand much faster than 'what the market could bear,' making excess capacity a chronic business problem. If business enterprise were to survive, the 'scarcity' of capital goods had to be continuously reestablished, which meant that the only 'permanent' solution was a *ceaseless restructuring* of business institutions. The problem was and remained an aggregate one, and so business restructuring continued to involve the formation and reformation of business coalitions. Given that the effectiveness of collective action is negatively related to the number of participating units and positively related to their average size, the incentive for mergers in fact tended to increase with the process of corporate concentration and the progressive increase in corporate size. Mergers were financial transactions of credit expansion and so, ever since the first major restructuring of U.S. business, they were unfolding together with the expansion of credit and the accumulation of corporate capital.

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[49] See for example Chandler (1977, pp. 317-18), Cochran and Miller (1961, pp. 140-46).

[50] This rationale for the growth of large firms differs from the traditional emphasis on the technological benefits of large scale. Indeed, according to different evidence analyzed by Edwards (1979, pp. 217-24), the growth of firm size after the turn of the century generally exceeded the need for technical efficiency. Furthermore, even in the presence of economies of scale, the ultimate purpose of corporate mergers was not to increase, but limit industrial activity.

Note that in identifying this historical pattern we do not claim that it stemmed from some iron 'laws of motion.' The new order of large-scale industry and big business was *driven* by the antagonistic interaction between the 'instinct of workmanship' and the quest for profit, but the *outcome* arising from this interaction was in no way 'inevitable.' The economic history of the 20th century was dominated not by atomistic units of negligible size, but by giant corporations and massive coalitions. This meant that the broad forces of industry and business operated not through the abstract gestures of an 'invisible hand,' but rather through the singular actions or inaction of particular corporate groups. The question now was not only whether business *needed* to reestablish scarcity, but also the extent to which it *succeeded* in doing so and, under the new circumstance of differential power relations, that question could have no 'deterministic' answer.

The significance of this view becomes clearer when illustrated with specific examples. Consider first the process of industrial development and the efforts of corporate coalitions to arrest that process to their own ends, namely, for the purpose of maintaining and, if possible, increasing the profits of their constituent members. For example, steel profits in the United States were affected by diverse factors such as the dramatic improvements in the production of steel, the formation of U.S. Steel Corporation, the collusive 'Gary dinners' and the recent challenge from Korean steel producers. Yet the fact that these industrial and business developments have taken place does not necessarily mean they were 'inevitable.' Had the Bessemer process not been invented, had Carnegie refused Morgan's offers, had collusive pricing practices been prosecuted, or had the Koreans been less successful with their cost cutting -- steel profits were sure to have been drastically different from what they were. The same could be said on the experience of the oil business. The development of petroleum refining methods by Silliman, the discovery of major oil fields in Pennsylvania, and the growing energy requirements were not more inevitable than the rapid concentration of the oil industry, the dynamic interaction between large oil companies and oil-producing countries, and the political and military events in the Middle East, which have all affected the shifting fortunes of the large petroleum companies. Similarly, the development of the internal combustion engine and the Ford assembly line were not inescapable, and neither were the subsequent consolidation of the automobile oligopoly, the failure of General Motors

to raise $3 million in 1908 and $8 million in 1909 to acquire the Ford Company, or the recent rise of foreign competition. Finally, the invention of the airplane and improvements in aviation technology were not necessary historical developments and the same could be said on the formation of a three-firm oligopoly in the civilian aircraft industry, or on the looming challenge from Japanese conglomerates.

Similar indeterminacy prevails when we consider the record of business coalitions in combating excess capacity by augmenting demand for their products. Since the turn of the century, sales increases were achieved by two principal strategies -- either through advertisement, packaging, remodelling and other methods of salesmanship designed to affect consumer and business purchases, or by less overt practices aimed at raising government spending.[51] These strategies have not been always successful, however. First, in an oligopolistic situation, the effect of increases in total selling expenditures on the aggregate profits of the group is positive only up to a certain 'optimal' level, after which it becomes negative. Individual oligopolies may prefer that their group gravitate toward such optimal levels, but there is no reason to assume that they will necessarily succeed in doing so. The ability to limit excessive selling expenditures depends not only on what is desired, but also on what is feasible, and that may hinge on the internal cohesiveness of the oligopolistic group and its capacity for collective action. The inability to reach mutual understanding in this area is reflected in the extent to which selling cost is institutionalized as a 'necessary' cost of doing business.[52] The automobile companies in the Unites States, for instance, have been spending considerable amounts on annual model changes -- more than 25 percent of the purchase price according to a famous study by Fisher, Griliches and Kaysen (1962) -- and it is highly doubtful that these promotional spending have raised sales, let alone profits, by a comparable amount. The failure of the automobile oligopoly to restrict annual remodelling has probably reduced its aggregate profits, but that was blurred because the expenditures on remodelling were increasingly seen as a necessary cost of production. The significance of collective action is also apparent

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[51] Veblen was probably the first economist to identify the significance such 'extra' spending and their effect on the emergence of 'institutional waste.' The role of wasteful expenditures under monopoly capitalism was examined and debated mainly by neo-Marxist writers such as Kalecki (1933), Sweezy (1942), Steindl (1952), Baran and Sweezy (1966), Magdoff and Sweezy (1983 and 1985) and Szlajfer (1984a and 1984b).

[52] On the view of selling expenditures as a necessary cost of production, see for example Veblen (1923, ch. 11), and Baran and Sweezy (1966, ch. 5).

when we examine the ability of corporations to affect governmental demand for their product. For example, after the Vietnam War, there evolved in the United Sates an 'armament core' of large corporations which obtained spectacular increases in profits by augmenting their arms sales to the U.S. government and to foreign countries.[53] The present structure of this coalition and its influence on domestic and foreign government policies may no longer be sufficient, however, to prevent decreases in military spending. Given the deepening fiscal crisis in the United States and the end of the Cold War, the prosperity of these firms will now depend either on their ability to prevent arms sales from falling, or on their capacity to raise profit margins -- both of which may require a further consolidation of their coalition. Unfortunately, the future fate of the 'armament core' and the related course of future military spending are not really 'predictable' in any scientific sense. Both depend on the extent and effectiveness of future institutional changes and these are simply not 'written in the cards.' With this 'historical indeterminacy' in mind, we could finally turn to assess the interrelated dynamics of distributional coalitions and stagflation.

6.6 Toward a Dynamic Theory of Distributional Coalitions and Stagflation

The relationship between the processes of inflation and stagnation on the one hand, and the institutional restructuring of business coalitions on the other, could be presented in the form of three related hypotheses.

(1) Following Veblen, we have argued that the appropriation of profits depends on the strategic control of industrial activity for business ends. The control of industry by business is possible because the capital goods needed for the *cooperative* process of production are held under *individual* ownership. The businessman has the vested right to curtail industrial production, and it is this institutional power to inflict 'scarcity' which gives capital goods their pecuniary value. That 'scarcity' is indeed institutional remains obscure as long as the population grows faster than industrial productivity. Under such circumstances, the physical capacity to produce falls short of market demand, making 'scarcity' look like

[53] On the emergence and activities of the 'armament core,' see Bichler *et al.*, (1989), Nitzan *et al.* (1989) and Rowley, *et al.* (1989).

a natural barrier imposed by limited resources. Profits, though, are accrued not because there are not enough capital goods, but because business owners have the right to withdraw the industrial services of such goods. The right to 'sabotage' need not always be *exercised*, however. With markets growing faster than productivity, the latent *threat* of a 'hold-down' is usually sufficient to allow owners to 'do business on their own terms,' that is, to earn a profit even though industry is producing at full capacity. All of this changes with large-scale industry, which tends to increase productivity much faster than the pace of population growth. Under this new situation, a failure to actually exercise the 'right for sabotage' may diminish 'scarcity' to the point of zero or negative profits. To prevent that from happening, industrial activity must be curtailed below its maximum potential capacity, which in turn implies that some 'means of production' must remain industrially idle. In other words, under the normal conditions of large-scale industry, the earning of business profits requires that there be an 'excess industrial capacity' of unemployed labour, resources and technology, which leads us to our first tentative hypothesis, namely, that under 'mature' capitalism, *business prosperity necessitates industrial stagnation*.[54] Note that this logic says nothing on the specific relationship existing between business prosperity and industrial stagnation, which need be neither linear nor stationary. Moreover, it does not even imply that industry *must* stagnate. All it says is that, *if* the technical capacity to produce expands faster than market requirements, and *if* business enterprise nevertheless prospers, than such prosperity could occur only with industry stagnating below its full productive potential.

(2) The strategic limitation of industrial activity could be implemented only through successful business cooperation, which in turn requires that business activity be dominated by sufficiently large coalitions. Furthermore, to the extent that productivity growth continuously outstrips the growth of the

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[54] It should be emphasized that we use 'stagnation' here only in the relative sense of under-capacity utilization, with full capacity delineated by technological rather than business constraints. Consequently, the extent to which industry stagnates below its full potential need not be related to the pace of growth of industrial output. To illustrate this argument, let capacity C be given by the product of total input N and total input productivity q, such that $C = N \cdot q$. Capacity utilization CU could then be defined as the ratio of output Q to capacity, so $CU = Q / C$, or $CU = Q / (N \cdot q)$. From this last equation, it is clear that, for a given value of N, capacity utilization is positively related to output and negatively related to total input productivity. For instance, if, when industry operates at 70 percent of its capacity, there is a 6 percent increase in output, coupled with a 8 percent increase in productivity, capacity utilization will, by definition, fall by 2 percent to 68 percent. On the other hand, if output grows at a rate of only 5 percent but productivity rises at 3 percent, there must be an increase of 2 percent in capacity utilization to 72 percent. The faster output growth in the first case is associated with increasing stagnation, while the slower growth in the second case is accompanied by lower stagnation.

market, there is a constant need for further limitations of industry, which is easiest to achieve through additional business concentration. The process of concentration tends both to reduce the number of large firms and to increase their relative size, enabling a more effective cooperation between and among business coalitions. This leads to our second tentative hypothesis, that there exists a significant relationship between the *extent of industrial stagnation* on the one hand, and the *process of business concentration and the consolidation of large business coalitions* on the other. Again, there is nothing immanent in these developments. We do not argue that industrial or aggregate concentration ratios have to rise, or that business coalitions must become more effective, but rather that, *if* business continues to prosper despite the excessive growth of industrial capacity, such prosperity is likely to occur through an ongoing process of corporate concentration and a progressive consolidation of corporate coalitions.

(3) The 'success' of business cooperation has a direct bearing on the process of capital accumulation. The extent to which corporate concentration and the strengthening of corporate coalitions increase expected profits is promptly reflected in the capitalization of affected groups. An increase in the anticipated level of profits raises the expected rate of profit on current capitalization above the prevailing 'normal' rate of return (adjusted for 'risk'), thus justifying a recapitalization. The recapitalization usually occurs through a combined increase in both the number and average market value of outstanding stocks, bonds and other commercial papers which, together, lead to an inflation in the aggregate value of corporate assets. The third tentative hypothesis is hence that, under the new order of business enterprise, *the tendency toward industrial stagnation is accompanied by a progressive asset inflation*, in other words, that *stagnation and inflation tend to appear together as 'stagflation.'* The meaning of stagflation here differs from conventional uses of this term. It refers not to the quantity and prices of produced goods and services, but rather to the relative utilization of industrial capacity and to the aggregate nominal values of outstanding records of ownership. Moreover, there is no 'unique' relationship between the tendency toward 'stagflation' of under-capacity utilization and asset inflation on the one hand, and the temporal movements of output and prices on the other. Attempts to curtail industrial activity below its full capacity will reduce the growth of output below what it would otherwise be but, in the dynamic context of rising productivity, that need not always result in falling or even stagnating output. Similarly, the inflation in asset values will tend to raise the aggregate turnover and

hence the overall value of sales but, if aggregate output rises even faster, asset inflation need not lead to commodity price inflation. Yet, whether or not we can identify a stationary *statistical* relationship here, it is nevertheless clear that, from a *causal* perspective, 'stagflation' of under-capacity utilization and asset inflation tends to reduce output growth and increase price inflation.

To summarize, our three tentative hypotheses suggest (1) that in a 'mature' capitalist economy, business prosperity necessitates industrial stagnation, (2) that the extent of industrial stagnation is affected by the process of business concentration and the consolidation of large business coalitions, and (3) that since business restructuring occurs through capital accumulation, the tendency toward industrial stagnation is accompanied by a progressive asset inflation, in other words, that stagnation and inflation tend to appear together as 'stagflation.' Taken together, these three tentative hypotheses enable us to approach the evolution of modern capitalism as a dynamic, double-sided process. On the *disaggregate* level, there is a relentless process of business restructuring, involving continuous changes in corporate concentration and in the organization of corporate coalitions. The differential effect of this restructuring on profitability is revealed on the *aggregate* level in the form 'stagflation.' We can hence view the disaggregate restructuring and the aggregate stagflation as two sides of the same process of capital accumulation. Seen from a long-term perspective, the ongoing consolidation of business power generates rising expectations for profits, which in turn fuel the accumulation of capital. In this way, the pattern of business restructuring is 'imprinted' on the annals of accumulation through the differential recapitalization of assets. At the same time, the extent to which corporate restructuring generates higher profit expectations depends on both the limitation of industry and the related inflation of assets and sales, which means that capital is accumulated by capitalizing 'stagflation' tendencies!

This 'stagflationary restructuring' could be understood only as a *dynamic* process. It is not business power per se, but rather *changes* in that power which generate stagflation. To explore the institutional roots of stagflation, we have to examine not only the broad facets of structure, but most importantly, the continuous process of *re*structuring. Stagflation requires that markets be dominated by oligopolies and business coalitions, but the mere existence of these institutions is still insufficient to explain the temporal nature of industrial stagnation and asset inflation. It is the *continuous process of*

institutional change which enables business to restrain the ever increasing productivity of industry and to recapitalize this industrial limitation through an inflationary accumulation of capital.

The dynamic essence of 'stagflationary restructuring' becomes evident when we take a bird's eye view on the evolution of U.S. business since the mid 19th century.[55] The emergence of the new order of business enterprise was characterized by severe instability. Initially, the increasing use of loan credit brought frequent and violent credit cycles. The onset of a business boom raised profit expectations, inducing both borrowers and lender toward further credit extensions, which, in turn, tended to fuel inflation and further credit extensions. However, given the competitive nature of production, the inflation of asset values was not accompanied by a comparable increase in profits, leading to an eventual decline in the rate of return, an immanent panic and a downward rerating of capital values. The situation changed with the dual emergence of large-scale industry and big business. The progressive formation of business coalitions and the expanding capitalization of their rising profits helped rationalize the control of both industry and credit. There was a widespread proliferation of oligopolistic practices based on price leadership and a 'target' rates of return, which tended to stabilize the flow of profits. On the other hand, the incidence of unruly speculative booms was greatly reduced by the coordinated actions of the large financial institutions and Federal Reserve Board. As a result of these qualitative transformations, the violent cycles of inflationary booms and deflationary busts gave way to chronic industrial stagnation coupled with a persistent inflation of assets. These new 'stagflationary' circumstances were not 'inevitable.' They reflected the ongoing processes of business concentration and consolidation of corporate coalitions, and there was no 'iron law' which guaranteed the success (or even continuation) of such restructuring. But while the new order of 'big business' did not ascertain an ongoing 'stagflationary restructuring,' it was nevertheless highly conducive to this outcome. In particular, it mobilized the *differential* use of credit capital which tended to augment the relative power of big business, thus intensifying the related processes of stagflation and corporate restructuring.

Taken in the aggregate, the overall expansion of credit instruments need not reflect changes in business power. A universal inflation in the prices of all commodities may justify a larger capitalization

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[55] For more on these transformations, see Veblen (1904, ch. 7) and Veblen (1923, ch. 12).

of credit, even in the absence of any increase in the overall 'degree of monopoly' or any changes in the distribution of business power. But the emergence of big business introduced an inherent inequality in business power and that had a profound effect on the significance of credit for the process of restructuring. For most corporations, particularly smaller firms which are not organized for collective action, credit is essential in order to meet the expanding requirements for working capital. Given the non-cooperative environment in which such firms operate, the usual basis supporting these credit extensions is not a differential application of industrial 'sabotage,' but simply the overall inflation in commodity prices and the resulting rise in nominal profits. For the larger corporations, however, the situation is radically different. Here, credit extensions are based not only on the overall rate of price inflation, but also on the ability of such firms to alter the institutional circumstances within which they operate. Unlike the smaller firms for which credit extensions are merely a *response* to changing conditions, for the big corporations, the accumulation of credit obligations is an evidence of an institutional *initiative* toward changing these conditions. Furthermore, the progressive capitalization of profit expectations by large firms tends to become much like a 'self-fulfilling' prophecy. From a technical perspective, capital accumulation is indeed a 'forward-looking' process which should be reversed if the expectations on which it was based prove to be false. The likelihood of such negative rerating, however, tends to diminish with the growth of corporations and the consolidation of their coalitions. First, the increased interdependency between large lenders and borrowers heightens their sense of 'common cause' and increases their willingness to act together toward preventing any serious financial failure, either through further credit extensions to a beleaguered corporation, or through a takeover in which the existing capitalization is maintained by a process of merger. Second, with the growth of large corporations, the spectre of a major bankruptcy tends to become politically intolerable, thus making governments and central bankers more inclined to 'intervene' in serious cases. Furthermore, it is precisely the large corporations which have the political leverage to induce such 'bailouts.'[56] Thus, for the largest firms, the extension of loan credit is not only an anticipation of increased earning capacity, but also a most powerful weapon in realizing that increase. This strategic use of credit is more or less

[56] The government role could be 'overt,' as in the bailouts of Chrysler during the early 1980s, of Continental Illinois in 1984, and of the savings and loans industry since the late 1980s, or it could be 'covert,' for example, in the form of extended government contracts or tax savings to a large defence contractor.

limited to large firms and its effectiveness tends to increase with corporate size, which together mean that the larger use of credit is, in itself, a catalyst for 'stagflationary restructuring.'[57]

These considerations are highly important because the differential accumulation of credit seems to be rooted in the competitive essence of business enterprise.[58] The accumulation of assets usually offers a corporation a differential advantage *vis à vis* rivals who fail to augment their assets or those who expand at a slower pace. The advantage is clearly evident under the 'normal' circumstances of rising markets, when the cost of new capital is commonly lower than the additional profits it is expected to generate, but the drive to accumulate exists even in the absence of such apparent monetary gains. The relative magnitude of a corporation's assets is of such paramount importance in the competitive struggle for business, that firms may often feel compelled to increase their overall size, even when the expected addition to profit does not exceed and sometimes falls below the cost of added capital. In other words, 'under the régime of competitive business whatever is generally advantageous becomes a necessity for all competitors' and, so, '[s]peaking broadly, recourse to credit becomes the general practice, the regular course of competitive business management. . . .' (1904, pp. 96-7).[59]

Stagflation, then, is driven not only by the relentless progress of industrial productivity, but also by the compelling need to accumulate credit capital, and these two tendencies tend to reinforce each other. The ultimate yardstick for business success is the differential pace of capital accumulation. A faster accumulation requires an increasingly effective administration of differential industrial sabotage

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[57] Writing before the new order of business enterprise had begun, Marx (1906, Vol. 1, p. 687) was prophetic in his observations about the role of credit in corporate restructuring: 'In its beginning, the credit system sneaks in as a modest helper of accumulation and draws by invisible threads the money resources scattered all over the surface of society into the hands of individual or associated capitalists. But soon it becomes a new and formidable weapon in the competitive struggle, and finally it transforms itself into an immense social mechanism for the centralization of capitals.'

[58] Again, 'competitiveness' here refers to the elemental drive for differential gain which exists irrespective of business cooperation (see Section 4).

[59] The competitive need for new capital is so strong that it continues to exert pressure even during a business stagnation. As Veblen (1923, pp. 94-5) acutely observed, despite the severe recession following the Armistice of 1918, 'the generality of business concerns are and have all this time been seeking additional funds, but evidently not to increase the output of goods, since neither the equipment controlled by these concerns nor the available man-power are or have been employed more than one-half their capacity.' This tendency is still evident in our contemporary economy, where despite considerable unused capacity, the quest for new funds continues unabated.

which is, in turn, facilitated or 'validated' by the differential inflation of credit. From this perspective, the accumulation of corporate assets and, hence, the inflation and redistribution of pecuniary values, are no more accidental than the tendency for chronic industrial stagnation. Both are intrinsic to the new order of large-scale industry and corporate finance and tend to intensify with the progressive growth of 'big business' and consolidation of corporate coalitions.

These arguments imply that the structural roots of stagflation should be traced not to the accumulation of distributional coalitions in general, as suggested by Olson, but specifically to the emergence and consolidation of *business* coalitions. Recall that Olson made no fundamental distinction between the distributional activities of labour and business coalitions and that he identified no significant difference in their macroeconomic impact. If we adopt Veblen's framework, however, we can no longer treat labour unions and business coalitions in the same way. It is true, wrote Veblen (1923, pp. 296-98), that, with the evolution of business enterprise, both employers and workers have increasingly come to realize that 'the sole decisive argument on either side is a refusal to go on' and, so, on the face of it, trade unions appear to follow standard business tactics of 'mutual defeat.' Yet, beyond this apparent similarity, there lie some critical differences in both the *modus operandi* and eventual consequences of the two types of coalitions.

First, unlike the goals of business, not all the aims of organized labour could be denominated in pecuniary terms. To increase profits and accumulate assets, a business coalition requires that industry stagnates below its full capacity, but the stagnation itself is not a matter for business concern. Labour unions, on the other hand, are caught in an uncomfortable dilemma, for they seek not only higher wages, but also secured employment.[60] Veblen also pointed out to a significant sentimental difference that partially inhibits the business-like behaviour of labour unions. Caught in their 'instinct of workmanship,' he wrote (1923, p. 295), '[t]heir spiritual complexion is not yet fully commercialized, even

[60] 'Despite decades in which unions have been part of the economic scene,' write Freeman and Medoff (1984, p. 6), 'economists lack an accepted maximizing theory of union behavior that would predict the results of bargaining within the union over wage goals. Under some circumstances a union may seek a high wage at the cost of employment; under others, it may be more moderate in its wage demands to preserve jobs. This union concern is quite distinct from the worries of a monopolist, whose sole goal is to maximize profits, regardless of what happens to the number of units sold.'

though the great body of them may already have begun to realize that sabotage is the beginning of wisdom in industrial business. They may already believe it with their head, but they do not yet know it with their heart.'

A second difference between labour unions and business coalitions concerns their mode of organization. Unlike business cooperation, the collective action of workers must be *overt*. Since labour unions can achieve their goals only through a process of bargaining, both the organization of a labour union and its subsequent activities are necessarily open to public and legal examination. Business activity, on the other hand, is essentially unilateral. The right to set prices and output levels is conferred by the canons of private property. It requires no consent from workers or consumers and, in general, is not subject to legal scrutiny. In this context, collective business action could remain *tacit* and, indeed, with the exception of official cartels, most business coalitions have no *de jure* existence. In fact, the most obvious form of business cooperation -- the corporation itself -- is normally not considered to be institution of collective action.

The third and perhaps most important difference between labour and business coalitions stems from the institutionalization of their distributional power. The successful achievement of wage increases by a labour union would not usually affect the future ability of that union to obtain additional wage increases, or even to maintain current wage levels. For a business coalition, on the other hand, differential increases in profits are promptly capitalized. In other words, unlike labour coalitions, the success of corporate coalitions allows them to increase their financial leverage and to further augment their distributional power!

This last difference helps to resolve a major weakness in the way in which Olson approached the dynamic accumulation of distributional coalitions. His attempt to formulate a 'universal' theory which would explain the rise and decline of nations across time and place made it difficult to devise a uniform criterion for coalition power. In the absence of such a common gauge, Olson used the *number* of coalitions as a proxy for their aggregate economic significance, which amounted to assuming that all coalitions were 'equal' and, of course, biased his discussion toward overt labour coalitions and away from

covert business coalitions.[61] If we agree to restrict our analysis only to mature capitalism, however, we do not have to assume that all coalitions are alike, or to use membership counts as a proxy for coalition strength. In the case of business coalitions, the most straightforward index for distributional power is not the number of participants, but rather the differential financial performance of coalition members. In fact, for business coalitions, a decline in the number of firms is often associated with an increase, not a decrease in distributional power.

There are also substantial differences between the impacts that labour and business coalitions have on the process of stagflation. First, given that wages are a cost of production, the power of organized labour is ultimately limited by the power of organized business. In other words, the extent to which unions limit industrial activity and in that way lead to higher prices depends on the distributional power of the corporations for which union members work. There is no similar dependency for corporate coalitions. Their profits are often related to the overall consumption of wage earners, but they rarely depend on the purchasing power of their own workers. We could hence argue that the stagflationary effect of labour unions is constrained by the stagflationary effect of corporate coalitions. Second, in the context of an 'inordinately' productive industry, business prosperity *necessitates* the 'stagflationary restructuring' of corporate coalitions, but there is no similar imperative requiring the growth and consolidation of labour unions. Under the new order of business enterprise, a failure to continuously restructure the business control of industry will eventually eliminate profits and bring capitalism to a standstill, but the failure of workers to repeatedly reorganize their collective action will lead to no comparable cataclysm. This leads us to the third difference, between the 'static' impact of labour unions and the 'dynamic' effect of corporate coalitions. Unlike Olson, Veblen differentiated between the aims of labour and the goals of business. Following Marx, he identified utilitarian consumption as the ultimate purpose of wage labour, which meant that the goals of organized labour could be denominated in terms of *levels*. Workers were interested in higher wage levels, which may then lead to higher price levels and lower levels of output. Business, on the other hand, strove not for higher 'purchasing power,' but for differential pecuniary gain. Consequently, the target of business coalitions was not high profits, but ever-

[61] In cases where even the number of official coalitions was unknown, Olson resorted to *time* as an index approximating the increasing number (and hence power) of the (unknown) coalitions.

increasing profits, which in turn implied not high prices and low output, but *inflation* and *persisting stagnation*.[62]

The views and analyses examined in this chapter point to a pressing need to redefine our empirical programme for the study of stagflation. We propose such a new framework in the following 3 chapters. In Chapter 7, we devise an alternative definition for inflation which replaces the standard measurements with a dual index, reflecting the dynamic interaction of business and industry. Then, in Chapter 8, we decompose our new inflation index in order to examine the interaction between the inflationary process on the one hand, and the process of aggregate concentration on the other. Finally, in Chapter 9, we try to identify the mutual causes of inflation and restructuring as they emerge from the process of differential pecuniary accumulation.

[62] It should be emphasized that we talk here not about the subjective preferences of individuals, but the objective pressures imposed on distributional coalitions. Many workers would obviously like to see their consumption rising continuously, while some businessmen may lose sight of what 'makes them run' but, in both cases, their actions would still be dictated by the objective circumstances -- the static circulation of labour power in the first case, and the dynamic requirements for differential business performance in the second.

CHAPTER 7

INFLATION AND THE DYNAMIC INTERACTION BETWEEN BUSINESS AND INDUSTRY

In the preceeding chapter we proposed to view the phenomenon of stagflation as arising from the dynamic process of corporate restructuring. Specifically, we suggested that, in a 'mature' capitalist economy, the differential processes of business concentration and consolidation of corporate coalitions appeared on the aggregate level in the form of chronic excess capacity, coupled with an inflationary expansion of assets and sales. The tendencies toward excess capacity and asset inflation were in turn seen as the chief reasons contributing to slower growth and rising prices. Before we could proceed to assess these hypotheses, however, it is necessary that we reexamine our basic definitions for inflation and stagflation. This is required because existing indices used to describe such phenomena are inadequate for three principal reasons.

One well-known shortcoming is the lack of reliable statistics which associate individual prices with particular sellers. From the neoclassical perspective for perfect competition, no such data are necessary. Since the commodity is assumed to be homogenous and firms to be sufficiently small, there is a single equilibrium price for all firms and this price is determined by market forces, not individual companies. Under alternative conditions, however, firms can no longer be viewed as 'price takers.' In monopolistic competition, oligopoly or monopoly, firms are 'price makers' and then it becomes important to know which firms set what prices. Unfortunately, such information is usually unavailable. Economists have tried to circumvent the difficulty by adopting some restrictive institutional assumptions. One common method, dating back to the 1930s, has been to associate the rate of price change with the corresponding industrial concentration ratios for the underlying industries. Yet, this approach is meaningful only if both 'market power' and price are so-called 'industry variables.' Otherwise, the aggregating of firms' power and prices may be highly misleading. The lack of adequate price indices for individual firms means that we also do not know very much about the output of such firms. In order to construct firm-specific indices for output we need to divide the firm's sales by its own prices, but that

could not be done since the necessary firm-specific price indices are unavailable. Given these data deficiencies, it is then clear that, while we may be able to theorize about the central role of firms in the stagflationary process, it would be much more difficult to assess that role empirically. The price and quantity statistics necessary for this purpose simply do not exit.

The appropriateness of standard price and quantity indices for structural theories is questionable for another reason. The existing indices are inaccurate to the extent to which they fail to reflect qualitative change in the nature of commodities. Although the problem of quality adjustment is well known to economists, its significance for structural inflation theories is commonly neglected or simply misunderstood. The conceptual difficulties arising in this context were dealt with at some length in Chapter 5, and it is perhaps useful to briefly reiterate them here. Ordinary price indices measure the normalized value for a given 'quantity' of commodities. When the 'quality' of commodities changes, the change has to be quantified, so as to enable an appropriate adjustment of the price index. (For example, an increase of 50 percent in quality could be interpreted as reduction of 50 percent in price.) There is a considerable literature which addresses the quality-change problem and proposes practical procedures to solve it. Unfortunately, these procedure are valid only for equilibrium situations in perfectly competitive markets. Any deviation from these strict requirements causes the quality-adjustment procedures to break down. Thus, we cannot properly quantify the extent of quality change in the nature of commodities such as automobiles, aviation services, processed food, military hardware, medical equipment, banking services or industrial machinery, simply because they are not produced and sold in perfectly competitive markets. Even in the rare cases when market conditions seem close to the ideal of perfect competition, our inability to identify the occurrence of equilibrium still constitutes an unsurmountable obstacle toward applying the quality-adjustment procedures. Finally and perhaps most importantly, the very meaning of 'quality' seems to be cloaked in mystery. Several writers have suggested that 'quality' denoted the objective characteristics of a commodity and that these should be distinguished from human preferences, or the subjective assessment of quality. There are no practical procedures to help us make this distinction, however. Given that the unclear dichotomy between the 'objective' and 'subjective' continues to haunt us since the Greek philosophers, it is questionable whether such a procedure is at all possible. These limitations are highly disconcerting. As it stands, the problem is not

that existing price and quantity indices are inaccurate but, more fundamentally, that, in the context of a modern capitalist economy, it is not clear what would constitute 'accurate' indices. Once we leave the pristine framework of the orthodox neoclassical model and move into a complex and often rapidly changing institutional setting, once we substitute collective for individual action, the power of coercion and persuasion for sovereign hedonic desires, and continuous restructuring for equilibrium and stability, there may be no meaningful basis for measuring quality-adjusted prices and quantities.

A third deficiency of existing inflation proxies stems from their exclusive focus on commodities rather that on economic processes. The common use of standard price indices, such as the Consumer Price Index or the Producer Price Index, centres our attention on the price aspect of inflation, thus serving to obscure the broader, macroeconomic interaction between 'business' and 'industry' which, in our opinion, lies at the root of inflation. This basic interaction is not reflected in existing inflation indices and new proxies are needed to explore it.

Taken together, these considerations seem to suggest that, before we can explore the empirical relationship between corporate restructuring and stagflation, we may first need to redefine the very way in which *describe* inflation. A new definition is needed for three principal reasons: firstly, so we could focus on firms rather than industries, secondly, in order to free us from the restrictive neoclassical framework of perfect competition and equilibrium and, finally, to help us understand the dynamic interaction of 'business' and 'industry' which lies at the root of inflation and stagnation.

The purpose of this chapter is to provide such a new definition and then use it to devise alternative inflation indices which hopefully will be more adequate for our own analysis. We begin the first section by contrasting the standard 'multiprice' interpretation of inflation with the alternative 'value-quantity' perspective. Based on this latter viewpoint, we propose a new, dual-variable index which reflects the inflationary interaction between 'business' and 'industry.' In the second section, we use the new definition to consider the difference between 'abnormal' stagflation and 'simple' inflation and assess whether this distinction is at all meaningful. In the third section, we broaden the scope of our examination and suggest that the inflationary interaction between 'business' and 'industry' could be

described in a variety of ways, using different combinations of variables. The fourth section seeks to compare the temporal behaviour of these new indices with the patterns recorded by standard proxies. Here we demonstrate that all different approximations -- standard and new -- reflect the same general process of inflation.

7.1 Inflation and the 'Business-Industry' Dimension

When economists talk about inflation, they commonly refer to a continuous increase in one or more comprehensive price indices, such as the Consumer Price Index (CPI), the Producer Price Index (PPI), or the Implicit GDP Deflator. Each of these indices measures the 'average price' (in some base units) for a given basket of commodities and it can be interpreted in two distinct ways. We can think about this 'average price' as a weighted average of numerous individual prices. This is the 'multiprice' definition for a price index. We can also view the 'average price' as a ratio between the aggregate dollar value and the aggregate quantity of commodities included in the basket. This is the 'value-quantity' definition for a price index.[1] Although these two definitions are mathematically equivalent, their implications for the study of inflation are drastically different.

According to the 'multiprice' interpretation, a price index is a weighted average of individual prices and, hence, the rate of inflation (at least approximately) is simply a weighted average of the rates of change of individual prices. The 'multiprice' definition indicates that inflation occurs when individual prices change but, in itself, this definition provides no insight into the economic process generating those price changes.[2] The 'value-quantity' definition is different. Here, the 'average price' is not a weighted average of individual prices but rather a ratio between two non-price variables: the aggregate value and

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[1] Note that while the precise meaning of 'weights,' 'total value' and 'total quantity' depends on the type of index being used (fixed-base, current-base, etc.), every price index has distinct 'multiprice' and 'value-quantity' interpretations.

[2] The value for a current-base index (like the Implicit GDP Deflator) can change even if individual prices do not change at all. This may occur if the weights of individual commodities with different prices alter from one period to the next. Such weight adjustments can affect the measured rate of inflation but their impact is commonly secondary to the combined changes in individual prices. The effect of shifting weights on the overall rate of inflation may become substantial if price *changes* for individual commodities proceed at different rates. Yet, here too, inflation remains a weighted average of individual price changes.

the aggregate quantity of commodities. Consequently, the rate of inflation appears as the difference between the rate of change of aggregate value and the rate of change of aggregate quantity, such that

$$(1) \qquad (\Delta P / P) \approx (\Delta V / V) - (\Delta Q / Q) ,$$

where Δ indicates first difference, P is the price index, V is aggregate value and Q is aggregate quantity.[3] Viewed from this perspective, inflation involves a dynamic interaction between two spheres of economic activity -- the 'business' domain and the 'industrial' realm. The rate of change of total value ($\Delta V \div V$) reflects circumstances in the business domain, where commodities are *sold and bought*; the rate of change of total quantity ($\Delta Q \div Q$), on the other hand, mirrors conditions which prevail in the industrial realm, where commodities are *produced.*

In referring to 'business' and 'industry' here we follow the terminology proposed by Veblen to distinguish between the material and technological framework of capitalism, which he labelled the 'industrial system,' and the social and institutional setting which was dominated by the principles of 'business enterprise' (see Chapter 6). Recall that Veblen's distinction between 'business' and 'industry' was not synonymous with the conventional neoclassical dichotomy between the 'nominal' and 'real' sectors. According to some orthodox neoclassical analysis, the material course of a capitalist economy is determined in the barter-like, 'real' sphere of activity. Output, employment, and relative prices are regulated here by the interaction of hedonic wants and technological know-how. The 'nominal' sphere of the system has little or no bearing on 'real' variables. This sphere encompasses monetary and fiscal activities of governments, the main effects of which are limited to the level of absolute prices. Veblen's framework was different. The *potential* capacity of modern capitalism was indeed determined by the scope and technological progress of the industrial system, but the *actual* course of economic events was regulated by the institutions of business enterprise. As Veblen (1904, p. 26) succinctly put it, 'Industry is carried for the sake of business, and not conversely.' This did not imply, of course, that business enterprise was somehow more 'real' or important than the industrial system; moreover, business and

[3] Because it uses first differences rather than differentials, Equation (1) provides only an approximation for the rate of inflation as measured by the rate of change of the price index itself. As we demonstrate below, this approximation is quite accurate even for annual rates of change.

industry were anything but independent from each other. For Veblen, it was the contradictory *interaction* between these two spheres which determined the course of economic events.

This dichotomy between the 'business' and 'industrial' spheres is useful for our own analysis of inflation. It enables us to anchor the inflationary process in both of these spheres: the rate of change of total value reflects the dynamics of business activity, the rate of change of total quantity reflects industrial conditions, and the difference between them approximates the rate of inflation. Changes in total value and total quantity need not create inflation, of course. When the rate of change of aggregate value is exactly equal to the rate of change of aggregate quantity, the rate of inflation is zero. The important point, however, is that broad price changes cannot occur *unless* there are underlying changes in the aggregate value of commodities, their aggregate quantity, or both. In other words, price inflation can arise *only* when there are underlying changes occurring in the business and industrial spheres. This interaction between business and industry is at the root of inflation. Without it, the overall price level would not change. Moreover, the inflationary interaction between business and industry is necessarily *dynamic*. The fact that the rate of inflation is continuously changing means that the difference between the rate of change of aggregate value and the rate of change of aggregate quantity is constantly changing too. So, while inflation arises from an interaction between business and industry, variations in the rate of inflation occur because the very nature of this interaction changes over time.

In order to illustrate the inflationary interaction between business and industry, we turn to Figures 7-1a and 7-1b. Figure 7-1a describes the annual rates of change of nominal GDP and real GDP for the United States over the period between 1948 and 1985 (data definitions and sources for all variables are provided in Appendix A). The difference between these two rates of change is approximately equal to the annual rate of change of the Implicit GDP Deflator and we label it as "Inflation (1)." (The double quotation marks are used to distinguish the 'value-quantity' family of indices from the standard 'multiprice' measures. The number in brackets serves to distinguish among different indices within the 'value-quantity' family.) Graphically, this difference is depicted by the shaded area in Figure 7-1a. The actual annual levels of "Inflation (1)" are charted in Figure 7-1b. A simple comparison of these two figures indicates why a single, 'composite' index such as the rate of change of the Implicit

Figure 7-1a The inflationary interaction between business and industry: a temporal presentation

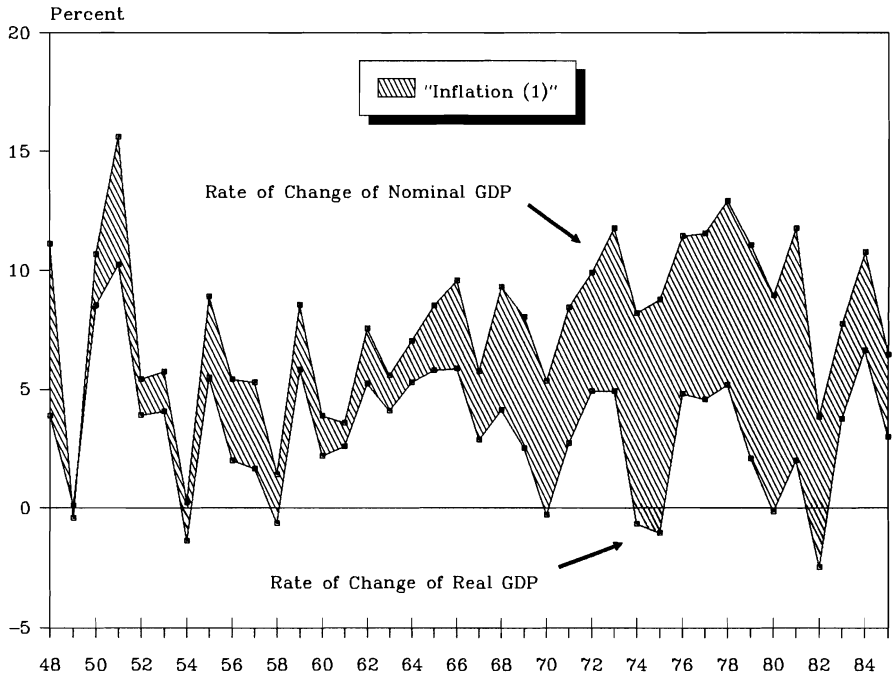
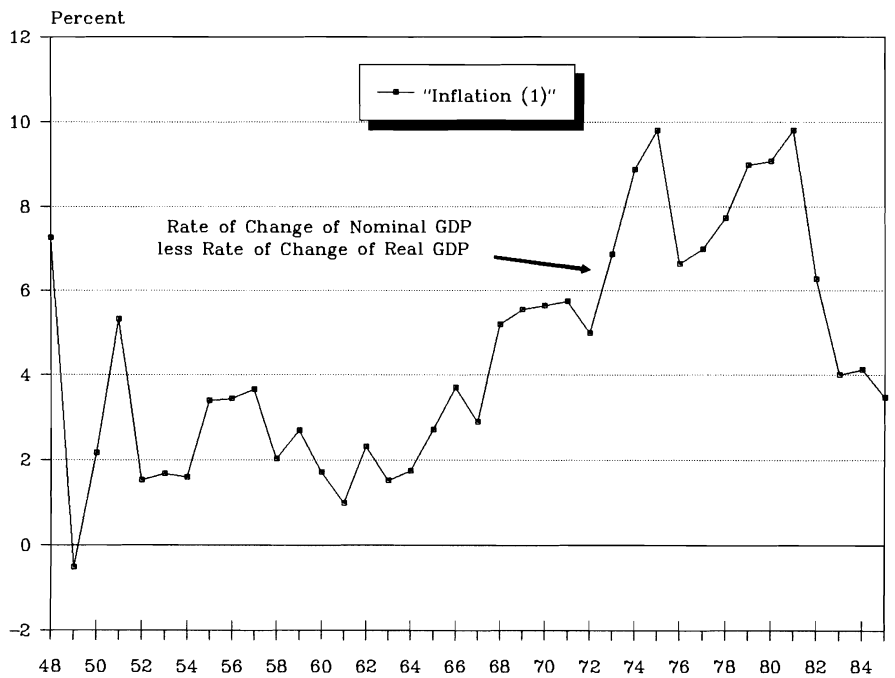


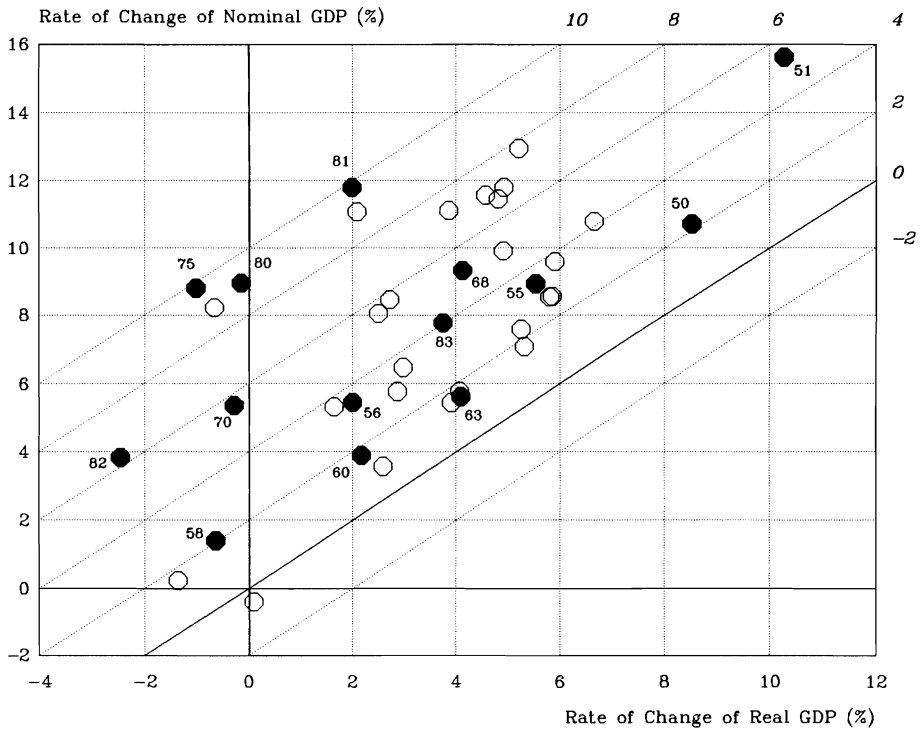
Figure 7-1b "Inflation (1)"



Price Index [approximated by "Inflation (1)"] is potentially too restrictive. Figure 7-1b shows that inflation remained relatively low and stable until the mid-1960s; that it increased during the late 1960s and through the 1970s; and that, subsequently, during the early 1980s, inflation experienced some decline. Yet, as it stands, Figure 7-1b tells us nothing about the underlying processes which generated this inflation. More about these processes can be learnt from Figure 7-1a which 'decomposes' the summary index into its constituent components. The data indicate that the moderate rates of inflation experienced between the late 1940s and the mid-1960s involved relatively similar growth patterns for the business and industrial spheres. This apparent synchronization broke down in the late 1960s. During the late 1960s and the 1970s, the rate of growth in the business sphere increased on an upward trend, while the rate of growth in the industrial sphere experienced a secular decline. As a result, the trend rate of inflation was positive in that period. We can also discern in that period a greater disparity in the short-run fluctuations of the two series, which serves to explain the relatively large fluctuations in the annual rate of inflation. During the mid-1980s, the two series returned to a more similar pattern of change and this explains the moderation of inflation in that period. These dynamic aspects of inflation are obscured when we use standard proxies, such as the rate of change of the Implicit GDP Deflator. The standard measures 'summarize' the business-industry interaction into a single number and, hence, serve to conceal the *dual* nature of the underlying process. To explore this double sided, ever-changing interaction of business and industry, we must decompose the standard indices into their elementary components.

The significance of this decomposition can be further clarified in reference to Figure 7-2 which provides an alternative presentation for the data charted in Figures 7-1a and 7-1b. The vertical axis in Figure 7-2 denotes the annual rate of change of nominal GDP, which we take as a proxy for changes occurring in the business sphere. The scale for this variable is charted along the vertical axis on the left. The horizontal axis denotes the annual rate of change of real GDP, which we consider as a proxy for developments in the industrial sphere. The scale for this variable is charted along the horizontal axis at the bottom of the diagram. The third variable implicit in the diagram is the rate of "Inflation (1)." This variable has an imaginary diagonal scale extending from the south-east to the north-west of the diagram. In order not to clutter the figure, we charted the scale for this variable on the north-east part of the diagram, first up along the vertical axis on the right and, then, across the top horizontal axis toward the

Figure 7-2 The inflationary interaction between business and industry: an *isogrowth* presentation



left. (The numbers on the "Inflation" scale are italicized.) Figure 7-2 is crisscrossed with horizontal, vertical and diagonal *isogrowth* lines which we now turn to explain. (In order to facilitate the presentation, we have darkened those observations which are referred to in our illustrations.) Each horizontal line constitutes a *business isogrowth*. It is the locus of points representing the same rate of change in the business-sphere variable. For example, the observations for 1955 and 1980 lay close to the same business isogrowth of 9 percent, while the observations for 1960 and 1982 are close to the business isogrowth of 4 percent. Similarly, each vertical line constitutes an *industry isogrowth* and denotes the same rate of change in the industry-sphere variable. The observations for 1956 and 1981, for instance, share the same industry isogrowth of 2 percent, while those for 1963 and 1968 are just off the 4 percent industry isogrowth. The diagonal south-west to north-east lines are *price isogrowths*, each of which represents the same rate of "Inflation (1)." The value of each price isogrowth is simply the difference between the rate of growth of the business variable (nominal GDP) and the rate of growth of the industry variable (real GDP). For example, in 1983, the rate of growth of nominal GDP was 7-7 percent while the rate of growth of real GDP was 3.7 percent. Consequently, the rate of "Inflation (1)" amounted to 4 percent and, indeed, the observation for 1983 rests on the price isogrowth of 4 percent.

As Figure 7-2 makes clear, a given rate of inflation can be generated by different underlying conditions in the business and industrial spheres. Consider for example the observations for 1950 and 1958. The rate of "Inflation (1)" in the two years was almost the same: 2.2 percent in 1950 and 2.0 percent in 1958. The underlying business and industrial conditions, however, were drastically different. In 1950, both the business sphere and the industrial sphere experienced vigorous growth rates, with nominal GDP rising by 10.7 and real GDP increasing by 8.5 percent. The year of 1958, on the other hand, was marked by a relative stagnation in the business sphere, where nominal GDP increased by a mere 1.4 percent, and a serious recession in the industrial sphere, where real GDP dropped by 0.6 percent. Another example is provided by examining the moderate inflationary experience of 1951 and 1970. In 1951, both the business and industrial spheres were booming, with nominal GDP rising at an annual rate of 15.7 percent and real GDP growing at a pace of 10.3 percent per annum. The resulting figure for "Inflation (1)" was 5.3 percent which is very close to the rate of 5.6 experienced in 1970. In 1970, however, neither sphere was booming. Instead, nominal GDP rose at a moderate rate of 5.3

percent, while real GDP actually declined by 0.3 percent. Finally, even a very rapid inflation can arise from drastically different conditions prevailing in the business and industrial spheres. In 1975, for example, the rate of "Inflation (1)" reached 9.8 percent because an 8.8 percent rate of growth for nominal GDP was accompanied by a drop of 1.0 percent in real GDP. In 1981, the rate of "Inflation (1)" was also 9.8 percent but, this time, it arose because nominal GDP rose by 11.8 percent and real GDP increased by a modest 2.0 percent.

Milton Friedman, in his well-known assertion, proclaimed that 'inflation is always and everywhere a monetary phenomenon.' This statement, we maintain, is only partially correct. 'Monetary' phenomena occur in the business sphere and, in this sense, inflation is indeed always and everywhere a monetary phenomenon. Yet inflation involves changes in the industrial sphere as well, and, hence, it must also be always and everywhere a 'real' phenomenon. In order to describe inflation we must consider 'monetary' as well as 'real' variables. For instance, in both 1955 and 1980, the U.S. experienced the same rate of growth for the nominal GDP (8.9 percent), yet, in 1955, the rate of inflation was only 3.4 percent, whereas in 1980 it was almost three times higher, at 9.1 percent. Obviously, this disparity could not be explained by differences in the rate of growth of nominal GDP. Instead, it was wholly attributed to the different rates of growth experienced in the industrial sphere: in 1955, real GDP grew at a rate of 5.5 percent, while in 1980 it fell by 0.2 percent. As evident from Figure 7-2, the 'monetary' variable of the business sphere is constantly changing, but so too is the 'real' variable of the industrial sphere. Over the period between 1948 and 1985, the growth rate of nominal GDP fluctuated between -0.4 and 15.6 percent, while the growth rate of real GDP varied between -2.5 and 10.3 percent. In light of this historical experience, the notion that nominal changes have been somehow more 'important' for inflation than real changes, appears unwarranted. Moreover, even when the rate of change of one variable is larger than that of the other, the difference between them provides no indication of their relative 'importance' for inflation. To illustrate this point, consider the observation for 1980, when the rate of change of nominal GDP was 8.9 percent, while the rate of change of real GDP was -0.2. Could we argue that, on the basis of this information, inflation in 1980 was largely a 'nominal' phenomenon and hardly a 'real' one? The answer to this question, we believe, is negative. Inflation in 1980 amounted to 9.1 percent, not only because nominal GDP increased at the rate of 8.9

percent, but also because the rate of change of real GDP was *only* -0.2. In this case, the rate of change of real GDP contributes to inflation by being 'too low.' More generally, a 'low' real rate of growth affects the rate of inflation to no lesser extent than a 'high' nominal rate of growth. For inflation, the 'physical' magnitudes of the industrial sphere are neither less important nor more important than the 'monetary' magnitudes of the business sphere. Since the rate of inflation is equal to the difference between the rate of change of a monetary variable and the rate of change of a real variable, both of these variables are essential aspects of the inflation process. In this sense, we can say that 'inflation is always and everywhere a nominal as well as real phenomenon.' There is nothing 'theoretical' about this claim. It is a simple logical corollary of the 'value-quantity' perspective for inflation. Taking this conclusion one step beyond the narrow and perhaps misleading 'nominal-real' dichotomy, we can state more broadly that *inflation is always and everywhere a dynamic interaction between business and industry.*

7.2 Inflation or Stagflation?

A dual index which anchors inflation in both business and industry provides a convenient way to explore the meaning of 'stagflation.' As it turns out, economists who use the 'multiprice' definition tend to characterize the occurrence of inflation differently from the way they portray the phenomenon of stagflation: the first is usually described with a single type of variable (a price index), while the second appears to necessitate two types of proxies (a price index and an indicator for industrial conditions). This taxonomical difference disappears when we follow the 'value-quantity' framework for inflation. Here, the dynamics of industry are seen as an *integral* part of inflation and, hence, a description of inflation includes, by definition, a description of industrial conditions -- irrespective of whether industry declines, stagnates, or prospers. Unlike the standard, 'multiprice' view for inflation, the 'value-quantity' definition makes no *a priori* distinction between different 'kinds' of inflation and that forces us to reexamine what is meant by 'stagflation' as opposed to 'normal' inflation. As we demonstrate below, there may be no simple answer to this question, primarily because the *definitions* for inflation and stagflation are commonly biased by theoretical views on their separate *causes*.

According to the data presented in the previous section, the post-war era between 1948 and 1985 was characterized by persistent inflation. Indeed, in every year -- with the sole exception of 1949 -- the rate of "Inflation (1)" was positive. The data also indicate that, in most of those years, inflation involved a positive rate of growth in both the business and industrial spheres. The observations for such years lay to the right of the zero *industry-isogrowth* in Figure 7-2. In several years -- notably 1954, 1958, 1970, 1974, 1975, 1980 and 1982 -- inflation resulted from an expansion in the business sphere coupled with a *contraction* in the industrial sphere. Observations for those years are charted to the left of the zero *industry-isogrowth* in Figure 7-2. It is common to label this second brand of inflation as 'stagflation,' denoting a combination of *stag*nation and in*flation*. Interestingly, there is no special name for the first type of inflation, that which occurs during periods of real growth. With the possible exception of Sidney Weintraub (1978), economists rarely refer to this brand as 'growthflation.' They simply call it inflation. This asymmetry involves more than semantic negligence. It seems to be rooted in the bias of mainstream macroeconomics toward demand-pull theories for inflation. According to such theories, growth inflation is the 'normal' form of inflation and, hence, does not deserve any special qualification. Inflation becomes 'abnormal' only when it persists in the presence of stagnation. This brand of inflation is anomalous and deserves a special name, stagflation.

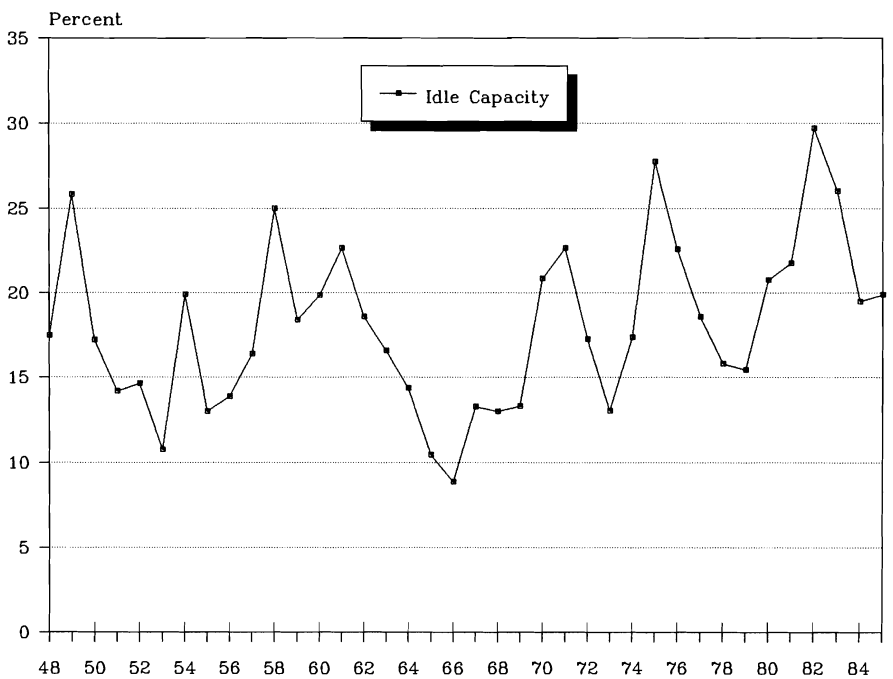
What makes inflation in the midst of stagnation so special as to require exclusive terminology? According to mainstream economic theory, price movements are governed by the laws of supply and demand. In the macroeconomic context, the overall price level should fall when aggregate supply exceeds aggregate demand, in other words, when there is 'excess aggregate supply' or 'deficient aggregate demand.' The problem is that excess supply or deficient demand are based on notional functions and, hence, their magnitudes cannot be observed. One common solution is to substitute the rate of growth of real GDP as a proxy for excess supply or excess demand and then argue that inflation in the midst of stagnating output is abnormal because stagnation signifies the presence of deficient demand. But then the question arises as to what is meant by 'stagnation'? When can we say that the economy is 'stagnating' in the sense of experiencing excess aggregate supply? Specifically, what rate of growth indicates excess supply and what rate of growth is associated with excess demand? Since excess supply (or excess demand) cannot be observed, the answer to such questions must be arbitrary.

Parkin and Bade (1986, p. 618), for example, define stagflation as a combination of rising prices and falling output. According to their definition, the United States experienced stagflation only when real GDP fell, that is, in 1954, 1958, 1970, 1974, 1975, 1980 and in 1982. The choice of zero growth as the threshold between inflation and stagflation is not unanimously accepted, of course. Baumol, Blinder and Scarth, for instance, offer a different view. According to their basic textbook (1986, p. 83), 'stagflation is inflation that occurs while the economy is growing slowly ("stagnating") or having a recession.' The difficulty with this definition is that we do not have a clear yardstick to distinguish 'slow' from 'rapid' growth. If a real rate of growth of 2 percent is 'slow,' than 1957, 1960 and 1981 must also be classified as stagflationary years. If we consider anything lower than 3 percent as a 'slow' rate of growth we should also add 1956, 1961, 1967, 1969, 1971, 1979 and 1985 to the list of stagflationary years. The question, of course, is where do we stop? Should we decide on 2 percent as the proper threshold, or should we pick a higher figure like 3, 4 or perhaps 5 percent as a more appropriate benchmark?

The issue is complicated further when we consider other proxies for 'stagnation,' such us the rates of unemployment or idle capacity. When the term 'stagflation' was first coined by Samuelson (1974, p. 801), it was used to describe an 'inflationary rise in prices and wages at the same time that people are unable to find jobs and firms are unable to find customers for what their plant can produce.' Taken literally, this definition means that the United States experienced stagflation throughout the post-war era! That becomes evident when we inspect the data charted in Figures 7-3a and 7-3b. The first of these figures describes annual levels for the overall rate of unemployment. As the data indicate, the average rate of unemployment over that period was 5.7 percent and it never fell below 3 percent. A similar picture of persistent stagnation emerges from Figure 7-3b which depicts annual levels for idle capacity as a percent of total manufacturing productive capacity. (We use the manufacturing series because data for broader aggregates are available only from 1967 onward. The temporal behaviour of these later data is almost identical with that of the manufacturing series.) The average rate of idle capacity over the 1948-1985 period was 18.1 percent and only once did it fall below a level of 10 percent.

Figure 7-3a Stagnation: unemployment

Figure 7-3b Stagnation: under-capacity utilization



An unbiased layman inspecting Figures 7-3a and 7-3b would probably conclude that the United States indeed suffered from a permanent state of stagnation. On the basis of these evidence, he or she might also infer that inflation in the midst of unemployment and under-capacity utilization was rather normal. There would be no need for a special term such as 'stagflation' because there seems to be nothing special about the concurrence of stagnation and inflation. On the other hand, the layman might be surprised to observe an occurrence of inflation *without* unemployment and idle capacity. Such anomaly would surely deserve a special name. The layman might then wish to call it 'full-empflation' (for full-employment inflation), or 'full-capflation' (for full-capacity inflation).

This perspective would have been completely consistent with the views expressed by Veblen, who argued that a combination of stagnation and inflation in fact became the 'normal' state of the U.S. economy already by the turn of the century! Interestingly, this claim seems to be supported by available data. During the decade of the 1910s, for example, the Producer Price Index increased at an average annual rate of 8.1 percent, while the official rate of unemployment fluctuated around an average of 5 percent. By comparison, during the 'great stagflation' of the 1970s, the average rates for these same variables were only marginally higher, standing at 8.4 percent for inflation and at 6.2 percent for unemployment.[4] In other words, if we accept Samuelson's original definition, we must conclude that 'stagflation' is not only a 'normal' phenomenon, but also that it is almost a century old.

The majority of economists, however, would probably reject this straightforward interpretation as overly simplistic. Most would simply disagree that the United States experienced over three decades of uninterrupted stagflation since the late 1940s, or that the phenomenon has made its early debut already at the turn of the century. The common opinion seems to be that a combination of inflation and low unemployment does not constitute stagflation. In order to have stagflation, inflation must persist together with *serious* unemployment. Bronfenbrenner (1976, p. 226), for example, argues that stagflation occurs when 'the price level is rising despite the existence of substantial unemployment.' Similar definitions for stagflation are found in Bowles and Edwards (1985, p. 348) and in Haberler (1985, p. 1),

[4] These figures are computed from data published by the U.S. Department of Commerce in *Historical Statistics of the United States, Colonial Times to 1970*, Part 1, Series D86, p. 135 and Series E23, p. 199, and from *Citibase* (1990), Series PW, p. V-1-3 and Series LHUR, p. IX-1-6.

who stress 'high' unemployment, in Meade (1982, p. 1) and Sherman (1986, p. 536), who emphasize that unemployment must be 'heavy' and in Olson (1982, p. 3), who refers to 'unusual' unemployment levels as a precondition for stagflation. The question arising from these definitions concerns the operational meaning of 'serious,' 'high,' 'heavy' or 'unusual' unemployment. What differentiates 'unusual' from 'usual' unemployment? When do we move from a 'low' range of unemployment into the 'high' zone? What separates 'light' from 'heavy' unemployment? What rate of unemployment is sufficiently 'serious' to turn normal inflation into abnormal stagflation?

Here, too, the answer seems related to views about the impact of excess demand on inflation. Many mainstream economists attempted to address this question by identifying the 'natural rate of unemployment' as a border line separating low from high unemployment. Unfortunately, this choice is not very practical. As we argued in Chapter 2, the 'natural rate of unemploymet' depends on the theory used to *explain* stagflation and, hence, cannot be used to *define* the phenomenon at the same time. Moreover, studies on the natural rate of unemployment seem to suggest that this rate has been constantly rising. This would mean the definition of stagflation must be changing as well. For example, during the 1950s, the occurrence of inflation together with a rate of unemployment of 5 percent would constitute a stagflation, because the 'natural rate of unemployment' was reputedly lower than 5 percent. During the 1970s, however, this same combination of inflation with 5-percent rate of unemployment would not be classified as stagflation because the 'natural rate of unemployment' has presumably risen above 5 percent. The difficulty is even greater for non-orthodox economists, since their rejection of the 'natural rate' thesis leaves them with no conceptual way of distinguishing 'normal' inflation from 'abnormal' stagflation.

The standard taxonomy of inflation appears to be interwoven with theoretical predispositions concerning the causes for inflation which, in turn, affect our choice between the 'multiprice' and 'value-quantity' frameworks. By using the 'multiprice' approach, we explicitly or implicitly presuppose that changes in the industrial sphere (the so-called 'real' economy) are *exogenous* factors. Inflation is seen as a process of price revaluation and, in that context, changes in output, unemployment or under-capacity utilization can only help us to *explain* inflation, but not to *describe* it. Thus, as long as

these industrial conditions appear to be consistent with our theoretical dispositions, inflation is regarded as 'normal' and its description requires no reference to industry. It is only when the effect on inflation of industry seems contrary to our theoretical expectations -- for example, when inflation persists although industrial performance has dropped below some 'critical' level -- that we feel compelled to complement the inflation index with a proxy for industrial activity and label the outcome as 'stagflation.'

In contrast to the 'multiprice' view, the 'value-quantity' definition states that inflation is a dynamic interaction between the business and industrial spheres. From this perspective, changes in the industrial sphere are seen not so much as a potential *cause* for inflation but, more profoundly, as *part* of the inflationary process. Based on this view, the very narrative of inflation requires an explicit description of industrial conditions. This need to always describe both the industrial and business components of inflation may lead us to conclude that 'stagflation' is in fact a rather superfluous term. If we follow Veblen and argue (as we have done in Chapter 6) that the expansion of business values and the stagnation of industry are two sides of the same inflationary process, and that this double-sided process stems from the internal dynamics of 'mature' capitalist economies, then there is very little reason to talk about 'stagflation' as some unique form of inflation. Since inflation always appears as stagflation, the relevant issue is no longer the *coexistence* of price inflation and industrial stagnation, but rather the *nature and magnitude* of the stagnation component in the inflationary process. The stagnationary essence of inflation, which is sometimes blurred by the common use of output growth to approximate industrial conditions, becomes more apparent when we focus on input-related indices, such as changes in employment, unemployment or idle capacity. We turn to such proxies in the following section.

7.3 The Inflationary Interaction Between Business and Industry: Alternative Perspectives

From the common 'multiprice' perspective, inflation is a narrowly defined phenomenon of changing prices. From the 'value-quantity' perspective, however, price inflation is only a consequence of a broader process, namely, the dynamic interaction of business and industry. Initially, we analyzed this interaction by contrasting the rate of growth of nominal GDP as a proxy for business conditions, with the rate of growth of real GDP as an indicator for industrial conditions. These variables were convenient

because their interaction approximated the rate of change of the Implicit GDP Deflator. Yet, if our interest is in exploring the underlying essence of inflation, namely, the interaction between business and industry, we need not confine ourselves to price-related indices and may use other variables. A broader definition for the rate of "Inflation" could hence be given by

(2) "Inflation" = 'business-sphere' variable $\pm$ 'industry-sphere' variable .

For example, instead of the rate of change of nominal GDP, we could use the rate of change of corporate sales as a proxy for business conditions. We may similarly wish to characterize changes occurring in the industrial sphere by using variables other than the rate of change of real GDP, particularly when we want to assess the extent of stagnation in that sphere. For this purpose we could use variables such as the rate of change of employment, the rate of unemployment, or the rate of idle capacity (under-capacity utilization). These input-related variables may provide a better indication than output-related proxies (such as real growth) on the extent to which industry operates below its full potential. Note that, while pro-cyclical 'industry' variables, such as the rate of change of real GDP or the rate of change of employment, are subtracted, counter-cyclical variables, such as the rate of unemployment or the rate of idle capacity should be added.

As suggested in the introduction, there may be several advantages in broadening the scope of inflation indices. First, the substitution of other industry variables for 'real' output enables us to bypass the methodological difficulty of quality adjustment. Recall that, in order to derive meaningful estimates of 'real' output, we must first correct the corresponding price indices for quality -- but that such corrections can be meaningful only under the very unrealistic assumptions of pure competition and continuous equilibrium. The interpretation of existing estimates of employment, unemployment, or capacity utilization, on the other hand, is much simpler and requires fewer assumptions about underlying market mechanisms.[5] Second, the new indices could be useful in associating inflation and its

[5] This assessment requires some elaboration. Employment indices can be interpreted in different ways. When considered as an input, employment services undergo a continuous qualitative change and must be adjusted if we are to obtain meaningful labour-input indices. On the other hand, if we think about employment simply as the number of employed persons, then there is no need for any quality adjustment. A similarly straightforward numerical interpretation is clearly meaningless for a 'real' output index. The rates of unemployment and capacity utilization can also be interpreted in a simple manner.

consequences with particular firms, or groups of firms. Data on firm sales and employment are often available and we use them later in our work to construct enterprise-based indices for "Inflation." A corresponding disaggregation is not available for standard price and inflation statistics. Finally, the new indices enable us to explore more than one aspect of the inflationary interaction between 'business' and 'industry,' something we cannot do with existing inflation proxies. The significance of this last point is considered further below.

Note that each of these variables offers a distinctly different description for business or industry conditions. No single variable can fully capture the aggregate state of the business sphere and there is no unique representation for overall conditions in the industrial sphere. Nominal GDP, for example, covers only final sales, whereas corporate sales include revenues from the sale of both final and intermediate commodities. On the other hand, nominal GDP includes the activities of unincorporated businesses and the government, as well as changes in firms' inventories -- items which are excluded from estimates of corporate sales. As a proxy for broad business conditions, the rate of change of nominal GDP is neither superior nor inferior to the rate of change of corporate sales. They are simply different. For the same reason, we should not interpret the rate of change of employment, the rate of unemployment, or the rate of under-capacity utilization as approximations for the rate of change of real GDP. Each of these variables offers a distinct, perhaps equally significant, indication of industrial conditions.

The inability to capture broad business or industrial conditions by the movements of a single index implies that we need more than one description for inflation. The interaction between the rate of change of nominal GDP and the rate of change of real GDP is one way to describe this process, but this portrayal is neither the only one nor the 'best' one for that matter. The inflationary interaction between business and industry has many additional faces and we examine some of them in the remaining of this section.

Being ratios of similar variables, (unemployed as a share of the labour force, actual output as a share of potential output), the values for the rate of unemployment or the rate of capacity utilization are pure numbers. The measurement of the underlying variables could be complicated by methodological difficulties, but to the extent that these difficulties affect the numerator and denominator in the same way, the effect on the accuracy of the final ratio may be less serious.

Our exposition involves several indices. There are 2 variables to represent business conditions and 6 variables to reflect industrial conditions. These variables are combined to create 8 different measurements for inflation which can be arranged in two broad groups: those that relate to the economy as a whole (including the public sector), and those which are restricted primarily to the private sector. The definitions for the composite indices are given below:

'Economy-Wide' Indices

"Inflation (1)" ≡ Rate of change of nominal GDP – Rate of change of real GDP
"Inflation (2)" ≡ Rate of change of nominal GDP – Rate of change of employment
"Inflation (3)" ≡ Rate of change of nominal GDP + Rate of unemployment
"Inflation (4)" ≡ Rate of change of nominal GDP + Idle-capacity index

'Private-Sector' Indices

"Inflation (5)" ≡ Rate of change of corporate sales – Rate of change of real private GDP
"Inflation (6)" ≡ Rate of change of corporate sales – Rate of change of private employment
"Inflation (7)" ≡ Rate of change of corporate sales + Rate of change of unemployment
"Inflation (8)" ≡ Rate of change of corporate sales + Idle-capacity index

We turn first to 'economy-wide' indices. All "Inflation" indices in this group use the rate of change of nominal GDP as a proxy for business conditions. The indices differ from each other in the variables used to represent industry conditions. "Inflation (1)" which uses the rate of change of real GDP as an industry variable was already described in the previous section. The construction of the second index is described by reference to Figures 7-4a and 7-4b. These trace the interaction between the annual rate change of nominal GDP and the annual rate of change of employment over the period between 1948 and 1985. The top line in Figure 7-4a indicates the rates of change for nominal GDP as before, and the bottom line charts the rates of change for employment. Given that the first variable is a proxy for business conditions and the second variable is a proxy for industrial conditions, the difference between them provides an index for the rate of inflation which we label as "Inflation (2)." The rate of "Inflation (2)" is described by the shaded area in Figure 7-4a and its actual values are charted in Figure 7-4b.

Figure 7-4a Nominal GDP growth, employment growth and "Inflation (2)"

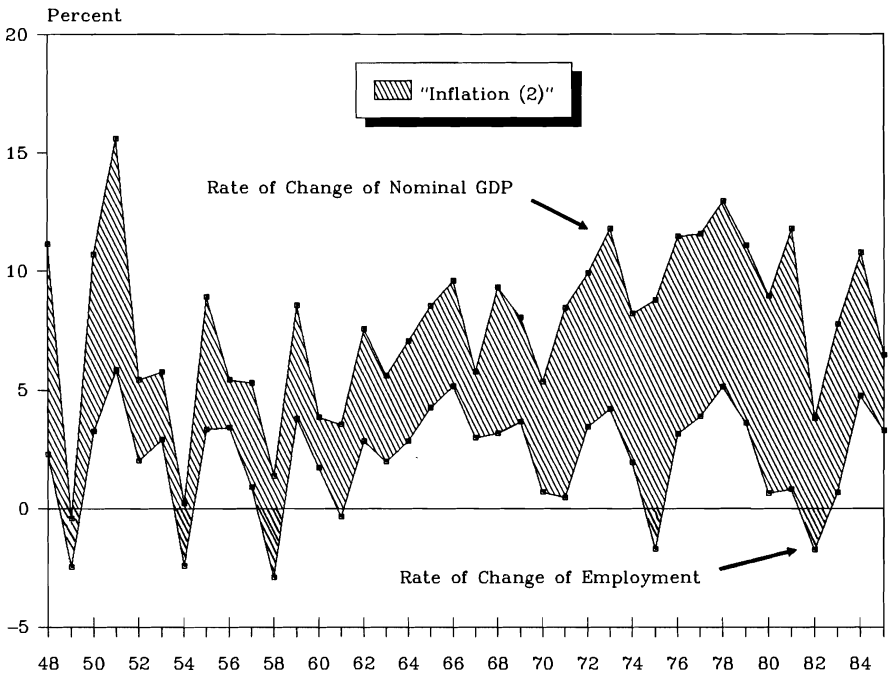
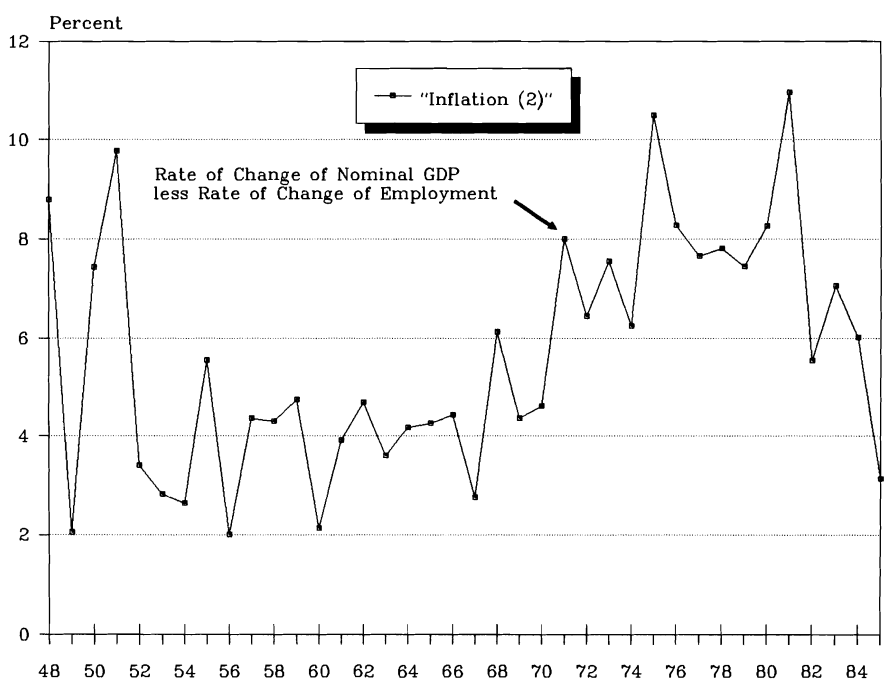


Figure 7-4b "Inflation (2)"



In Figure 7-5 we characterize inflation by using the rate of change of nominal GDP as a proxy for business conditions and the rate of unemployment as a proxy for industrial conditions. Here, too, we employ annual data for the period between 1948 and 1985. In contrast to the rate of growth of real GDP and the rate of growth of employment, the rate of unemployment is an 'inverse' proxy for industrial conditions: it rises with industrial stagnation and falls with industrial expansion. We hence propose that, in order to find the rate of "Inflation" in this context, the rate of unemployment should be *added* to the rate of growth of nominal GDP. In Figure 7-5, the rate of growth of nominal GDP is depicted by the lower shaded area, while the rate of unemployment is described by the upper shaded area. The sum of these two indices yields the rate of "Inflation (3)" which is charted as the top line in the figure.

A similar index for inflation is derived in Figure 7-6, where we chart the rate of growth of nominal GDP together with a special index for idle capacity. Idle capacity denotes the percent of unused capacity in manufacturing as reported by the Board of Governors of the Federal Reserve System. We use the manufacturing variable because comparable estimates for the economy as a whole are not available, while estimates for total industry (manufacturing, mining and utilities) are available only since 1967. (It should be noted that, over the 1967-1985 period, the idle-capacity indices for manufacturing and total industry were almost identical, both in their levels and in their temporal behaviour. It is not unreasonable to conjecture that the economy-wide index for idle capacity followed a similar pattern.) Like the rate of unemployment, the rate of idle capacity is also an 'inverse' indicator for industrial conditions and, hence, should be added to rate of growth of nominal GDP. Yet a simple sum of a business-sphere variable and the rate of idle capacity is perhaps inadequate as a proxy for "Inflation." The problem arises because the order of magnitude of idle capacity appears to be 'too' high relative to other variables for industry conditions. (In general, the magnitude of industry variables is somewhat lower than the magnitude of corresponding business variables. The magnitude of idle capacity, however, is much higher.) An "Inflation" index based on a simple sum of the rate of growth of nominal GDP and the rate of idle capacity would hence tend to 'overstate' the importance of industrial changes relative to business changes, at least when compared to other indices for "Inflation." We can overcome this difficulty by creating a modified, 'scaled-down' index for idle capacity. Our definition for this new index is based

Figure 7-5 Nominal GDP growth, unemployment and "Inflation (3)"

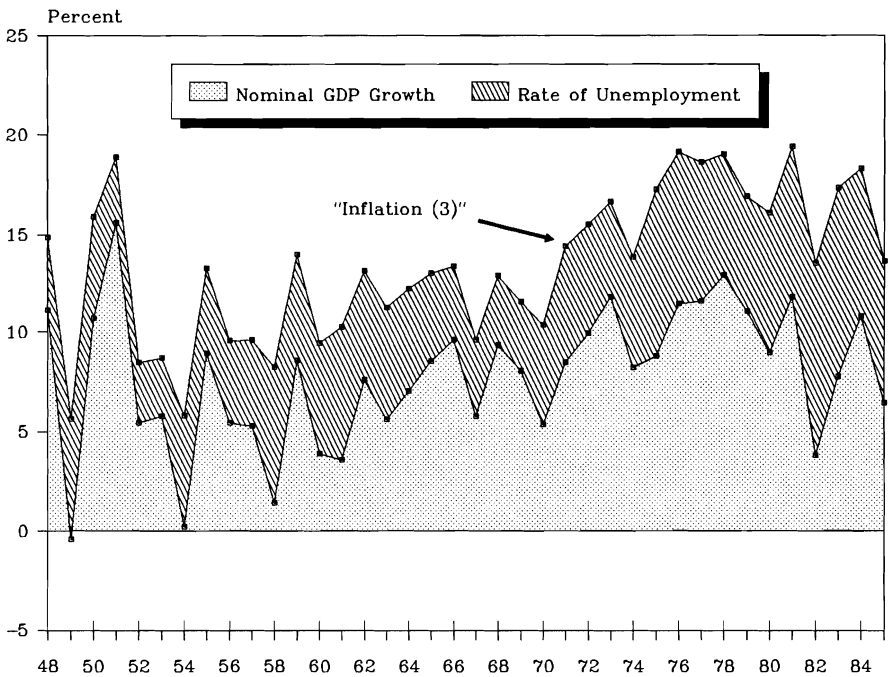
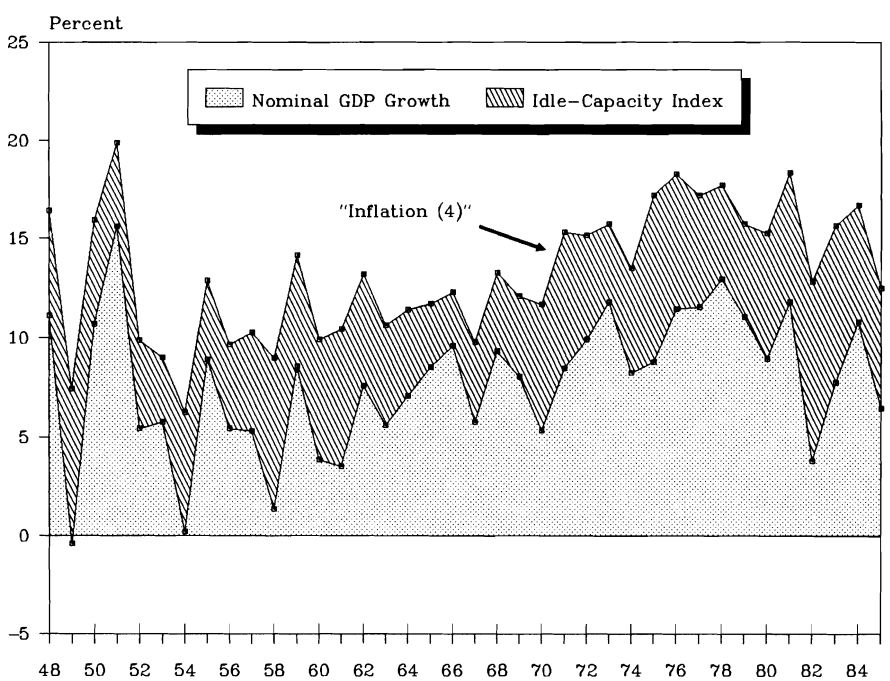


Figure 7-6 Nominal GDP growth, idle capacity and "Inflation (4)"



on a comparison between idle capacity and the rate of unemployment from 1948 until 1985. Over that period, the two indices where highly correlated though their orders of magnitude were different: the average rate of unemployment was 5.5 percent, while the average rate of idle capacity was 3.3 times higher at 18 percent. Based on these observations, we construct a special idle-capacity index by dividing the actual rate of idle capacity by a factor of 3.3. The new index retains the temporal fluctuations of actual idle capacity, yet its order of magnitude is similar to that of the rate of unemployment and it no longer 'overwhelms' variations of the business-sphere variable. (The use of this new idle-capacity index as a proxy for industrial conditions is of course arbitrary to some extent but, for that matter, so is the use of actual idle capacity, the rate of unemployment, the rate of growth of employment, or the rate of growth of real GDP.) We define "Inflation (4)" as the sum of the rate of growth of nominal GDP and the idle-capacity index as computed above. These variables are charted in Figure 7-6, where the lower shaded area denotes the rate of growth of nominal GDP, the upper shaded area represents our idle-capacity index and the top line designates the rate of "Inflation (4)."

We now turn to the second set of 4 "Inflation" indices. These indices relate primarily to the private sector and all of them contain the rate of change of corporate sales as a proxy for business conditions. Figures 7-7a and 7-7b present annual data for the rate of change of corporate sales, the rate of change of real private GDP and the rate of "Inflation (5)" over the period between 1950 and 1986. (We use private rather than total GDP in order to better match the index of corporate sales.) In Figure 7-7a, the rates of change of corporate sales and the rates of change of real private GDP are charted as two separate lines. The rate of "Inflation (5)," defined as the difference between these two variables, is depicted by the shaded area. The actual values for "Inflation (5)" are plotted in Figure 7-7b. In Figures 7-8a and 7-8b, we contrast the annual rates of change of corporate sales with the annual rates of change of private employment (excluding agricultural) for the period between 1950 and 1986. "Inflation (6)" is defined as the difference between these two variables. As before, the business and industry variables in Figure 7-8a are denoted by distinct lines, while the rate of "Inflation (6)" is indicated by the shaded area between them. The values for the latter variable are charted separately in Figure 7-8b.

Figure 7-7a Sales growth, real private GDP growth and "Inflation (5)"

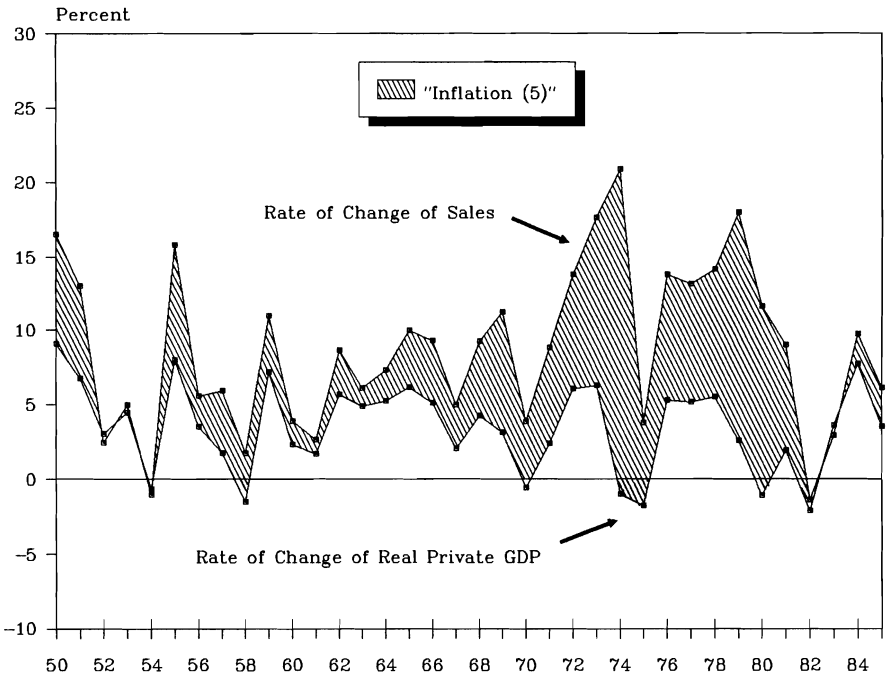


Figure 7-7b "Inflation (5)"

Figure 7-8a Sales growth, private employment growth and "Inflation (6)"

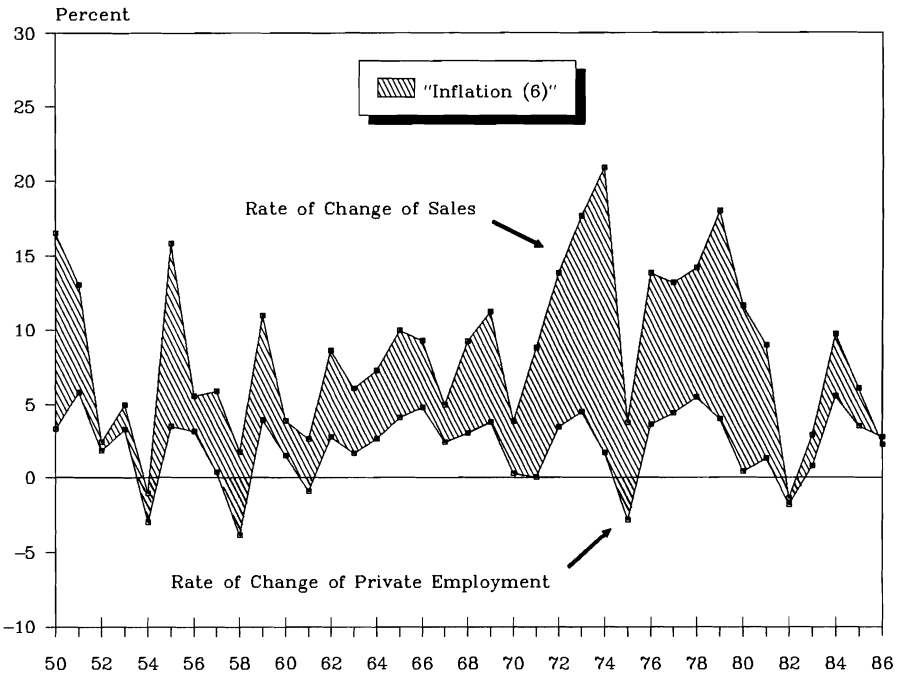


Figure 7-8b "Inflation (6)"

The following two figures combine the rate of change of corporate sales with 'inverse' industry indices. In Figure 7-9 we chart the rate of "Inflation (7)," defined as the sum of the rate of change of corporate sales (lower shaded area) and the rate of unemployment (upper shaded area). A similar exposition is used in Figure 7-10 for "Inflation (8)" and its underlying components -- the rate of change of corporate sales and the special idle-capacity index described earlier. Here, too, the rate of inflation is derived by adding the lower shaded area, which denotes the rate of change of corporate sales and the upper shaded area, which represents the idle-capacity index.

7.4 Some Comparisons

The inflationary interaction between business and industry is complex and cannot be fully captured by a single index. In order to properly describe this process, we must approach it from different viewpoints, as we do with our various "Inflation" indicators. The different perspectives lead to different temporal patterns for the various "Inflation" variables. The existence of such differences makes each index significant. Yet, despite variations in perspectives, the temporal behaviour of the various "Inflation" indices must be similar to some extent. This is to be expected given the correlations which exist among the underlying business variables and industry variables. In the business sphere, for example, corporate sales usually rise and fall with nominal GDP. Similarly, in the industrial sphere, employment and real GDP are positively correlated and both are negatively correlated with the rates of unemployment and idle capacity. Beyond their differences, all "Inflation" indices are derived from the same general interaction between business and industry, and should all reflect the broad character of that interaction. At this point one may ponder how we could expect "Inflation" indices to be both different and similar at the same time, yet there is nothing paradoxical in this requirement. In operational terms, it means that the indices should differ in absolute magnitude as well as in their year-to-year variations. Such disparities would reflect the heterogeneity of perspectives on the inflation process. On the other hand, because the indices approximate the same general process, they should all exhibit common long-term movements, for example, by having similar peaks and troughs.

Figure 7-9 Sales growth, unemployment and "Inflation (7)"

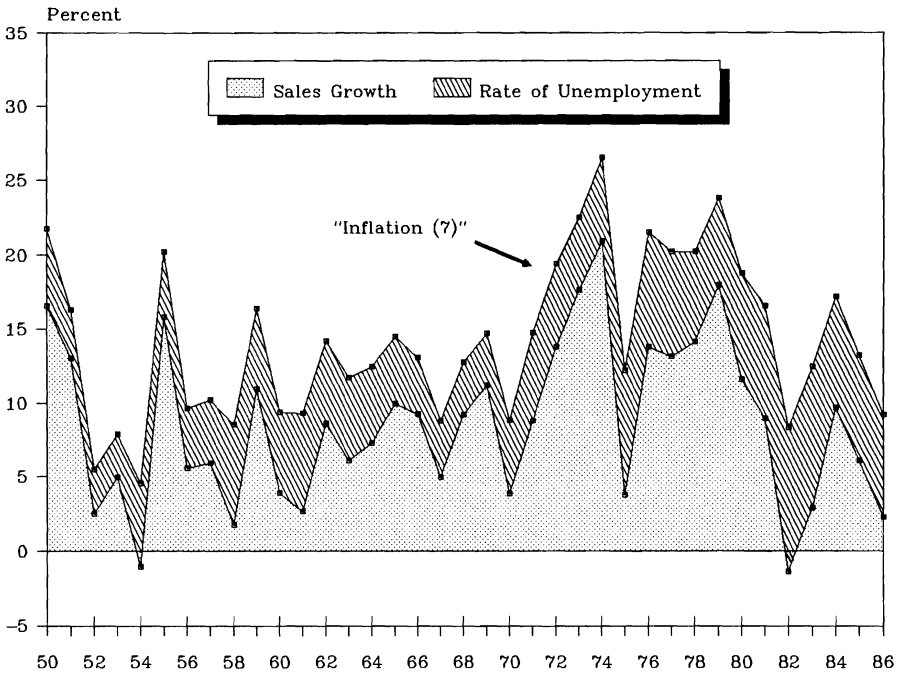
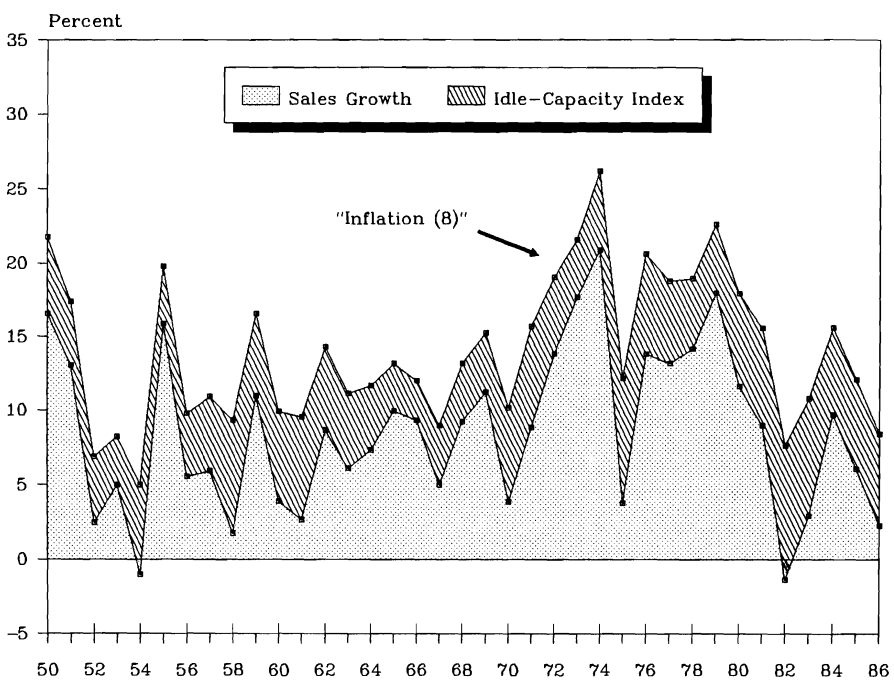


Figure 7-10 Sales Growth, idle capacity and "Inflation (8)"



We can examine this notion of 'differentiated-similarity' by comparing our "Inflation" indices with more traditional proxies for price inflation. The indices for "Inflation" summarize the underlying interaction between business and industry and, hence, should be correlated with the consequence of that interaction, namely, the phenomenon of price inflation. The yardsticks we chose for our comparisons are two standard measurements for inflation: the rate of change of the Implicit GDP Deflator and the rate of change of the Producer Price Index. Given our earlier discussion, we expect that the standard indices will differ from our "Inflation" variables in both absolute magnitude and short-term variations, but that their long-term movements will be relatively similar. Note that in these comparisons we do not seek to rank "Inflation" indices according to their ability to 'predict' price inflation. The interaction of business and industry is the underlying *cause* of price inflation, but this does not mean that every "Inflation" index should be highly correlated with price inflation. Our goal is only to demonstrate that the observed phenomenon of price inflation reflects the underlying interaction of business and industry and that the various facets of that interaction are all correlated *to some extent*.

In our comparison we have attempted to match "Inflation" indices with corresponding variables for price inflation. The first set of figures (7-11 to 7-14 inclusive) compares "Inflation (1)", (2), (3) and (4) with the rate of change of the Implicit Price Deflator. The match seems adequate because these are all 'economy-wide' indices. The second set of figures (7-15 to 7-18 inclusive) charts "Inflation (5)," (6), (7) and (8). These latter variables relate more to the private sector than to the economy as whole and, hence, we contrast them with the rate of change of the Producer Price Index.

Figure 7-11 describes the temporal behaviour of the rate of change of the Implicit Price Deflator and of "Inflation (1)" for the period between 1948 and 1985. Recall that "Inflation (1)" is the discrete approximation for the rate of change of the Implicit Price Deflator, and as the figure demonstrates, this approximation is highly accurate even when we use annual data. In Figure 7-12, we contrast the rate of change of the Implicit Price Deflator with "Inflation (2)" over the 1948-1985 period. The order of magnitude of the two indices differs somewhat (note the dual scale), but their temporal movements are remarkably similar (with the exception of 1950 and 1951, when some disparity is evident).

Figure 7-11 Change of GDP Deflator *versus* "Inflation (1)"

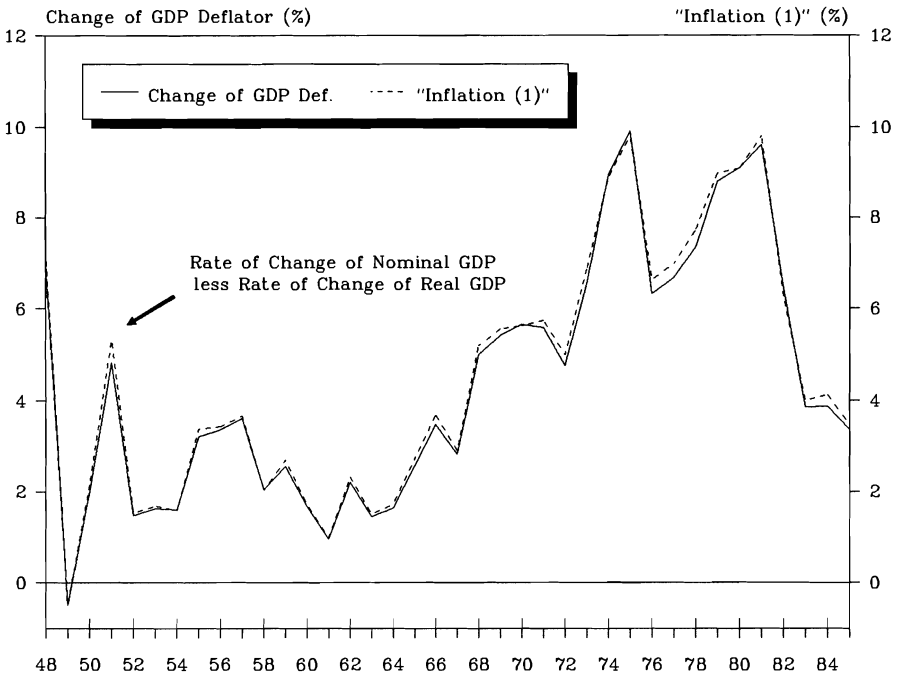


Figure 7-12 Change of GDP Deflator *versus* "Inflation (2)"

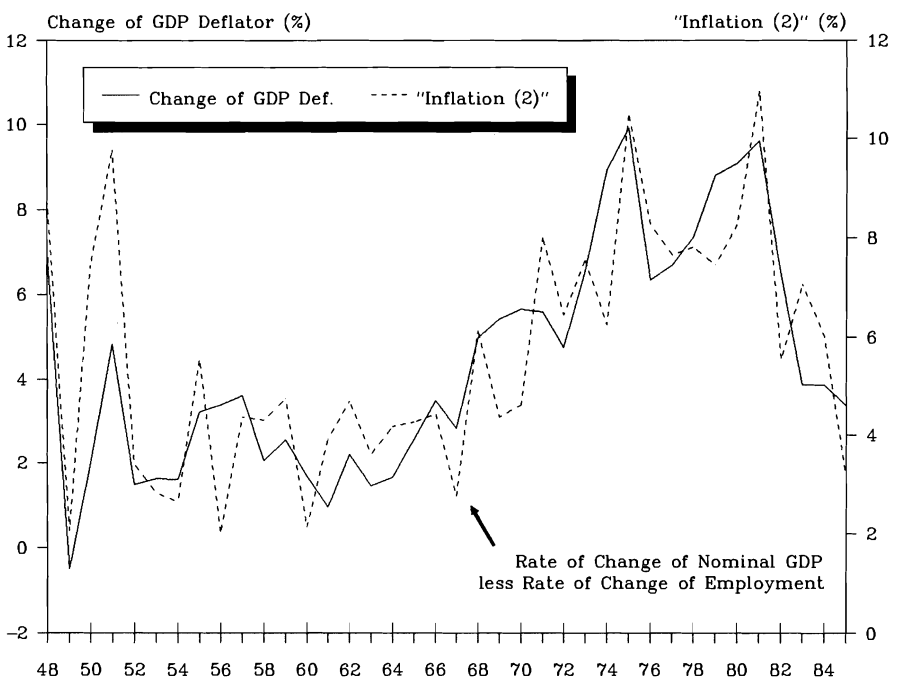


Figure 7-13 Change of GDP Deflator *versus* "Inflation (3)"

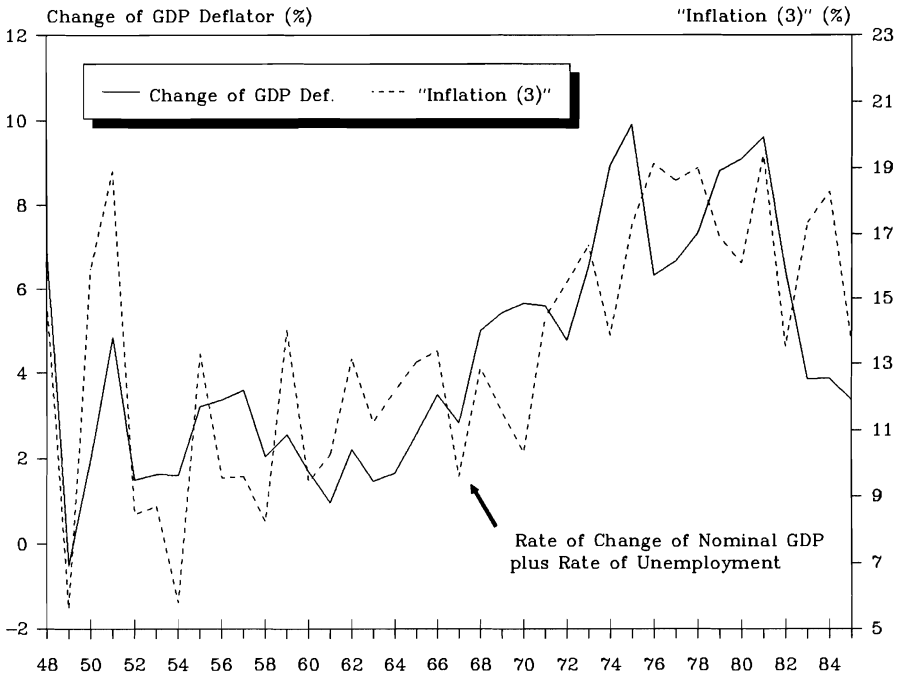


Figure 7-14 Change of GDP Deflator *versus* "Inflation (4)"

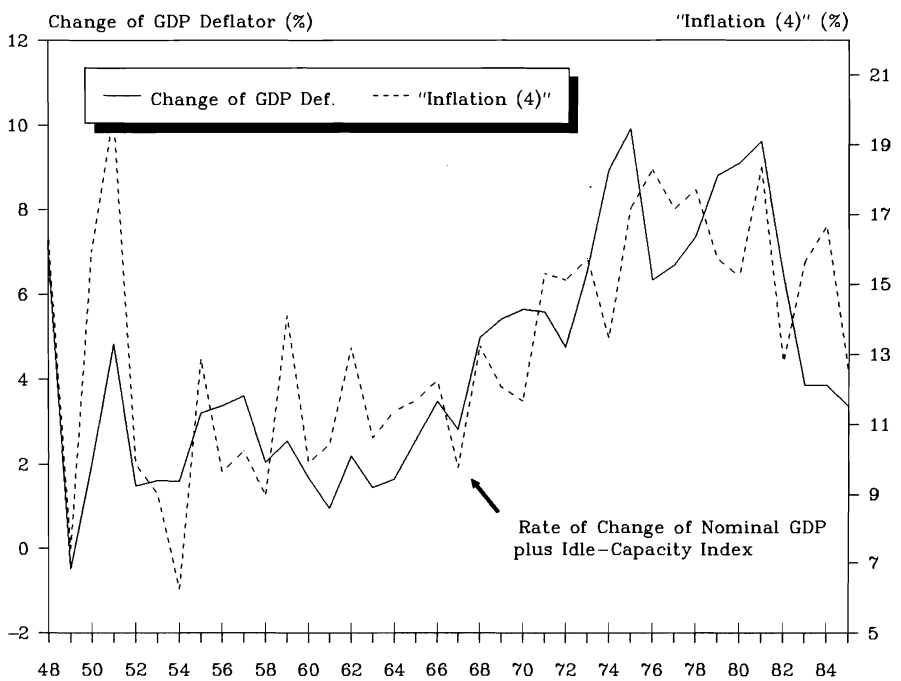


Figure 7-15 Change of PPI *versus* "Inflation (5)"

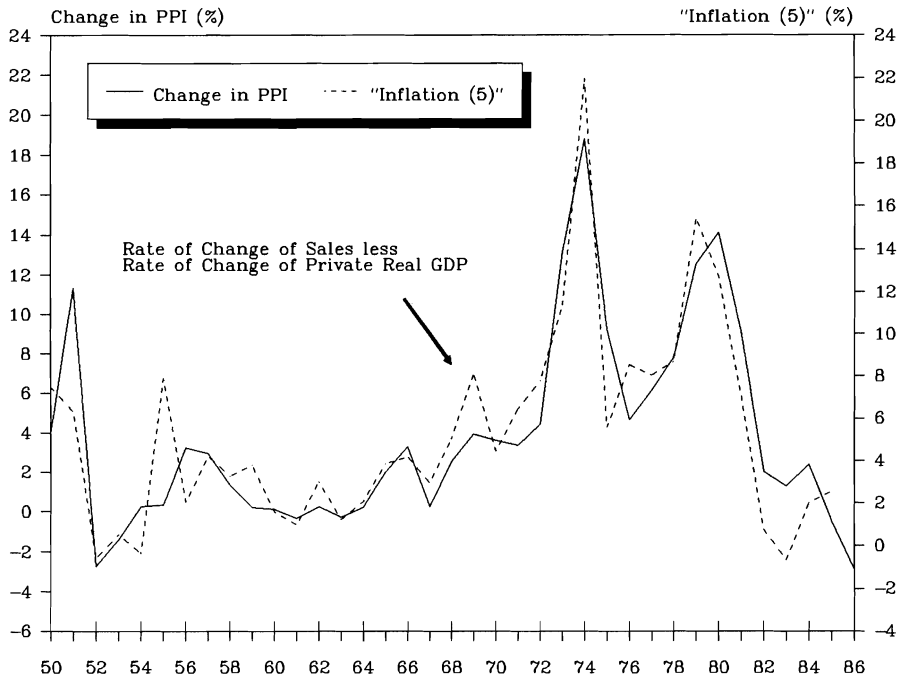


Figure 7-16 Change of PPI *versus* "Inflation (6)"

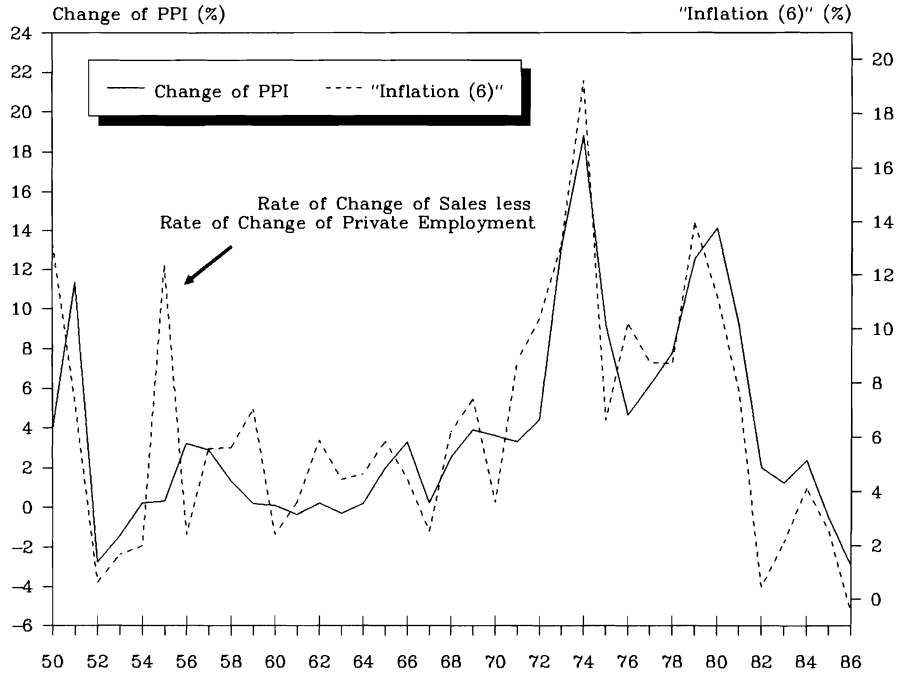


Figure 7-17 Change of PPI *versus* "Inflation (7)"

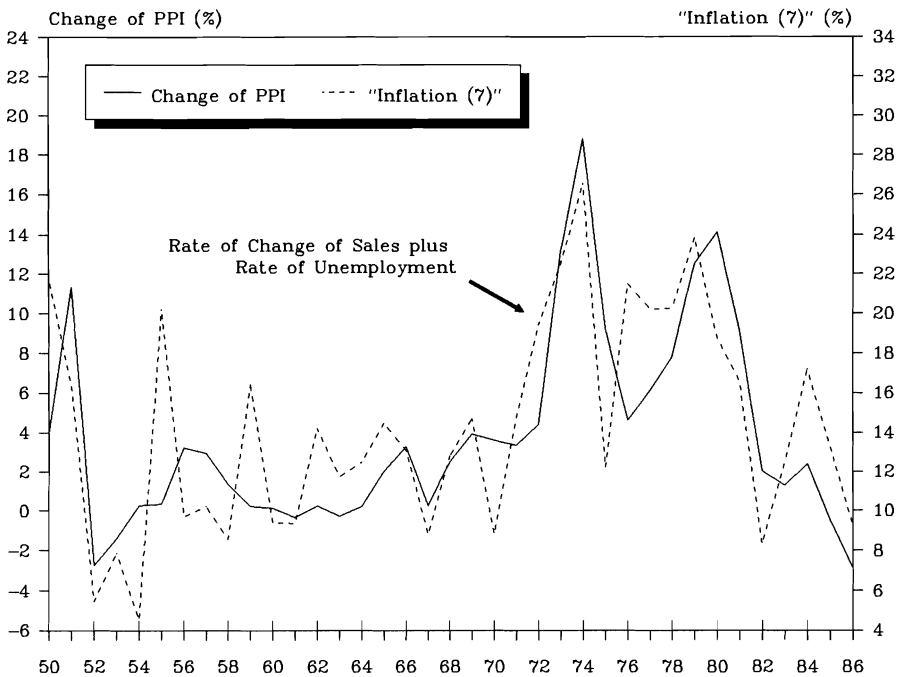
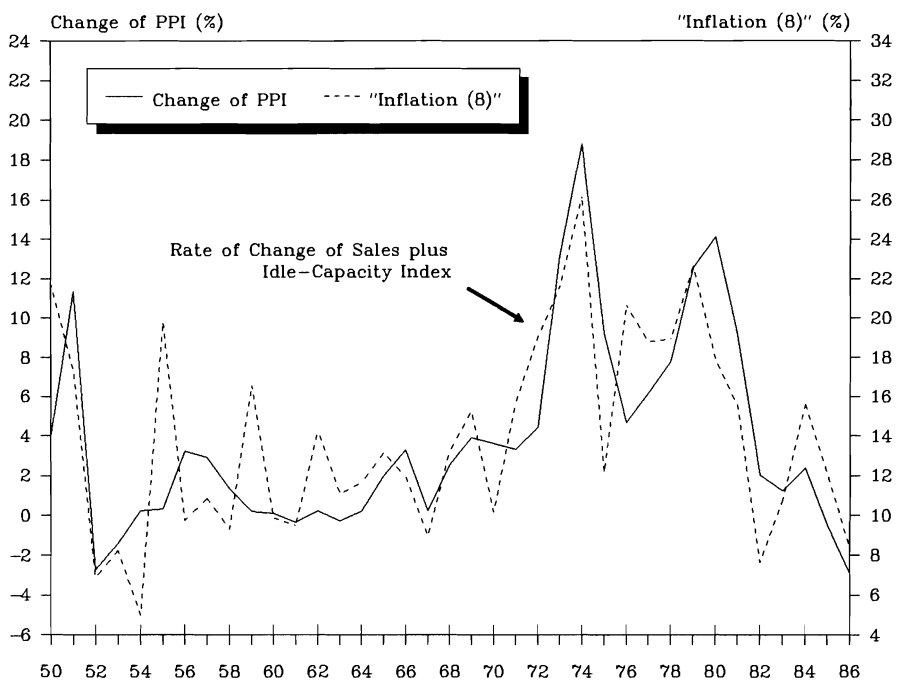


Figure 7-18 Change of PPI *versus* "Inflation (8)"



Figures 7-13 and 7-14 contrast the rate of change of the Implicit Price Deflator with "Inflation (3)" and "Inflation (4)," respectively, for the period between 1948 and 1985. The differences in the order of magnitude are quite pronounced here (values for the "Inflation" indices are approximately twice as high as those for the rate of change of the Implicity Price Deflator). There are also substantial disparities in the year-to-year changes of the indices throughout the period. Yet the general movements of both "Inflation (3)" and "Inflation (4)" seem similar to those exhibited by the rate of change of the Implicit Price Deflator.

The remaining four figures (7-15 to 7-18 inclusive) compare indices related to inflation in the private sector. In Figure 7-15 we chart the annual values for the rate of change of the Producer Price Index between 1950 and 1986, and for "Inflation (5)" between 1950 and 1985. The order of magnitude of the two indices is very similar; the indices also share a very similar pattern of short-term fluctuations as well as long-term movements. Figure 7-16 contrasts annual data for the rate of change of the Producer Price Index with those for "Inflation (6)" over the 1950-86 period. While the range of fluctuations of the first index is larger than that of the second, their short-term and long-term movements are very similar (with the potential exception of 1954).

Figures 7-17 and 7-18 compare the rate of change of the Producer Price Index with "Inflation (7)" and "Inflation (8)," respectively. For the period between 1950 and 1986, we can discern differences in the absolute magnitudes of values for the different indices in each figure; some variations in short-term behaviour are also evident. But here, too, the overall movements of "Inflation (7)" and "Inflation (8)" are closely related to that the exhibited by the rate of change of the Producer Price Index.

7.5 Looking Ahead

Starting from the 'value-quantity' perspective for price indices, we argued in this chapter that standard proxies, such as the GDP deflator or the PPI, may be inadequate if we wish to explore inflation as a dynamic interaction between 'business' and 'industry.' Instead, we proposed a new family of indices in which the separate significance of each of these dimensions was explicitly recognized. While both the

new and standard indices reflect the same broad process of inflation, the new indices were found preferable for a number of different reasons. Firstly, by combining different pairs of elementary variables, we could examine many different facets of the inflationary interaction of 'business' and 'industry' -- a process which is totally concealed by the standard, one-variable inflation indices. Secondly, the new proxies help us evade the difficult methodological problem of quality change and, by extension, the inherent dependency of standard indices on the assumptions of consumer sovereignty and perfectly competitive equilibrium. Finally, data for the elementary components of some of the new "Inflation" indices are available on a disaggregated level. In particular, these data can be used to decompose broad "Inflation" indices into sub-indices specific to firms or groups of firms.

The new "Inflation" indices are particularly suitable for the broad theme of this work, namely, that, in the modern system of business enterprise, inflation and restructuring are in fact two sides of the same process. On the one hand, the dual nature of these indices captures the dynamic interaction between business and industry. On the other hand, the fact that these indices could be defined along ownership criteria (as opposed to product lines) enables us to look into the underlying process of corporate restructuring. We turn to examine these interrelated transformations now.

CHAPTER 8

THE INFLATIONARY DYNAMICS OF CORE AND PERIPHERY: A STRUCTURAL DECOMPOSITION OF INFLATION IN A DUAL ECONOMY

The relationship between inflation and aggregate concentration has not been systematically explored by economists. The prevalent view is that changes in aggregate concentration may affect the inflationary process but the effect is only indirect, working mainly through the impact of aggregate concentration on the structure and behaviour of individual industries. Furthermore, most economists view the relationship between the two phenomena as essentially one-sided. The contention is that, while aggregate concentration can affect inflation, there is no backward link through which inflation affects the process of aggregate concentration.

In this chapter we propose an alternative perspective on the relationship between the two phenomena. Specifically, we argue that inflation and aggregate concentration are two sides of the same dynamic process. Focusing on the U.S. manufacturing and mining sector, we demonstrate that, over the last three decades, the 'business' and 'industrial' experience typical to the largest firms in that sector was drastically different from the comparable experience of smaller firms. In the 'business' sphere, sales revenues for the two groups expanded at different rates, while in the 'industrial' sphere, employment of the two groups not only changed at different rates, but usually moved in *opposite* directions! This heterogeneity unfolded in two related ways. First, we reveal how the different inflationary experiences of the largest and smaller firms determined the overall rate of inflation in the manufacturing and mining sector and, second, we demonstrate how the differences created systematic changes in the rates of aggregate concentration for that sector.

This view on the relationship between inflation and the aggregate concentration process is part of our basic framework which seeks to examine inflation as a dynamic process of *restructuring*. Note that, in contrast to common approaches, we focus specifically on restructuring rather than on structure. In

most inflation theories, 'structure' denotes the overall static framework in which economic agents operate. Theorists would commonly start by assuming a certain structure and then proceed to explore how that structure affected the inflationary behaviour of economic agents. For example, the effect on inflation of a perfectly competitive structure may differ from the effect of monopolistic competition and further differ from the effects of unbalanced oligopoly and monopoly. Other structural considerations (such the extent of unionization, the scope of military spending, the size of the national debt, the nature of industrial policy, or the degree of tariff protection) may also be crucial for inflation. These structural factors are evidently different from each other, but they also have one thing in common: they are all taken as *given* for the purpose of analysis. Of course, this does not mean that structures do not change. For instance, some industries may be transformed from a monopolistically competitive to an oligopolistic structure and this could affect their inflationary experience. Similarly, a change may occur in the functional relationship between union membership and wage demands. Or, the impact of military spending on inflationary expectations could change. These and similar changes occur all the time but, for most inflation theories, they simply mean that we move from one given framework to another.

Here we come to a crucial point which differentiates our own analysis from numerous other attempts to explore inflation. For most theorists, 'structural change' is a singular, exogenously determined 'event' which affects inflation only because it transforms the system from one static structure to the next. We, on the other hand, begin from the *a priori* assumption that economic structure is *inherently unstable*. For us, 'structural change' is not an isolated 'incident,' but rather a *continuous process*, and inflation is related not to static structures but to a *dynamic process of restructuring*. Note that we do not argue here that market structure and institutional arrangements are insignificant for inflation analysis. On the contrary, in our opinion, structures and institutions provide the key toward understanding the inflationary process but, in arresting these into a static framework, we work to conceal the dynamic essence of inflation. If inflation is indeed a process of structural change, we must focus on *structure* but also on *how it changes*.[1]

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[1] This distinction between static structures and dynamic structural change resembles in some way the complementarity between particles and waves in quantum physics. Louis de Broglie, who first formulated the basic principles of quantum mechanics, was profoundly influenced by Bergson's idea that, in describing the movement of a an object as a collection of successive static positions, we in fact violate the very essence of movement (see Feuer, 1974, pp. 219-20). Similarly, if inflation is a process of continuous dynamic restructuring, we cannot fully describe this change as a succession of static

Our analysis proceeds in several stages. We begin with the framework developed in Chapter 7, in which we proposed a new family of dual-variable "Inflation" indices designed to capture the dynamic interaction between 'business' and 'industry.' In the first section, we use this setup to distinguish between the standard industry-based approach to inflation and the alternative framework of 'enterprise-inflation.' The second section provides a simple taxonomy for three dynamic regimes of inflationary restructuring. Based on this taxonomy, we develop in the third section the 'Heterogeneity Principle of Inflation,' stating that, while inflation may be structurally 'neutral' in principle, such neutrality could not exist in practice. In the fourth section, we leave the general discussion of restructuring and focus on the specific process of aggregate concentration. Our empirical analysis pertains to the U.S. manufacturing and mining sector. In the fifth section, we set the basis for this analysis by differentiating between the largest and smaller firms in that sector; here we also define the different variables and assess the available data. The empirical results are reported in the sixth section. Our findings seem to indicate that inflation is indeed a dynamic process of restructuring, involving systematic changes in aggregate concentration. Hence, any attempt to get to the root of inflation must relate to the underlying causes of aggregate concentration. We set the stage for such inquiry in the final section.

8.1 Enterprise "Inflation"

The 'multiprice' and 'value-quantity' (or 'business-industry') perspectives for price indices lead to different views on the relevant framework for inflation analysis. When viewed as an overall increase in the prices of *commodities*, inflation appears as an *industry*-based phenomenon. The conventional classification of commodities according to their physical characteristics leads to a comparable classification of price indices. For example, the prices of Marlboro, Winston and Salem cigarette brands are customarily grouped as elements of the price index for tobacco products; the prices of Mustang, Cadillac, Pontiac and Taurus automobile models contribute to the price index for passenger cars; the prices of *The New York Times*, *The Washington Post* and *Time* Magazine are part of the price index for newspapers; and the prices of Macintosh and PS/2 personal computers are included in the general price

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structures.

index of computers. In each of these cases, the price is seen as an attribute of the commodity and, hence, of the industry in which the commodity is produced. It is then only natural to view the rate of inflation as being an industry-based variable too. Most analyses of inflation (macroeconomic as well as structural) seek to explain it as a process of changing prices and, not surprisingly, they take the *industry* as their basic framework.

Note, however, that the adequacy of the industry framework is largely contingent on our basic interpretation of what inflation is. When we focus on price changes only, the industry may seem as the appropriate context for analysis, but when we view inflation as a broad process of interaction between the 'business' and 'industrial' spheres of economic activity, the Standard Industrial Classification becomes an insufficient and even misleading analytical framework.[2] From the 'business-industry' perspective, inflation is an *enterprise*-based, not an industry-based phenomenon. In the context of modern capitalism, economic activity is carried out for the ultimate purpose of pecuniary gain. The fundamental institution guiding this activity is business enterprise, the elementary building bloc of which is the corporation. The essence of the corporate mode of organization is the pursuit of profit, and it is this essence which links the 'business' and 'industrial' spheres of economic activity.[3] The production of any particular commodity may be associated with a certain industry classification, but it is the *corporation*, not the industry, which ultimately guides and directs this production activity. If the production of some commodity works to

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[2] Our notion of the 'industrial sphere' is not synonymous with the customary concept of 'an industry.' When we talk about an industry, we usually refer to the entire range of economic activities relevant for a particular product or groups of products. A reference to the 'steel industry,' for instance, may encompass diverse activities such as the buying of iron ore, the negotiations with the United Steelworkers Union, research and development of production techniques, the actual production of steel, the pricing of steel products, the distribution of steel products to buyers, the dealing with creditors and the relation with governments. On the other hand, when we refer to the industrial sphere, we focus exclusively on the material and technological aspects of economic activity. For example, the 'industrial sphere' for USX includes all the physical and technological aspects of producing steel, but not only steel. Since USX is also involved in oil and gas, chemicals, manufacturing goods, financial services and transportation equipment, its industrial sphere includes the technological and material aspects of all of these areas too. The 'industrial sphere' of USX does not include, however, activities such as the buying of iron ore, the negotiation of a labour contract, the pricing of steel products, the borrowing of money or attempts to influence government tariff policies. Although all of these activities are related to steel, they occur in the 'business,' not 'industrial' sphere.

[3] Note the usage of terms here. Economists often debate whether corporations seek to 'maximize profits,' 'satisfy profit,' 'achieve a target rate of return,' 'maximize revenues,' 'satisfy the private goals of its executives,' or, as we claim in Chapter 9, 'attain a differential rate of accumulation.' In each of these cases, however, the *pursuit of profit* remains a fundamental prerequisite for the long-term existence of the corporation.

significantly undermine the general business goal of profit-making, that production will likely be altered or stopped. In general, industrial production and business activity are the instruments of making profits for corporations and, hence, the inflationary interaction between 'business' and 'industry' is first and foremost an *enterprise*-based phenomenon.

Our primary focus on the inflationary experience of *firms* requires that we deal with enterprise-based inflation indices but, unfortunately, these are not readily available. Furthermore, given the extent of corporate diversification, we cannot use standard, industry-based indices of inflation as approximations for enterprise-based inflation.[4] The mismatch between existing and desirable data is evident. For example, we have comprehensive price indices for industries producing automobiles, financial services, aircraft, locomotives, or guided missiles, but we do not have all-encompassing price indices for General Motors or Ford which produce all those commodities; we have price indices for tobacco products, cosmetic products, diary products or suitcases, yet we do not have a broad price index for R.J.R. Nabisco or Philip Morris which manufacture and sell them; we have price indices for jet engines, medical equipment, leasing services and radar equipment, but we do not have a general price index for one of their main producers, General Electric. Thus, although corporations may be the most appropriate building blocs in the study of inflation, we have no systematic information on their particular inflationary experience.

Our own "Inflation" indices can offer a partial solution for this problem. Recall that the rate of "Inflation" is defined as the difference between a 'business' variable and a corresponding 'industry' variable. By choosing the rate of change of corporate sales as a proxy for 'business' conditions, and the rate of change of employment as an indication for 'industrial' conditions, we can devise a comprehensive, enterprise-based index for "Inflation." For example, the rate of "Inflation" for General Motors will be defined as the difference between the rates of growth of sales and employment of that corporation. Similarly, the rate of "Inflation" for all corporations with assets exceeding $250 million will be defined

[4] Scherer and Ross (1990, p. 418) note that our ability to classify firms on the basis of the 'primary' industry in which they operate has been critically impaired by the drive for diversification since the 1960s. They conclude in a rather definite tone that '[i]t is hardly an exaggeration to say that any study using data for the years since the early 1960s classified by the primary industry method, without elaborate quality controls, is virtually worthless.'

as the difference between the rates of growth of their aggregate sales and employment. Such indices could sometimes be computed from readily available data.

Enterprise-based "Inflation" indices are specific to firms, not to what they produce. Since all sales, regardless of their origin, are denominated in monetary units such as dollars, and since all employment, irrespective of its productive purpose, is denominated in employees, the specific product mix of the company (or group of companies) has no bearing on the meaning of the index itself. Of course, changes in product mix or lines of business may have a significant impact on the temporal behaviour of enterprise-based "Inflation" indices. For instance, a transformation involving a reduction in the share of automobile manufacturing coupled with an increase in the share of military business may alter General Motors' rate of "Inflation," by having a different effect on the growth rate of the company's aggregate sales than on the growth rate of its overall employment. Or, the rate of "Inflation" for a group of large firms will be altered by a shift from consumer to producer goods, if this change in emphasis affects the rate of growth of sales and the rate of growth of employment in markedly different ways. But although the nature of economic activity may be of utmost importance when we come to examine *why* the indices change, it has no bearing on *what* the indices represent. An enterprise-based index for "Inflation" reflects the *broad* interaction between the 'business' and 'industrial' domains of the firm. It seeks to encompass the firm's *entire* range of activities and, hence, it must abstract from the particular nature of those activities.

The implications of viewing inflation as an enterprise-based phenomenon are far reaching. We can no longer retain the Standard Industrial Classification as an adequate framework for analysis, since inflation arises in the domain of *firms*, not industries. Our focus is no longer on commodities but on *institutions*. Our ultimate concern is no longer the prices of goods and services, but the *economic relations* behind them. In order to get to the root of inflation we must explore the dynamic interaction between 'business' and 'industry' as a structural interaction between firms. We begin this examination in the following section by developing a simple structural taxonomy for alternative inflationary regimes.

8.2 Inflationary Regimes: A Structural Taxonomy

Consider a universe of firms, such as all the corporations in the economy or in a particular sector. We can define the rate of "Inflation" *se* for this universe of firms as:

$$(1) \qquad se \equiv \Delta S/S - \Delta E/E,$$

where Δ denotes first difference, S is aggregate sales and E is the aggregate employment for the universe of firms. Further assume that we can identify n distinct groups of corporations, classified according to one or more criteria such as size, type of economic activity, membership in distributional coalitions, etc. We can then rewrite Equation (1) with specific reference to each group of firms, such that:

$$(2) \qquad se \equiv (\Sigma_{i=1}^{n} \Delta S_i)/S - (\Sigma_{i=1}^{n} \Delta E_i)/E,$$

or

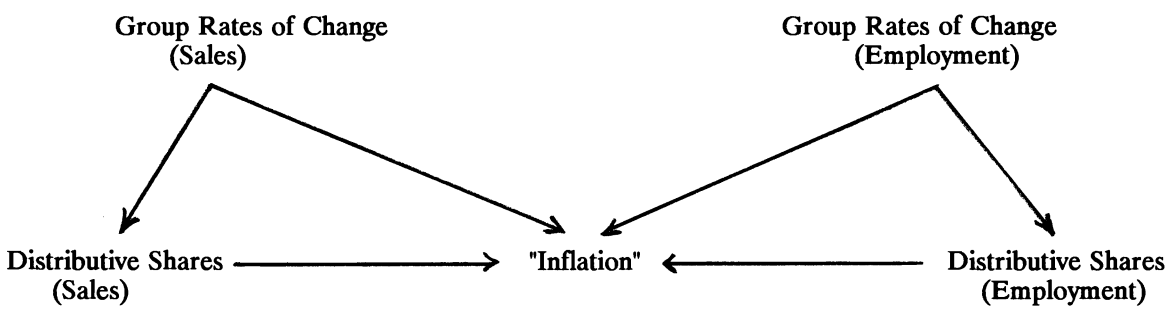
$$(3) \qquad se \equiv \Sigma_{i=1}^{n}[(\Delta S_i/S_i)(S_i/S)] + \Sigma_{i=1}^{n}[(-\Delta E_i/E_i)(E_i/E)],$$

were $\Delta S_i/S_i$ is the rate of growth of sales for the ith group, S_i/S is the share of the ith group in aggregate sales, $\Delta E_i/E_i$ is the rate of growth of employment for the ith group and $\Delta E_i/E$ is the share of the ith group in aggregate employment. The elements in the first square brackets denote the business contribution to "Inflation" of the ith group, while those in the second square brackets designate its corresponding industrial contribution. This equation could also be re-arranged, such that

$$(4) \qquad se \equiv \Sigma_{i=1}^{n}[(\Delta S_i/S_i)(S_i/S) - (\Delta E_i/E_i)(E_i/E)],$$

where the elements in the square brackets now denote the combined business and employment contribution of the ith group of firms to the overall rate of "Inflation."

These decompositions are significant in that they enable us to view inflation and restructuring as two sides of the same dynamic process. Equations (3) and (4) make it clear that, for the aggregate rate of "Inflation" *se* to vary, there must be changes occurring in the individual contributions of the underlying groups. Focusing on the individual groups, we can see that the business and industry contributions of any one of them are determined by two types of factors: firstly by the short-term fluctuations in the group's own sales ($\Delta S_i/S_i$) and employment ($\Delta E_i/E_i$) and, secondly, by the group's respective distributive shares in aggregate sales (S_i/S_i) and aggregate employment (E_i/E_i). Moreover, there is a definite temporal relationship between these two types of factors: over time, the relative pattern of the groups' rates of growth affects their respective distributive shares. There are hence both direct and indirect links between rates of growth, distributive shares and "Inflation," as described schematically by the following diagram:



These relationships could be classified as occurring under one of three distinct inflationary regimes listed in Table 8-1 and which we now turn to examine.

Table 8-1 Inflationary regimes

	"Inflation"	Distributive Shares
1.	Strongly Neutral	Structural Invariance
2.	Weakly Neutral	Random Restructuring
3.	Non-Neutral	Systematic Restructuring

For the purpose of our subsequent presentation, it is convenient to substitute variable names for the standard mathematical expressions, such that

$s \equiv \Delta S/S$ (rate of growth of aggregate sales)

$e \equiv \Delta E/E$ (rate of growth of aggregate employment)

$s_i \equiv \Delta S_i/S_i$ (rate of growth of sales for the *i*th group)

$e_i \equiv \Delta E_i/E_i$ (rate of growth of employment for the *i*th group)

$SS_i \equiv S_i/S$ (distributive share of the *i*th group in aggregate sales)

$ES_i \equiv E_i/E$ (distributive share of the *i*th group in aggregate employment)

Strongly Neutral "Inflation"

"Inflation" is said to be *strongly neutral* if, over a certain time interval T, there are no changes in distributive shares. Symbolically, such *structural invariance* means that

(5) $\Delta SS_{i,t} = 0$

and

(6) $\Delta ES_{i,t} = 0$, for all i and for all time periods t = 1, . . . ,T

Continuous structural invariance requires that the respective rates of growth of sales and employment be always equal across all groups, such that:

(7) $s_{i,t} = s_{j,t}$

and

(8) $e_{i,t} = e_{j,t}$, for all i, j and for all t = 1, . . . ,T.

Weakly Neutral "Inflation"

An interval of *weakly neutral* "Inflation" occurs when there are short-term but no long-term variations in distributive shares of sales and employment. During this period,

(9) $\Delta SS_{i,t} \neq 0$

and/or

(10) $\Delta ES_{i,t} \neq 0$, for some i and for some t ,

yet, over the entire time interval T, these are merely random fluctuations which do not lead to any systematic change in the overall structure of distributive shares.

As defined above, such *random restructuring* means that there must be some temporal differences between the growth patterns of sales and/or employment for the various groups, so

(11) $s_{i,t} \neq s_{j,t}$

and/or

(12) $e_{i,t} \neq e_{j,t}$, for some i, j and for some t.

At the same time, the fact that there is no systematic restructuring in distributive shares requires that the average rates of growth of sales and employment be equal across all groups; in other words, that both $\Sigma_{t=1}^{T} s_{i,t}$ and $\Sigma_{t=1}^{T} e_{i,t}$ be independent of i for the same T.

Non-Neutral "Inflation"

A time interval of *non-neutral* "Inflation" occurs when there are discernable trends in distributive shares for sales and/or for employment. This happens whenever

(13) $\Delta SS_{i,t} \neq 0$

and/or

(14) $\Delta ES_{i,t} \neq 0$, for some i and for some t ,

so that over the entire interval of T, there are clear rising or falling trends in the share of aggregate sales and/or aggregate employment accounted for by at least some groups of firms.

As in the case of weakly neutral "Inflation," the restructuring of some distributive shares requires that

(15) $s_{i,t} \neq s_{j,t}$

and/or

(16) $e_{i,t} \neq e_{j,t}$, for some $i \neq j$ and for some t ,

but unlike in the weakly neutral case, a non-neutral "Inflation" leads to *systematic restructuring* and that necessitates that the average rates of change for these variables must be different for at least some groups of firms. Symbolically, this latter condition means that $\Sigma_{t=1}^{T} s_{i,t} \neq \Sigma_{t=1}^{T} s_{j,t}$ and/or $\Sigma_{t=1}^{T} e_{i,t} \neq \Sigma_{t=1}^{T} e_{j,t}$ for at least some $i \neq j$ for the same T.

To summarize, the structural nature of aggregate "Inflation" depends crucially on the disaggregate business and industrial experience of the underlying groups of firms. If all groups experience the same rates of growth for sales and for employment, then the inflationary regime is strongly neutral in the sense of creating no changes in the relative structure of distributive shares for these two variables. On the other hand, if "Inflation" occurs amid some inter-group variations in the rates of change for sales or employment, then these differentials have a contemporaneous effect on the overall structure of distributive shares. When the variations between the groups are merely random fluctuations around a common average, their effect on distributive shares is only transitory and, in that sense, the structural nature of "Inflation" could be seen as being weakly neutral. When the inter-group differentials are persistent, however, their impact on distributive shares is no longer random. In this case, "Inflation" is non-neutral and is accompanied by a process of systematic restructuring.

To further explore the structural aspects of "Inflation," it is convenient to consider a simple scenario, where we focus on a single group of firms (Group 1) and lump all the remaining companies into a second group (Group 2). It could then be shown that, for both sales and employment, changes in the distributive share of any one group would depend on its rate of growth *relative* to that of the other group. Specifically, the distributive share for a group will rise, remain the same or fall, depending on whether its rate of growth exceeds, equals or falls short of the comparable rate for the other group, respectively. These relationships are summarized in Table 8-2.

Table 8-2 Effect of growth-rate differentials on distributive shares

Growth Rates	Distributive Shares (Group 1)	Distributive Shares (Group 2)
Business Sphere	SS_1	SS_2
$s_1 > s_2$	Rising	Falling
$s_1 = s_2$	Constant	Constant
$s_1 < s_2$	Falling	Rising
Industrial Sphere	ES_1	ES_2
$e_1 > e_2$	Rising	Falling
$e_1 = e_2$	Constant	Constant
$e_1 < e_2$	Falling	Rising

The relationships between rates of growth and distributive shares in turn bear on the contributions of each group to the overall rate of "Inflation." For a two-group division, the rate of "Inflation" *se* is given by

$$(17) \quad se \equiv s - e$$
$$\equiv [s_1 \cdot SS_1 + s_2 \cdot SS_2] - [e_1 \cdot ES_1 + e_2 \cdot ES_2] ,$$
$$\equiv [s_1 \cdot SS_1 + s_2 \cdot SS_2] + [-e_1 \cdot ES_1 - e_2 \cdot ES_2] ,$$

where the overall business contribution to "Inflation" (s) is simply the sum of the individual business contributions of the two groups ($\Sigma_{i=1}^{2} s_i \cdot SS_i$), while the overall industrial contribution to "Inflation" ($-e$) is the sum of the individual industry contributions of the two groups ($\Sigma_{i=1}^{2} -e_i \cdot ES_i$). Beginning with the business sphere, we can assess the relative contribution of Group 1, by comparing the overall business contributions to "Inflation" under two distinct circumstances: one where both groups are included in the universe of firms, so the overall business contribution to "Inflation" is given by the groups' individual rates of growth for sales, weighed by their respective distributive shares, and another in which Group 1 is excluded, so the overall business contribution is given by the rate of growth of sales for Group 2 only. The 'business difference' (*BD*) between the overall contributions under these two situations is given by Equation (18):

$$(18) \quad BD \equiv [s_1 \cdot SS_1 + s_2 \cdot SS_2] - s_2$$
$$= s_1 \cdot SS_1 + s_2 (SS_2 - 1)$$
$$= s_1 \cdot SS_1 - s_2 \cdot SS_1$$
$$= SS_1 (s_1 - s_2) .$$

When the rate of growth of sales for Group 1 (s_1) exceeds that of the second (s_2), the value for *BD* is positive, which means that the business contribution of Group 1 tends to *augment* the rate of "Inflation." Furthermore, over time, the positive differential in growth rates will augment the distributive share of Group 1 (SS_1), thus accentuating its business effect on "Inflation." The consequences of the rate of

growth of sales for Group 1 being lower than that of Group 2 are exactly opposite. In this case, the negative value for *BD* implies that the business contribution of Group 1 tends to *abate* the rate of "Inflation" and we also know that, over time, the distributive share of the group decline, hence reducing the relative significance of the group's business contribution. Finally, when the rates of growth of sales are equal for the two groups, the value for *BD* is zero, indicating that the business contribution to "Inflation" of each group is *neutral*. Also, the equality of growth rates means that the associated weights (distributive shares) remain unaltered.

Similar considerations apply when we examine the relative industry contributions of individual groups. Comparing the overall industry contribution to "Inflation" when both groups are included in the universe of firms, to the overall contribution when the first group is excluded, we get the 'industry difference' (*ID*) given by Equation (19):

$$
\begin{aligned}
(19) \qquad ID &\equiv [-e_1 \cdot ES_1 - e_2 \cdot ES_2] - [-e_2] \\
&= -e_1 \cdot ES_1 - e_2 (ES_2 - 1) \\
&= -e_1 \cdot ES_1 + e_2 \cdot ES_1 \\
&= -ES_1 (e_1 - e_2)
\end{aligned}
$$

The logic here is identical to the business case but, given that positive growth rates for employment work to *reduce* the rate of "Inflation," the conclusions are different. When the rate of growth of employment for Group 1 is larger than the rate for the second, the value for *ID* is negative, which in this case means that Group 1 tends not to augment, but rather to *abate* the rate of "Inflation." Moreover, the significance of this abating effect will tend to increase over time, since the growth-rate differential raises the distributive share of Group 1 (ES_1). Similarly, when employment for Group 1 changes at a slower rate than employment for Group 2, *ID* is positive, which in turn implies that the relative industry contribution of Group 1 tends to *augment* inflation; furthermore, the significance of this positive contribution will tend to increase with time because the differential growth rates reduce the group's distributive share. Finally, when the rates of growth of employment for both groups are equal, the relative industry contribution of each one of them is *neutral*. The effects of growth-rate differentials on relative contributions to "Inflation" are summarized in Table 8-3.

Table 8-3 Effect of growth-rate differentials on relative contributions to "Inflation"

Growth Rates	Contribution to "Inflation" (Group 1)	Contribution to "Inflation" (Group 2)
Business Sphere		
$s_1 > s_2$	Augmenting	Abating
$s_1 = s_2$	Neutral	Neutral
$s_1 < s_2$	Abating	Augmenting
Industrial Sphere		
$e_1 > e_2$	Abating	Augmenting
$e_1 = e_2$	Neutral	Neutral
$e_1 < e_2$	Augmenting	Abating

In order to assess the *combined* business and industry contribution to "Inflation" of a given group, we can examine the value of the 'business and industry difference' (*BID*) which measures the difference between the rate of "Inflation" when the group is included in the universe of firms, and the rate of "Inflation" when it is excluded. For Group 1, this difference is given by Equation (20):

$$
\begin{aligned}
(20) \quad BID &\equiv se - se_2 \\
&= [(s_1 \cdot SS_1 + s_2 \cdot SS_2) - (e_1 \cdot ES_1 + e_2 \cdot ES_2)] - [s_2 - e_2] \\
&= [(s_1 \cdot SS_1 + s_2 (SS_2 - 1)] - [(e_1 \cdot ES_1 + e_2 (ES_2 - 1)] \\
&= (s_1 \cdot SS_1 - s_2 \cdot SS_1) - (e_1 \cdot ES_1 - e_2 \cdot ES_1) \\
&= SS_1 (s_1 - s_2) - ES_1 (e_1 - e_2) \\
&= BD + ID.
\end{aligned}
$$

The combined business and industry contribution of Group 1 could then be classified as being inflation-augmenting, inflation-neutral, or inflation-abating, depending on whether *BID* is positive, zero or negative, respectively. The value for *BID* would in turn depend on the sum of *BD* and *ID*.

8.3 The Principle of Heterogeneity: Inflation as Restructuring

The inflationary interaction between sales and employment (or, between 'business' and 'industry' in general) can arise under three different regimes. (1) In a period of 'structural invariance,' "Inflation" proceeds amid a perfect stability of distributive shares. The percentage of sales and employment accounted for by any particular group of firms remains fixed throughout the period. This inflationary period is one of *strong neutrality*. (2) Under 'random restructuring,' there are some changes in distributive shares, but these changes are transitory. Over the period as a whole, there are no meaningful trends in distributive shares for either sales or employment. This period of inflation is one of *weak neutrality*. (3) Finally, with 'systematic restructuring,' inflation is accompanied by some enduring changes in distributive shares. In such a period, inflation is *non-neutral*.

In reality, the occurrence of strongly neutral "Inflation" is highly unlikely. To illustrate this point, consider a most simple classification for the corporate sector of the U.S. economy, in which every firm is randomly allocated to one of two groups. Even here, where we have only two, presumably similar groups, the probability that, at any point in time, both of these groups will experience identical rates of growth for sales and for employment, must be very small. In general, the likelihood of strong neutrality will diminish as we extend the length of the period considered, or increase the number of groups in our classification. Furthermore, if instead of using a random classification, we group firms according to some specific criteria, the likelihood of strong neutrality becomes even smaller (there are numerous ways to classify any given universe of firms and we can be reasonably sure that *at least some* of these classifications will unveil certain heterogeneities in the inflationary experience of different groups). These *a priori* considerations suggest that, although possible in principle, a regime of strongly neutral inflation is bound to be of little practical significance. Consequently, we are led to conclude that, in reality, inflation must be either weakly neutral or non-neutral. Put somewhat differently, this conclusion means that, to a lesser or greater extent, *inflation is always a process of restructuring*. We label this latter tenet as the 'Heterogeneity Principle of Inflation.'

The Heterogeneity Principle of Inflation stems directly from our very elementary decompositions. We began by decomposing inflation into a dynamic interaction between 'business' and 'industry,' and then further decomposed it into the more elementary interactions experienced by individual groups of firms. Next, we argued that the 'business' and 'industrial' experiences of these groups are bound to be *heterogeneous* and, hence that they must lead to a restructuring of distributive shares. Now, since the general process of "Inflation" is *defined* as a weighted average of the more elementary 'business' and 'industry' experiences of underlying groups of firms, and since these individual experiences are necessarily dissimilar and hence structural, it follows that inflation itself must be a process of restructuring. Note, again, that heterogeneity in the experiences of different groups *need not* lead to overall inflation. The Heterogeneity Principle of Inflation merely states that, *if* these heterogeneous experiences lead to inflation, they must also lead to restructuring.

The Heterogeneity Principle of Inflation suggests that in order to analyze inflation we must focus on the underlying processes of restructuring. The central issue is no longer whether inflation is structural or not, but rather whether the inflationary process of restructuring is *random* or *systematic*; that is, whether inflation is weakly neutral or non-neutral. Note that the Heterogeneity Principle of Inflation -- the view of inflation as a process of restructuring -- is essentially deductive. "Inflation" is deemed to be restructural simply because, statistically, we cannot expect it to be otherwise. The *concrete* nature of restructuring, however, cannot be specified by *a priori* deductions and must be explored empirically. Economic restructuring is a complex historical process. The driving forces of restructuring are inherently non-stationary and so is their impact on inflation. Structural change may be quantitative as well as qualitative and it may proceed smoothly or in quantum leaps. All of this suggests that we cannot and need not look for a catch-all, 'universal' theory for inflation. If inflation is indeed the manifestation of an on-going economic restructuring, it, too, must be analyzed as an *historical* process.

In Chapter 6, we followed Olson and Veblen and argued that the early emergence of 'stagflation' during the turn of the century was closely related to the rise of distributional coalitions, and that the subsequent evolution of these coalitions provide the main key toward understanding the modern history of stagnation and inflation. We now turn to approach this link between corporate restructuring

and macroeconomic performance in two related steps. Beginning in this chapter, we focus on the process of aggregate concentration and explore the inflationary dynamics of core and periphery in a dual economy. Then, in Chapter 9, we turn to the mutual causes of inflation and restructuring as they emerge from 'differential pecuniary accumulation.'

8.4 Aggregate Concentration: The Inflationary Dynamics of a Dual Economy

One of the most important transformations underlying the development of modern capitalism since the mid-19th century has been the process of aggregate concentration, or the gradual temporal increase in the share of total activity accounted for by the largest firms in the economy. The potential significance of that process was already pointed out by Marx, Hilferding and Veblen, but it became a major focus for research only after the merger wave of the 1920s.[5] Following the publication of Berle and Means' *The Modern Corporation and Private Property* in 1932, many writers began to identify a new 'dual-economy' structure, consisting of a 'core' of a few hundred large oligopolies, surrounded by a 'periphery' of numerous, relatively small firms with little or no market power. The relative size of these two sectors have not remained stable, of course, and kept changing with the process of aggregate concentration. Most students of the subject have tended to perceive this process as having an indirect effect on inflation. The common view of price as an 'industry variable' implies that the level of aggregate concentration affects inflation only inasmuch as it influences the structure and behaviour of individual *industries*. The primary focus of attention is on the degree of 'competition.' For example, if the process of aggregate concentration increases the concentration ratios in specific industries, there may be a reduction in the intensity of price competition which, in turn, may affect the nature of inflation in the relevant markets. Or, if the process of aggregate concentration involves an increased diversification for large firms, the reciprocity of relations among them may induce a live-and-let-live strategy, lessen the degree of intra-industry competition and, hence, affect the nature of inflation in some markets. It should be noted that while the process of aggregate concentration may reduce the extent of industrial competition, this, in itself, need not lead to higher inflation. While there is some agreement among

[5] For review and selected bibliography on aggregate concentration, see for example Scherer and Ross (1990, ch. 3) and Weiss (1983).

economists that reduced competition raises price-cost margins, there is wide disagreement regarding its effect on inflation (see Chapter 4).

For our own purpose, however, the significance of existing analyses in this area stems not so much from their different conclusions, but more from their common methodological assumptions. Since the 1930s, most researchers have tended to consider economic structure (including aggregate concentration) as an *independent* variable, an *exogenous* factor which merely affects the process of inflation. Mainstream macroeconomists, for example, prefer to focus on a perfectly competitive structure and analyze the effect of supply and demand on the inflationary mechanism. Structural theorists, on the other hand, emphasize the effects on inflation of non-competitive institutions such as oligopolistic interdependency, markup pricing, or 'pull-push' interactions. But in both of these general approaches, economic structure remains essentially an independent, *given* factor. There is no denial, of course, that structures can and do change. Moreover, some economists would readily concede that changes in structure may themselves be affected by the on-going process of inflation. Yet these aspects are extraneous to the analysis of inflation itself. When there is a 'structural change' (usually interpreted as an isolated qualitative shift in functional relationships), the effects of that change on inflation need to be evaluated, but the *source* of the change itself can be left outside the scope of analysis.

Our own view on the relationship between structure and inflation is radically different. For us, inflation is not 'influenced' by changes in structures, but is rather a *manifestation* of those changes. We do not seek to identify the 'effect' of structural change on inflation, nor do we look for the 'impact' inflation has on structure. Instead of considering these as two distinct (though interrelated) processes, we view inflation and structural change as being *two sides of the same process*: the process of inflation *is* a process of restructuring. From this perspective, aggregate concentration is no longer an external 'factor' which may or may not affect inflation. Instead, we propose the view that aggregate concentration is an inflationary process, or, conversely, that inflation is, in itself, a manifestation of aggregate concentration processes. Let us explore this proposition in some detail.

When we refer to level of aggregate concentration, we customary focus on some key variable such as sales, value added, assets or employment. For example, the degree of aggregate concentration in the universe of non-financial corporations may be approximated by the share of total assets accounted for by the largest 1,000 non-financial firms. Or, the level of aggregate concentration among industrial companies may be estimated by the share of total sales accounted for by the 500 largest industrial corporations. Similarly, the extent of aggregate concentration in manufacturing can be indicated by the share of total employment accounted for by the largest 200 manufacturing corporations. An aggregate-concentration ratio is customarily defined as:

$$(21) \qquad ACR_X \equiv X_L/X \,,$$

where ACR_X is the aggregate concentration ratio for the key variable (such as sales or employment), X_L denotes the key variable for a given group of the largest corporations and X is the key variable for all corporations in the relevant universe. Given this definition for the level of aggregate concentration, we can similarly define an alternative index indicating the degree of 'aggregate dispersion,' such that

$$(22) \qquad ADR_X \equiv X_O/X \,,$$

where ADR_X denotes the aggregate-dispersion ratio for the key variable, X_O is the key variable for all corporations other than the largest ones and X is the key variable for all corporations in the relevant universe. The choice of 'aggregate dispersion' as a label for this ratio seems appropriate since it is simply the complement of the aggregate-concentration ratio ($ADR_X = 1 - ACR_X$). Because the 'other' firms are by definition smaller than the largest, an increase in the rate of aggregate dispersion (a decrease in the rate of aggregate concentration) implies that X is more equally distributed between the two types of firms.

Note that the levels of aggregate concentration and aggregate dispersion are nothing but the relevant distributive shares associated with the group of largest firms and the group of 'other' firms, respectively. Focusing our inquiry specifically on aggregate sales (S) and aggregate employment (E) as

the two key variables for a given universe of firms, we can write:

(21a) $ACR_S = S_L/S$,

(22a) $ADR_S = S_O/S$,

(21b) $ACR_E = E_L/E$

and

(22b) $ADR_E = E_O/E$,

where ACR_S and ADR_S denote the respective aggregate concentration and dispersion ratios for sales, ACR_E and ADR_E denote the corresponding aggregate concentration and dispersion ratios for employment, the subscript L refers to a specified group of the largest corporations and the subscript O denotes all 'other' companies. These aggregate concentration and dispersion ratios could be readily used in our structural decomposition of "Inflation" as described by Equation (4) in Section 8-2. There we defined the rate of "Inflation" in a specific universe as a weighted average of the separate contributions made by n different groups of firms, such that

$$se \equiv \Sigma_{i=1}^{n}[(\Delta S_i/S_i)(S_i/S) - (\Delta E_i/E_i)(E_i/E)] ,$$

or

$$se \equiv \Sigma_{i=1}^{n}[s_i \cdot SS_i - e_i \cdot ES_i]$$

were s_i was the rate of growth of sales for the ith group $(\Delta S_i/S_i)$, SS_i denoted the share of the ith group in aggregate sales (S_i/S), e_i designated the rate of growth of employment for the ith group $(\Delta E_i/E_i)$ and ES_i stood for the share of the ith group in aggregate employment $(\Delta E_i/E)$. With only two underlying

groups of corporations, we can substitute L for $i=1$ (denoting the largest corporations) and O for $i=2$ (denoting the 'other' companies) and obtain the following definition for "Inflation":

$$(23) \qquad se \equiv [s_L \cdot SS_L - e_L \cdot ES_L] + [s_O \cdot SS_O - e_O \cdot ES_O]$$

This could be also rewritten with explicit reference to aggregate concentration and dispersion ratios, such that

$$(23a) \qquad se \equiv [s_L \cdot ACR_S - e_L \cdot ACR_E] + [s_O \cdot ADR_S - e_O \cdot ADR_E]$$

According to Equation (23a), the rate of "Inflation" is determined by two different 'business-industry' interactions: one occurring in the realm of the largest corporations and the other occurring in the domain of 'other,' smaller firms. Furthermore, the Heterogeneity Principle of Inflation suggests that, over time, the rates of growth of both sales and employment will undoubtedly differ between the two groups, causing changes in the corresponding aggregate concentration and dispersion ratios. Viewed from this particular perspective, "Inflation" and the dynamics of a dual corporate structure are intimately related processes: to the extent that differences between the rates of growth of sales and employment for larger and smaller firms do lead to overall "Inflation," they also work to change the aggregate concentration ratios for these two variables.

The crucial question, again, is whether these structural dynamics are *random* or *systematic*. In a regime of random restructuring, where there are no clear long-term changes in distributive shares, it is hard to view the process of aggregate concentration as a crucial inflationary force. A regime of systematic restructuring, on the other hand, means the distributive shares of either sales, employment, or both, are subject to long-term changes and, hence, that inflation may be driven, at least partially, by underlying changes in aggregate concentration. It is those systematic, 'non-neutral' structural transformations which we seek to explore. In the remaining part of this chapter we examine the inflationary restructuring of the U.S. Manufacturing and Mining sector during the three decades extending from the mid-1950s until the mid-1980s.

8.5 The Manufacturing and Mining Sector: Definitions and Data

Our empirical analysis focuses on the U.S. Manufacturing and Mining sector which we label M&M for convenience. We define the M&M sector as the universe of all U.S.-based corporations for which the largest single line of activity in terms of sales is either in manufacturing or in mining. M&M firms may be involved in additional, non-M&M areas; furthermore, the combined sales revenues from two or more of those other lines of activity may exceed those coming from manufacturing or mining proper. The sole criterion for including a corporation in this universe is that manufacturing or mining contribute to its sales more than any other single type of business. Our focus on M&M corporations (which roughly corresponds to the so-called 'industrial sector' of the U.S. economy) can be justified on two grounds. First, although the relative size of the manufacturing and mining has declined in recent decades, it is still the largest sector in the U.S. economy, accounting for over 25 percent of the GDP. Second, much of the research on aggregate concentration focused on the 'industrial sector' (particularly manufacturing) and it would hence be interesting to explore the inflationary aspects of this specific concentration process.

We define the rate of "Inflation" in the M&M sector as the difference between the rate of change of aggregate sales and the rate of change of aggregate employment of all M&M companies. Because M&M "Inflation" is an enterprise-based process, the basic series of aggregate sales and aggregate employment should encompass the entire domain of M&M activities. These variables must reflect manufacturing and mining, *as well as* other areas in which M&M corporations happen to be involved; furthermore, in addition to domestic activity, the variables must also include all foreign operations of M&M companies. From our perspective, then, the rate of M&M "Inflation" is a comprehensive index, describing the inflationary interaction between the entire, worldwide 'business' and 'industrial' domains of all M&M corporations.

Given this framework, our task is to decompose M&M "Inflation" to the separate contributions of the large and smaller firms, in the manner suggested by equations (23) and (23a) of the previous

section. This empirical decomposition seems to require only several simple sets of data. Ideally, we would begin with time-series for aggregate sales and aggregate employment of the M&M sector. These data would be further classified by corporate size, with separate series for the largest and 'other' corporations. For example, we may have sales and employment time-series for, say, the largest 50, 100, 200, 500 and 1,000 corporations in the M&M universe. Each of these time-series corresponds, of course, to a different definition of the 'core' group of largest firms. The series for the complementary groups of 'other,' 'periphery' corporations could then be calculated as the difference between the aggregate M&M series and the appropriate series for the largest firms. For instance, if we chose the 500 largest corporations as our group of large firms, the sales of the 'other' corporations would amount to aggregate M&M sales less the sales revenues accounted for by the largest 500 firms. The existence of alternative size-breakdowns for the data would enable us to analyze the inflationary dynamics of core and periphery in considerable detail. We would be able to explore the temporal dynamics occurring in the rates of change of sales and employment for the largest and 'other' corporations, the related changes in distributive shares and the consequent evolution of the overall rate of "Inflation" in the M&M sector -- and this we could do for *each* of the different cutoff levels between the largest and 'other' corporations. By examining the results emerging from such alterative size-breakdowns, we could better discern systematic aspects of inflationary restructuring.[6]

The time-series necessary for this type of analysis seem simple enough, but unfortunately, such data are not readily available. In the United States, official statistics on sales and employment are reported under separate and often incompatible classifications. Corporate sales data are available, for example, from *Statistics of Income, Corporations Income Tax Returns*, published by the Internal Revenue Service, or from *Quarterly Financial Reports for Manufacturing, Mining and Trade Corporations*, published by the Bureau of the Census. These data are classified according to major industry and size of reporting unit. The above publications do not provide any employment statistics, however. Those latter data are

[6] A decomposition of "Inflation" based on a single cutoff level may fail to reveal important aspects of restructuring. For example, suppose the inflationary experience typical to the 500 largest corporations is markedly different from the experience characterizing the remaining 'other' firms. Now, assume that instead of choosing 500 as our appropriate cutoff number for the largest corporations, we choose 50. This will surely 'contaminate' the indices of the 'other' firms with the different experience of large firms and, if this data contamination is sufficiently significant, it may mislead us to conclude that there was no systematic restructuring.

collated by establishment surveys and censuses and are reported on the basis of industrial rather than corporate classifications. Some of these employment figures, such as the ones reported in the *County Business Patterns* of the U.S. Bureau of the Census, are broken down by plant size, but there is no simple relationship between this establishment-based classification and available size breakdowns for corporations.[7] Given these incompatibilities, it seems evident that existing statistics are far from being fully adequate for our purpose. At the same time, these data are not altogether useless. As we demonstrate below, it is possible to combine information from several sources, which although not perfect, may still help us unveil some important aspects in the dynamic interaction of inflation and aggregate concentration.

As noted earlier, the choice of the M&M sector as the subject of analysis was affected by the relative size of that sector in the economy and by its apparent significance for research on aggregate concentration. A third important reason for this choice was the relative accessibility of large-firm data. The M&M sector seems to be the only sector in the U.S. economy for which we have readily available, coherent and uninterrupted data series for the sales and employment of the largest corporations. Such information is available from the annual 'Fortune 500' directory. This listing, which includes the 500 largest industrial firms in the U.S., has been published by *Fortune* Magazine since 1954.[8] The fact the 'Fortune 500' directory provides the only easily accessible set of data for the sales and employment of large M&M firms means that, for the purpose of this work, we have no flexibility in choosing the 'appropriate' cutoff between the largest and 'other' corporations; given these data, then, we provisionally define the 'core' as consisting of the Fortune-500 firms and the 'periphery' as including all remaining M&M corporations.

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[7] An exception is the study by Churchill (1954) who analyzed the size distribution of all U.S. private, nonfarm enterprises (except professional services) between 1945 and 1951. Unfortunately, her analysis focused solely on employment and did not contain any information on other variables such as sales, or value added.

[8] *Fortune* Magazine publishes several additional directories for large firms operating in other sectors, such as banking, retail, utilities, transportation, or services. Unfortunately, these directories are somewhat deficient for our purpose. First, the size of the large group has often been modified (for example, from 50 to 100 in the case of both commercial banks and diversified service companies). Second, all of these other directories contain a considerable time gap in their employment series (no employment data were reported between 1957 and 1964, inclusive). Of course, these listings could still be used for studies covering a shorter time span.

With these comments, we have completed the general setup of our empirical framework. Having outlined the broad boundaries of the M&M sector and the dividing line between largest and 'other' firms composing this universe, we can now turn to a more precise discussion of the variables and data sources. Our analysis requires 6 basic time-series: 3 sales series (for the M&M sector, for the Fortune 500 and for the 'Others') and 3 corresponding employment series (again, for the M&M sector, the Fortune 500 and the 'Others'). Let us examine the definition and sources for each of these variables.

M&M Sales consist of gross worldwide operating receipts of all U.S.-based manufacturing and mining corporations. Separate annual data for manufacturing and for mining are published by the Internal Revenue Service (IRS) of the U.S. Department of the Treasury in its *Statistics of Income, Corporations Income Tax Returns*. The IRS defines manufacturing corporations as ones for which the largest single line of activity is in manufacturing, while mining corporations are those for which mining operations constitute the largest line of business. By combining the data for these two groups, we get the total sales of all U.S.-based corporations for which manufacturing *or* mining are the largest single source of revenues.

Fortune-500 Sales include the aggregate worldwide sales of the 500 largest industrial corporations based in the United States. These data are published annually by the *Fortune* Magazine in its 'Fortune 500' listings. *Fortune* defines industrial corporations as those which derive 50 percent or more of their sales from manufacturing and/or mining activity. This definition is more restricted than our own in that it excludes those firms for which manufacturing and mining -- though the largest single line of activity -- still account for less than 50 percent of total sales.

'Others' Sales denote the total worldwide sales of all U.S.-based manufacturing and mining corporations, excluding the sales of Fortune-500 corporations. This variable is computed as the difference between M&M sales and the sales revenues obtained by the Fortune 500. It may thus reflect the sales of large M&M corporations which were nevertheless excluded from the Fortune-500 listing because less than 50 percent of their sales revenues came from manufacturing and/or mining.

M&M Employment is defined as the sum of domestic employment in manufacturing and mining industries and the imputed employment of foreign affiliates of U.S.-based M&M firms. In principle, M&M employment should denote the total worldwide employment of M&M corporations but, as we explained earlier, such data are not readily available. Existing data are deficient for two principal reasons. Firstly, domestic employment figures are available on an industry-based classification only and, secondly, data on the employment of foreign affiliates of U.S.-based companies became available only since 1982. These restrictions force us to use some approximations and imputations. For the domestic component of M&M employment we use the employment figures for manufacturing and mining industries as published by the Bureau of Labor Statistics of the U.S. Department of Labor (BLS) in *The Employment Situation -- Establishment Survey Employment and Earnings* [data were retrieved from *Citibase* (1990), series LPEM and LPMI, p. IX-2-1]. These are industry-based series and, hence, they exclude all domestic M&M employment in areas *other* than manufacturing and mining. On the other hand, the series include the manufacturing and mining employment of non-M&M firms (firms for which manufacturing or mining are not the largest single line of business).[9] The foreign component of M&M employment (namely, employment by foreign affiliates of M&M corporations) is imputed on the basis of data on multinational companies published by the U.S. Bureau of Economic Analysis in the *Survey of Current Business*. (The exact method of imputation and its rationale are explained in Appendix B.) Unlike the domestic data, the imputed figures for foreign employment reflect all foreign employees of M&M firms, including those who work in industries other than manufacturing or mining. Together, these considerations indicate that the variable of M&M Employment is likely to be inaccurate to some extent. We feel that the exclusion of domestic employees working in areas other than manufacturing and mining is likely to outweigh the improper inclusion of non-M&M employees and, hence, that our final numbers will tend to underestimate the actual employment of M&M corporations. Unfortunately, it is hard to assess the extent of this potential bias without additional evidence. The imputation of foreign

[9] Note that establishment-based employment statistics published by the BLS include, in addition to corporate employment, also the employment of proprietorships and partnerships. This does not present any serious problem for our purpose here, because the extent of non-corporate employment in manufacturing and mining is only marginal.

M&M employment may also be imprecise, but here, too, we have no additional data to assess the scope of potential bias.

Fortune-500 Employment represents the total worldwide labour force employed by the 500 largest industrial corporations based in the United States. The data are derived from the 'Fortune 500' listings discussed above. They differ from the overall M&M employment figures in that they include domestic M&M employment in fields other than manufacturing and mining but exclude domestic manufacturing and mining employment by non-M&M firms. Furthermore, the data exclude the employment of M&M firms for which manufacturing and mining account for less than 50 percent of overall sales. Again, the extent of these inaccuracies is hopefully limited, but this is hard to ascertain with available information.

'Others' Employment is computed as the difference between M&M Employment and Fortune-500 Employment. Given the incompatibilities between the definitions of these latter variables and given the potential inaccuracies in their estimation, the variable for 'Others' Employment must be taken as only a rough approximation for employment by smaller M&M corporations.[10]

The significance of inaccuracies in these sales and employment series should not be over-emphasized, however. In analyzing the inflationary aspects of aggregate concentration, our primary focus is not so much on the absolute levels of sales or employment, but rather on their rates of growth and distributive shares. These latter ratios are likely to be less sensitive to potential inaccuracies than the raw data are. Furthermore, in examining rates of change, distributive shares and even the raw data themselves, we are not concerned with exact levels, but only with *general* trends and *overall* tendencies. This makes any data imprecision less significant. Indeed, as we demonstrate below, the existence of such

[10] Note that smaller M&M firms are likely to be more confined to manufacturing or mining than are the larger diversified Fortune-500 corporations. Note also that most of these smaller firms are bound to concentrate primarily on domestic activity and to have relatively small foreign operations. In principle, then, 'Others' Employment is likely to be a subset of *domestic* employment in manufacturing and mining industries. Yet, because of data deficiencies, we must paradoxically approximate this variable as a residual between the *worldwide* employment of M&M and Fortune-500 firms.

inaccuracies would matter little to the questions we seek to answer and to the conclusions at which we arrive.

8.6 Aggregate Concentration and Inflation in the Manufacturing and Mining Sector

To facilitate our presentation, we adopt the following notations for variables pertaining to the M&M universe, the Fortune 500 and the 'Others.'

Table 8-4 Variable definitions and names for the M&M sector

Variable Definition	Variable Name M&M	Fortune 500	'Others'
Sales ($ billion) S_i	*MS*	*FS*	*OS*
Sales Growth (annual rate of change, percent) $\Delta S_i/S_i$	*ms*	*fs*	*os*
Distributive Share in Aggregate Sales S_i/S	--	*FSS*	*OSS*
Employment (millions) E_i	*ME*	*FE*	*OE*
Employment Growth (annual rate of change, percent) $\Delta E_i/E_i$	*me*	*fe*	*oe*
Distributive Share in Aggregate Employment E_i/E	--	*FES*	*OES*
"Inflation" (annual rate of change, percent) se_i	*mse*	*fse*	*ose*
Contribution to "Inflation" (percentage points) $(\Delta S_i/S_i)(S_i/S) - (\Delta E_i/E_i)(E_i/E)$	--	*FCON*	*OCON*

We begin our empirical analysis with a simple graphical presentation of M&M "Inflation" between 1955 and 1986. (This is the time span for which we have a complete data set. Data for some variables extend beyond that period and are reported whenever they are available.) Figure 8-1a describes the basic interaction between 'business' and 'industry' in the M&M sector, as proposed earlier in Chapter 7. There are two lines in the figure, one denoting the annual rate of growth of sales *ms*, and

Figure 8-1a A decomposition of M&M "Inflation"

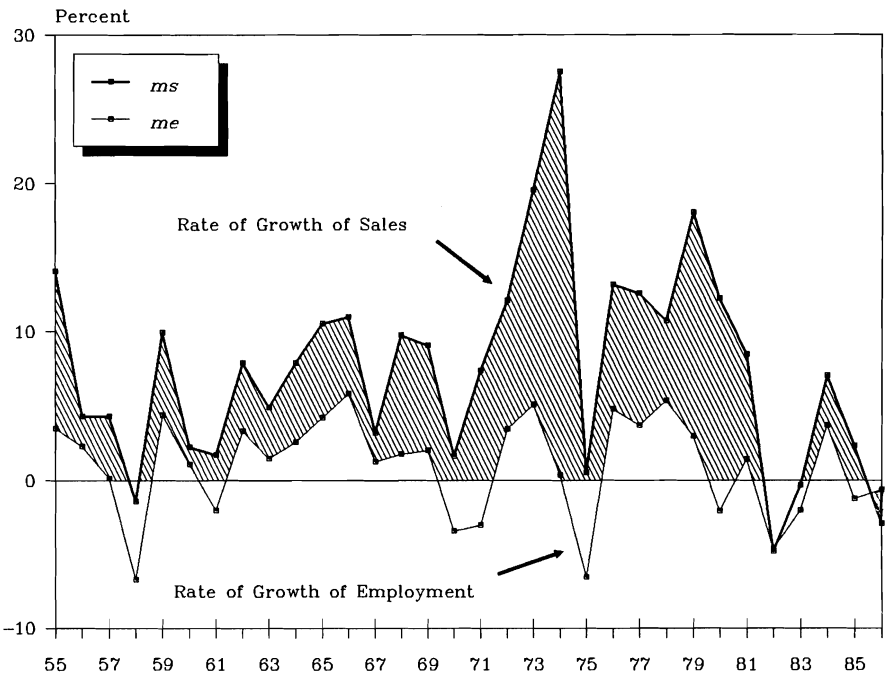
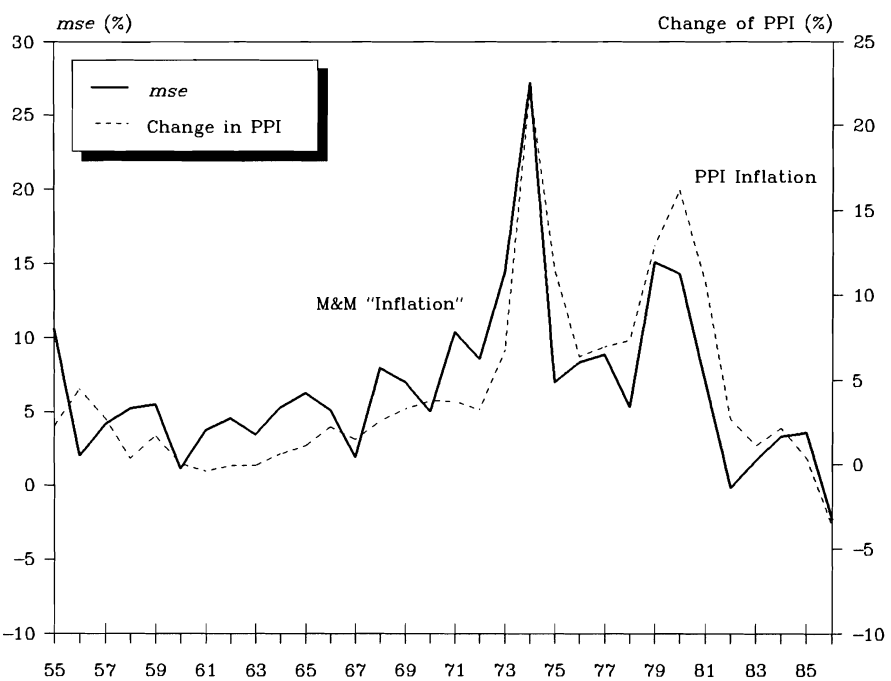


Figure 8-1b M&M "Inflation" and the rate of change of the Producer Price Index for industrial commodities



the other describing the annual rate of growth of employment *me*. The rate of "Inflation" *mse* is defined as the difference between these two rates of growth and, graphically, it is designated by the area between the two lines in the diagram. Note that the "Inflation" area between the two lines is either shaded or white. Intervals for which the "Inflation" area is completely shaded denote periods in which both sales and employment were growing; intervals for which the "Inflation" area is completely white designate periods in which both sales and employment were falling; finally, intervals for the "Inflation" area is partly shaded and partly white, describe periods in which sales were rising and employment was falling. (The year of 1986, when both "Inflation" and the rate of growth of employment were negative, constitutes an exception to these rules). In Figure 8-1b we chart the actual values for the rate of M&M "Inflation" and contrast them with the annual rates of change of the Producer Price Index for industrial commodities.[11] This latter comparison demonstrates the validity of our claim in Chapter 7 on the underlying link between "Inflation" and more traditional, price-based indices for inflation. The close positive correlation between M&M "Inflation" and the rate of change of the PPI for industrial commodities seems to support the view that both indices reflect the same dynamic interaction between 'business' and 'industry.'[12] In Table 8-5 we supply summary statistics for the data charted in the figures.

Table 8-5 Average rates for sales growth, employment growth and "Inflation" in the M&M sector (percent)*

Period	Sales Growth (*ms*)	Employment Growth (*me*)	"Inflation" (*mse*)
1955-69	6.6 (4.2)	1.7 (2.0)	4.9 (4.9)
1970-86	8.5 (8.6)	0.4 (3.7)	8.1 (7.0)
1955-86	7.6 (6.9)	1.0 (3.4)	6.6 (5.5)

* Standard deviations (in percentage points) are denoted in brackets.

[11] Data on the Producer Price Index for industrial commodities are from *Citibase* (1990), series PWIC, p. V-1-3, 1982=1.00. These data are originally published by the Bureau of Labor Statistics of the U.S. Department of Commerce, in *Producer Price Indexes*.

[12] The high correlation is even more interesting when we note that M&M "Inflation" covers worldwide activities of M&M firms (including areas other than manufacturing and mining) while the rate of change of the PPI index for industrial commodities is restricted only to manufacturing and mining commodities sold in the United States.

In examining Figures 8-1a and 8-1b together with the summary data provided in Table 8-5, we can roughly distinguish between two main periods: one beginning in the mid 1950s and ending in the late 1960s and, another, starting in the early 1970s and extending until the mid 1980s. (In Table 8-5 we choose 1969/1970 as the point of 'transition' between the two period. This particular choice is of course arbitrary to some extent and a somewhat earlier or latter date may be equally valid.) In the first period, the rates of growth of sales and employment were relatively close to each other and their temporal behaviour was quite similar. This pattern of interaction generated a relatively low and stable rate of "Inflation" for the M&M sector (the degree of stability or volatility for each variable could be assessed in reference to standard deviations reported in Table 8-5). The temporal relationship between the variables seems to have changed in the subsequent period after 1970. There was an increase in the average rate of growth of sales, coupled with a marked decline in the average rate of growth of employment which, together, caused a rise in average rate of "Inflation." Also, the earlier synchronization between the rates of growth of sales and employment broke down, with a resulting increase in the volatility of "Inflation." (It would appear that, during the early 1980s, there was a return to the earlier pattern of interaction but, as we show below, there are strong reasons to keep those latter years as part of the post-1970 period.) This historical shift from a low and stable "Inflation" in the pre-1970 period, to a higher and more volatile "Inflation" in the subsequent period, is intimately linked to underlying processes of aggregate concentration which we now turn to explore.

Based on Equations (23) in Section 8-4, the rate of M&M "Inflation" (*mse*) could be written, such that

$$(24) \quad mse \equiv (fs \cdot FSS - fe \cdot FES) + (os \cdot OSS - oe \cdot OES)$$
$$\equiv FCON + OCON ,$$

where the elements in the first brackets denote the percent-point contribution to inflation of the Fortune-500 group of corporations (*FCON*), while those in the second brackets designate the corresponding contribution of the 'Others' (*OCON*). Following the taxonomy developed in Section 8-2,

we expect that the course of M&M "Inflation" be affected by two factors: (1) the rates of growth of sales and employment unique to each group (and hence the group-specific rates of "Inflation"), and (2) the aggregate concentration and dispersion ratios (or distributive shares) for sales and employment. We examine the related evolution of these two factors in reference to Figures 8-2a and 8-2b.

Figure 8-2a charts the annual rate of "Inflation" for the Fortune 500 (*fse*) between 1955 and 1989, and the annual rate of "Inflation" for the 'Others' (*ose*) between 1955 and 1986. Two other variables are plotted in Figure 8-2b. The first is the aggregate concentration ratio for sales, measured by the share of M&M sales accounted for by the Fortune 500 (*FSS*). Values for this variable are available for the period between 1954 and 1986. The second variable is the aggregate concentration ratio for employment, calculated as the share of these firms in M&M employment (*FES*). Data for this variable are available for the 1954-1988 period. Based on these two figures, we can provisionally distinguish between two main inflationary regimes separated by a short interval of time. First, there was a long period of systematic restructuring, occurring between 1954 and 1970; this phase was followed by brief transitionary interval of random restructuring, taking place between 1971 and 1974; finally, there was another long period of systematic restructuring, extending between 1975 and 1986. Summary statistics for these three periods are given in Table 8-6.

Table 8-6 Inflationary regimes in the M&M sector: summary statistics

	Average Rate of "Inflation" (percent)		Aggregate Concentration	
Period of Restructuring	Fortune 500 (*fse*)	'Others' (*ose*)	Sales (*FSS*)	Employment (*FES*)
Systematic 1954-70	4.0	5.7	Rising	Rising
Random 1971-74	14.8	15.7	Stable	Stable
Systematic 1975-86	7.5	3.8	Stable	Falling

Figure 8-2a "Inflation": Fortune 500 *versus* the 'Others'

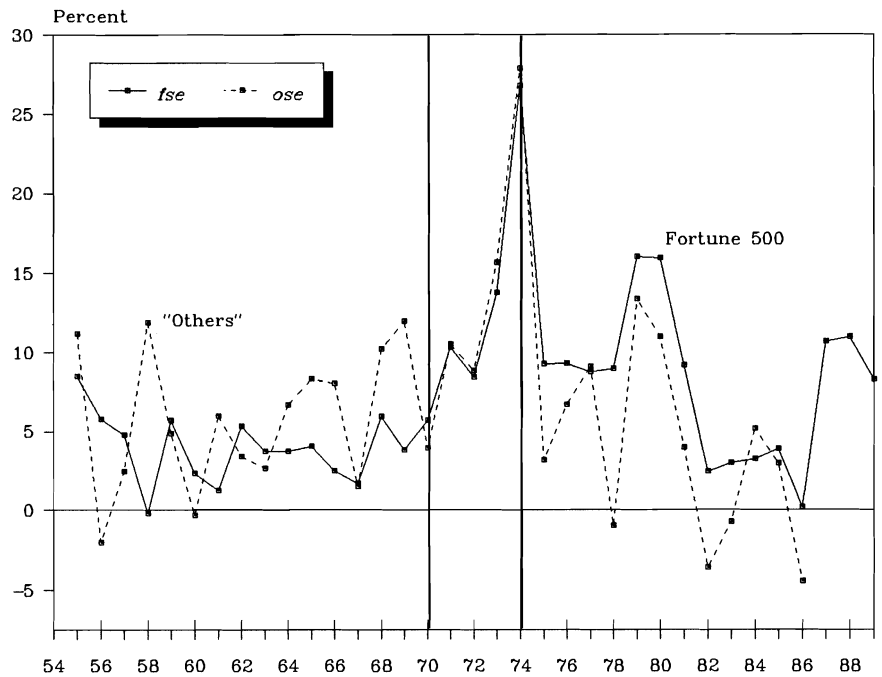


Figure 8-2b Aggregate concentration: the share of M&M sales and employment accounted for by the Fortune 500

Note that while the precise demarcation of the periods is necessarily arbitrary, the existence of at least two (and possibly three) distinctly different inflationary regimes seems evident. The first period, between 1954 and 1970, was marked by an almost continuous increase in the aggregate concentration ratios for both sales and employment. The Fortune-500 firms raised their share of aggregate M&M sales from 50 percent in 1954, to 65 percent in 1970. The increase in the aggregate concentration ratio for employment was even faster, with the share of Fortune-500 corporations in total M&M employment rising from 43 percent in 1954, to 65 percent in 1970. The fact that the share of Fortune-500 companies in M&M employment rose faster than their share in M&M sales acted to mitigate their own rate of "Inflation" when compared with that of the 'other' firms.[13] This disparity between the two rates of "Inflation" can be seen in Figure 8-2a. (As indicated in Table 8-6, over the entire 1955-1970 period, the average rate of "Inflation" for the 'Others' was 5.7 percent, while the corresponding rate for the Fortune 500 was only 4.0.)

The short interval between 1971 and 1974 can be viewed as a separate transitory period. During those years, the M&M sector experienced very little changes in aggregate concentration ratios for either sales or employment, both of which fluctuated mildly around the 65-percent mark. Moreover, the moderate variations in the two variables were almost identical to each other. The relative stability and similarity of these aggregate concentration ratios was associated with a parallel similarity between the rates of "Inflation" for Fortune 500 and the 'Others,' as can be seen in Figure 8-2a.[14] (Over this period, the average rate of "Inflation" was 14.8 percent for the Fortune 500 and 15.7 for the 'Others.')

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[13] To explain this relationship, let us define the 'sales ratio' SR, as the ratio between the sales of the Fortune 500 and the 'Others,' such that $SR \equiv FS/OS$. Similarly, let the 'employment ratio' ER be equal to the ratio between the employment of the two groups, so $ER \equiv FE/OE$. It could then be shown that when the rate of change for aggregate concentration in the business sphere FSS is lower than the rate of change of aggregate concentration in the industrial sphere FES, such that $\Delta FSS/FSS < \Delta FES/FES$, the rate of change of the 'sales ratio' must also be lower than the rate of change of the 'employment ratio,' so $\Delta SR/SR < \Delta ER/ER$. Given the definitions for SR and ER, this last inequality implies that $(fs - os) < (fe - oe)$, which in turn means that $(fs - fe) < (os - oe)$, so that $fse < ose$. We can thus conclude that, in order for the rate of growth of aggregate concentration for employment to exceed the rate of growth of aggregate concentration for sales, as happened during the 1950s and 1960s, the rate of "Inflation" for the Fortune 500 must be lower than the comparable rate for the 'other' firms.

[14] Following the argument presented in the preceding footnote, we know that, when the aggregate concentration ratios in the business and industrial sphere are approximately equal, such that $FSS \approx FES$, we can also write that $(fs - os) \approx (fe - oe)$, or $fse \approx ose$. In other words, for the rates of aggregate concentration in the two spheres to move more or less together, the two groups must experience similar rates of "Inflation."

The final period between 1975 and 1986 was, again, marked by systematic restructuring. The aggregate concentration ratio for sales appears to have been relatively stable. The aggregate concentration ratio for employment, on the other hand, experienced a clear pattern of continuous decline between 1975 and 1988. The effects of these two related developments on the group-specific rates of "Inflation" were quite clear. The fact that Fortune-500 firms maintained their relative share of M&M sales at a time when their share of M&M employment was falling, implies that their rate of "Inflation" was necessarily higher than the comparable rate for the 'other' firms in that sector.[15] The consistent difference between the two rates of "Inflation" is evident from the data charted in Figure 8-2a. (The summary statistics in Table 8-6 indicate that, over the 1975-86 period, the average rate of "Inflation" for the 'Others' was 3.8 percent, while the comparable average for the Fortune-500 firms was almost double, at 7.5 percent.)

In summary, these observations reveal that beneath the simple appearance of price inflation in the M&M sector there is indeed another, perhaps more fundamental, process of dynamic restructuring. Furthermore, it seems that, over the past three decades, this process of inflationary restructuring was remarkably *systematic* in nature. With the possible exception of a short transitory phase, the inflationary process of restructuring followed two distinctly different patterns.[16] The first part of this period, extending between the mid 1950s and the late 1960s, was marked by a relatively low and stable "Inflation," with the rates for the large Fortune-500 firms being generally lower than the comparable rates for the 'other' smaller firms. The systematic restructuring underlying this inflationary pattern involved a continuous increase in the aggregate concentration ratio for sales, coupled with an even faster rise in the aggregate concentration ratio for employment. The second part of the period, beginning in the early 1970s and continuing into the late 1980s, was marked by a much higher and more volatile "Inflation." In addition, the relative inflationary experience of each group of firms now seemed to have

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[15] When FSS is approximately stable while FES is actually falling (or, in general, when $\Delta FSS/FSS > \Delta FES/FES$), we know that $(fs - os) > (fe - oe)$, which in turn implies that $(fs - fe) > (os - oe)$, or that $fse > ose$, so "Inflation" for the Fortune 500 must exceed that of the 'Others.'

[16] Note that it is not necessary to identify the 1971-1974 period as a separate phase. Based on Figure 8-2b, it is also plausible to consider the entire post-1970 period as single phase of systematic restructuring.

been reversed. After a short transitory phase (1971-1974) in which the rates of "Inflation" for both large and smaller firms were more or less equal, the Fortune-500 companies started to experience systematically higher rates than their smaller counterparts. Much like the earlier experience, "Inflation" in this period too was propelled by an underlying process of systematic restructuring, but the specific nature of this restructuring differed from the pre-1970 pattern. The rapid increase in the aggregate concentration ratio for sales has ended and the ratio remained relatively stable. The focus of restructuring shifted to the employment arena, where the earlier rapid increases in aggregate concentration were now replaced by a systematic decline in the share of total M&M employment accounted for by the Fortune-500 firms.

So far, the data suggest that M&M "Inflation" is intimately related to the dynamic process of aggregate concentration. Yet these data on "Inflation" and distributive shares for the large and small groups do not tell us enough about heterogeneities and similarities in the experience of these two groups. For instance, a higher rate of "Inflation" for the Fortune-500 may arise when both groups experience increases in sales and employment, but also when these two variables are falling, provided the difference between the rate of decline of sales and the rate of decline of employment is larger for the Fortune-500 than for the 'Others.' Or, an increase in the aggregate concentration ratio for sales can occur when both groups raise their sales at different rates, when the Fortune-500 group experiences an increase while the 'Others' go through a decline, or when the two groups cut their sales, provided that the 'Others' do it more quickly. To explore such potential differences, we turn now to a more detailed examination, focusing first on sales data and then on the employment numbers.

Information on the sales arena (or the 'business' sphere) is given in the four separate charts of Figure 8-3. Figure 8-3a plots the levels of sales for the Fortune-500 and the 'Others' for the 1954-1989 and 1954-1986 periods, respectively. In Figure 8-3b, we chart the same information somewhat differently, contrasting the Fortune-500 sales on the vertical axis with the 'Others' sales on the horizontal axis. Figure 8-3c provides data on the annual rates of growth of sales for the two groups, covering the 1955-1989 period for the Fortune 500 and the 1955-1986 period for the 'Others.' This same information is given in Figure 8-3d, with the Fortune-500 scale charted on the vertical axis and the 'Others' scale charted on the horizontal axis.

Figure 8-3a Sales: Fortune 500 and the 'Others'

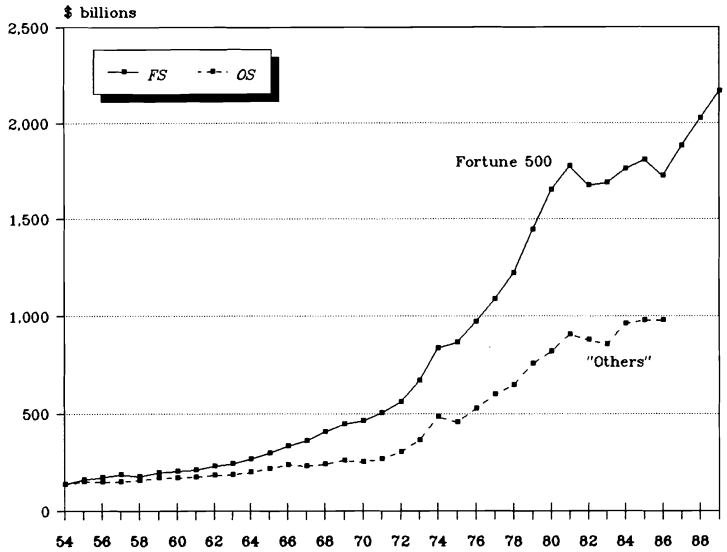


Figure 8-3b Sales: Fortune 500 *versus* the 'Others'

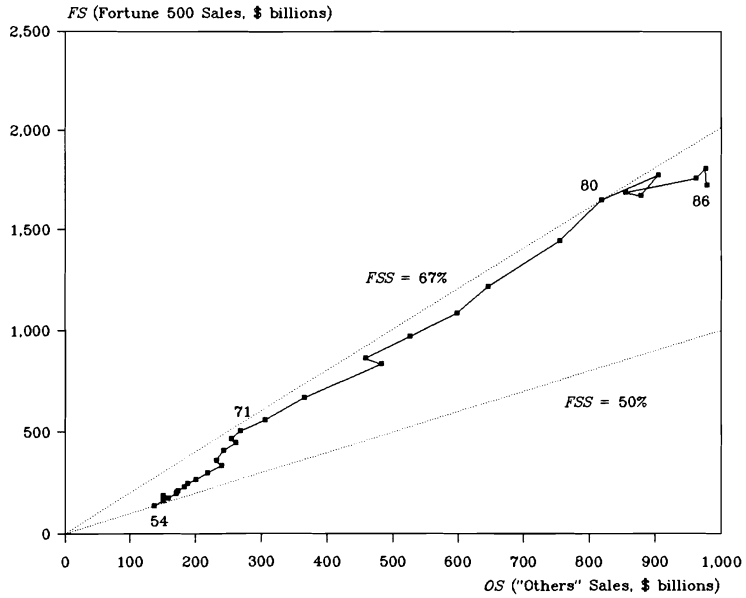


Figure 8-3c Sales: rates of growth for Fortune 500 and the 'Others'

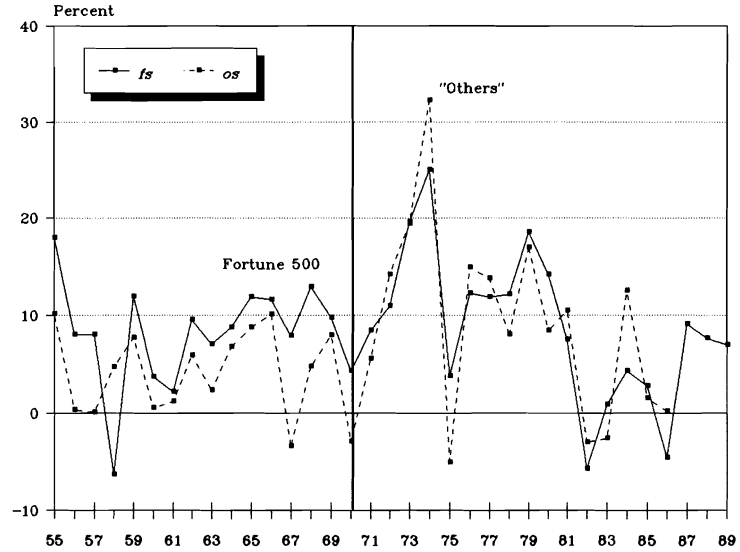
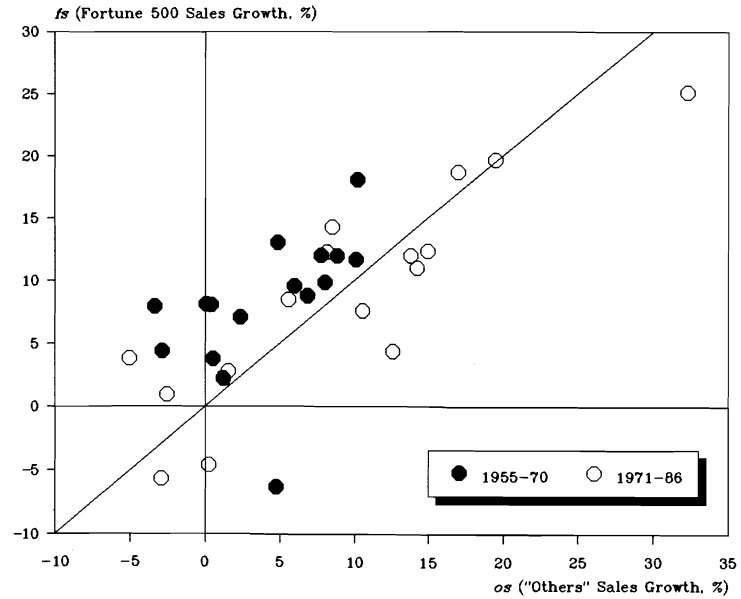


Figure 8-3d Sales: rates of growth for Fortune 500 *versus* the 'Others'



As can be seen from Figure 8-3a, sales revenues for both groups have been increasing more or less throughout the entire period examined: the Fortune-500 group increased its sales from $137 billion in 1954, to $1,723 billion in 1986, to $2,164 billion in 1989, while sales of the 'Others' rose from $136 billion in 1954, to $878 billion in 1986. In general, then, changes in the aggregate concentration ratio for sales arose primarily from differences between the positive pace of expansion of the two groups. This can be observed more clearly from the presentation of Figure 8-3b. Note that any ray beginning from the origin of this chart represents a fixed ratio for aggregate concentration and, hence, can be labelled an *isoconcentration* ray. Here we have two such isoconcentration lines, representing the lowest and highest boundaries for aggregate concentration ratios experienced during the 1954-1986 period. Turning to the data, we can see how, until the early 1970s, Fortune-500 sales grew faster than the sales of the 'Others,' causing the aggregate concentration ratio to increase from 50 to 65 percent, and, how, in the subsequent period, the sales of the two groups grew more or less at the same rate, causing the aggregate concentration ratio to remain stable, approximately around the 65-percent mark.

The process is presented from a somewhat different perspective in Figures 8-3c and 8-3d, where we substitute rates of change for levels. Summary statistics for sales growth are given in Table 8-7.

Table 8-7 Sales in the M&M sector: average rates of growth (percent)

Period	Fortune 500 (*fs*)	'Others' (*os*)
1955-70	8.1	4.0
1971-86	8.9	9.2

In Figure 8-3c we can see that, until 1970, the rates of growth of sales for the Fortune-500 group were persistently higher than those for the 'other' firms (with the sole exception of 1958). In the subsequent, post-1970 period, there was no systematic disparity and the sales of the two groups grew at a similar pace. This difference between the two periods is heightened in Figure 8-3d. The 45-degree line going through the origin of this chart denotes the *isogrowth* for sales of the two groups. Observations lying on this isogrowth represent the same rate of growth of sales for the two groups. The farther an observation

is from this isogrowth line, the greater is the disparity between the growth experience of the two groups. Figure 8-3d is also divided into 4 quadrants. The north-east and south-west quadrants include observations of equal signs (positive and negative, respectively). The north-west and south-east quadrants, on the other hand, include observations of opposite signs (the north-west quadrant represents a positive rate of growth for Fortune-500 sales and a negative rate for the 'Others,' while the south-east quadrant represents negative growth for the Fortune 500 and positive growth for the 'Others'). Given this division of Figure 8-3d, we can see how, until 1970, all but one observation (for 1957) lay above the 45-degree isogrowth, while the observations for the subsequent period were more or less scattered around that diagonal. It is also interesting to note that, while during most of the 1955-1986 period, the two sub-sectors grew in the same direction, there were still six years (or 19 percent of the total) in which developments in the two sub-sectors proceeded in *opposite* directions.

The difference between the experience of the two groups is much more pronounced in regards to the 'industrial' sphere. The development of employment in the two sub-sectors is described by the 4 charts in Figure 8-4. The structure and arrangement of these charts is similar to those included in Figure 8-3, with Figures 8-4a and 8-4b depicting levels, and Figures 8-4c and 8-4d portraying rates of change.

The historical pattern of restructuring in the 'industrial' sphere was different than that of the 'business' sphere. In examining Figure 8-4a, we can provisionally distinguish between three distinct periods. In the first of these periods, extending between 1955 and 1969, there was a rapid and continuous increase in the number of employees working for the Fortune-500 corporations from 7.9 million in 1954 to 14.8 million in 1969. Employment in smaller firms, on the other hand, experienced an actual decline, falling from 10.5 million in 1955 and to 8.6 million in 1969. This relationship changed during the 1970-1980 period. The pace of increase for the Fortune 500 seemed to have been reduced, while the previous declines experienced by the 'Others' were now reversed into moderate increases. Contrary to the inverse performance experienced in the earlier period, employment levels for both groups were now moving more or less together, with some cyclical fluctuations around a positive trend. Between 1970 and 1980, employment of Fortune-500 firms rose from 14.6 million to 15.9 million, while employment by the 'other'

Figure 8-4a Employment: Fortune 500 and the 'Others'

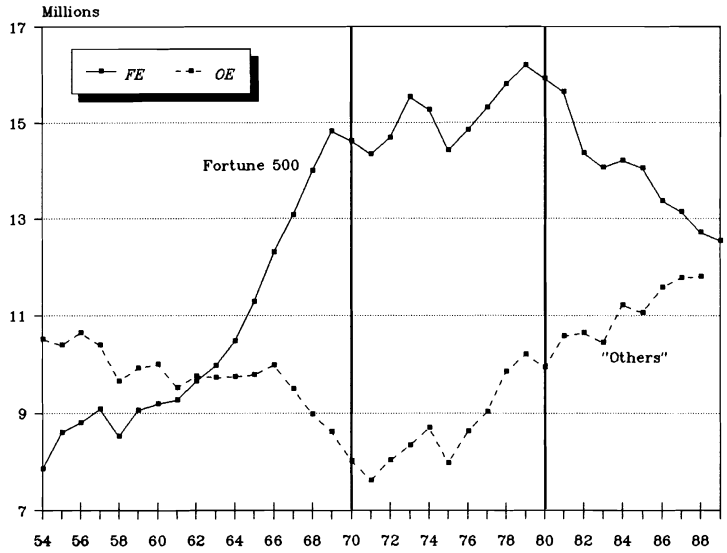


Figure 8-4b Employment: Fortune 500 *versus* the 'Others'

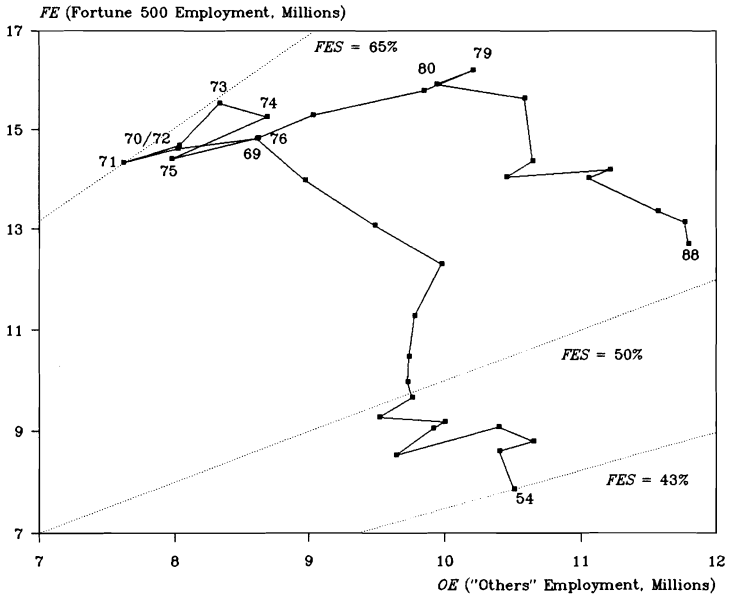


Figure 8-4c Employment: rates of growth for Fortune 500 and the 'Others'

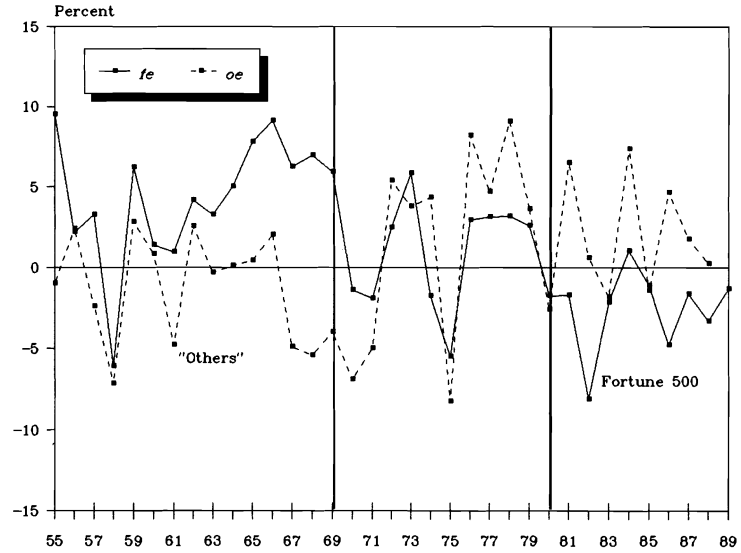
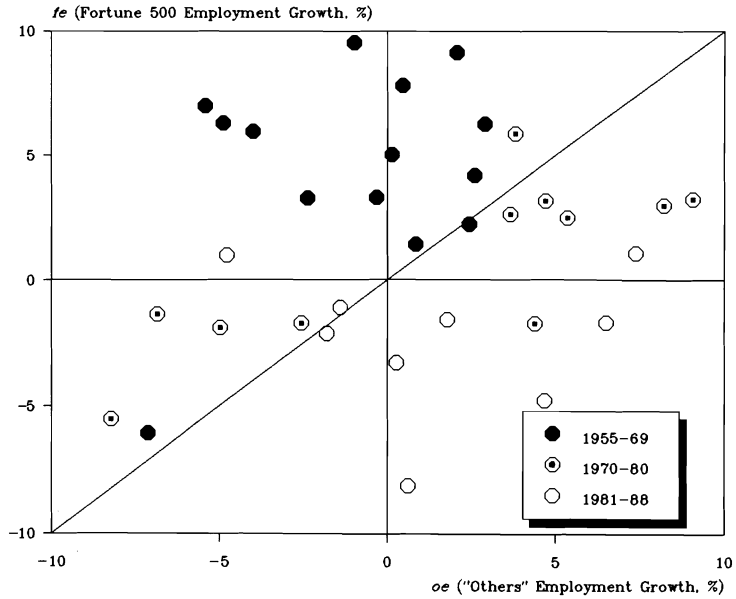


Figure 8-4d Employment: rates of growth for Fortune 500 *versus* the 'Others'



firms increased from 8.0 million to 9.9 million. The situation changed again by the early 1980s. During this last period, employment by the 'Others' continued to expand from 10.6 million in 1981 to 11.8 by 1988, while Fortune-500 employment was systematically falling from 15.6 million in 1981 to 12.5 million in 1989.

These historical changes are also depicted in Figure 8-4b, where we plot the annual employment figures of the two sectors against each other, rather than against time. The chart contains three different isoconcentration rays. Two of them represent the lower and upper boundaries for the aggregate concentration ratio reached over the 1954-1988 period, while a third one denotes the benchmark ratio of 50 percent. The three restructuring phases are apparent here. First, the rise in Fortune-500 employment and the concurrent decline in employment of the 'Others,' then the reduction in the rate of expansion of Fortune-500 employment at the same time that the 'Others' began to expand their labour force and, finally, the drop in employment of Fortune-500 firms when 'other' firms continued to increase their employment numbers.

Unlike the case of sales, changes in the aggregate concentration ratio for employment were dominated by drastically different developments in the two sectors. Indeed, during most of the period, employment of the two groups seemed to have moved in *opposite* directions. (For that matter, the 1970-1980 interval could reasonably be interpreted as a transitory phase in which employment in larger companies levelled off before its imminent decline, while employment in smaller firms changed its course from a long-term decline toward a period of sustained growth.) At a risk of some oversimplification, we can say that the positive trend in aggregate concentration for employment occurring in the pre-1970 period was primarily affected by rising Fortune-500 employment and falling employment for the 'Others,' while the general reduction in aggregate concentration experienced during the subsequent, post-1970 period, was brought about mainly by a downward trend for employment of Fortune-500 corporations, coupled with an upward tendency in the number of employees working for the 'other' firms.

These marked differences in the experience of the two sectors are further described in Figures 8-4c and 8-4d and are summarized in Table 8-8.

Table 8-8 Employment in the M&M sector: average rates of growth (percent)

Period	Fortune 500 (*fe*)	'Others' (*oe*)
1955-69	4.4	-1.3
1970-80	0.7	1.5
1981-88	-2.7	2.2

In Figure 8-4c we can see how, between 1955 and 1969, the rate of growth of employment in Fortune-500 firms was systematically positive (excluding 1958), while the comparable rate for the 'other' firms was much lower and, on average, negative. The transition occurring during the 1970-1980 phase is also clear in this figure. We can see the gradual increase in the rate of growth of employment in 'other' firms and a progressive decline in the comparable rate for the Fortune-500 corporations. This transition has been completed after 1980, when the rates of growth of employment for the Fortune-500 group became negative (with the exception of 1984), while the rates of growth for the 'Others' were higher and, on average, positive. These growth data are contrasted in Figure 8-4d. The general impression arising from this chart is the lack of homogeneity in the experience of the two groups. Most observations lie far from the 45-degree isogrowth and in 13 out of the 34 years of the sample (38 percent), the rates of growth of the two groups have *opposite* signs. This heterogeneity is particulary pronounced in the first period, for which all but one observation are above the 45-degree isogrowth, and during the last period when all but one observation are below this isogrowth. During the transitionary period, the observations were first above the isogrowth line and then below it.

Let us now combine developments in the 'business' and 'industrial' spheres in order to draw separate pictures of the "Inflation" process occurring in the two groups of firms. The four charts in Figure 8-5 contrast the rate of growth of sales on the vertical scale, with the rate of growth of employment on the horizontal scale. Each of these individual charts focuses on the experience of one group in a specified sub-period. The charts on the left (Figures 8-5a and 8-5b) are for the Fortune-500 group, and those on the right (Figures 8-5c and 8-5d) are for the 'Others.' The top two charts refer to

Figure 8-5a A business-industry decomposition of Fortune-500 "Inflation," 1955-69

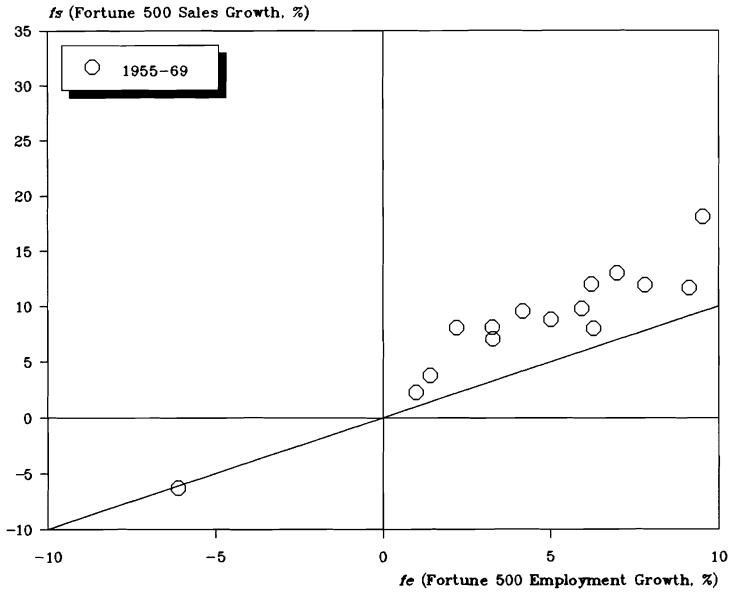


Figure 8-5b A business-industry decomposition of Fortune-500 "Inflation," 1970-89

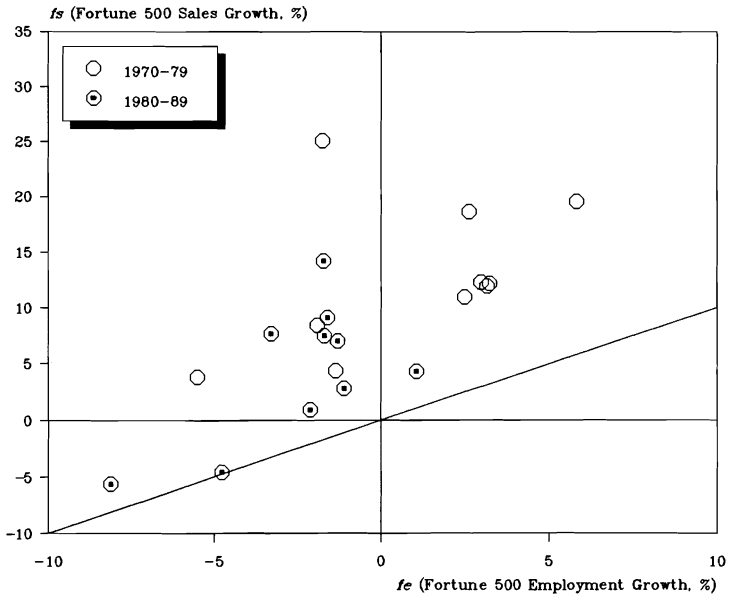


Figure 8-5c A business-industry decomposition of 'Others' "Inflation," 1955-71

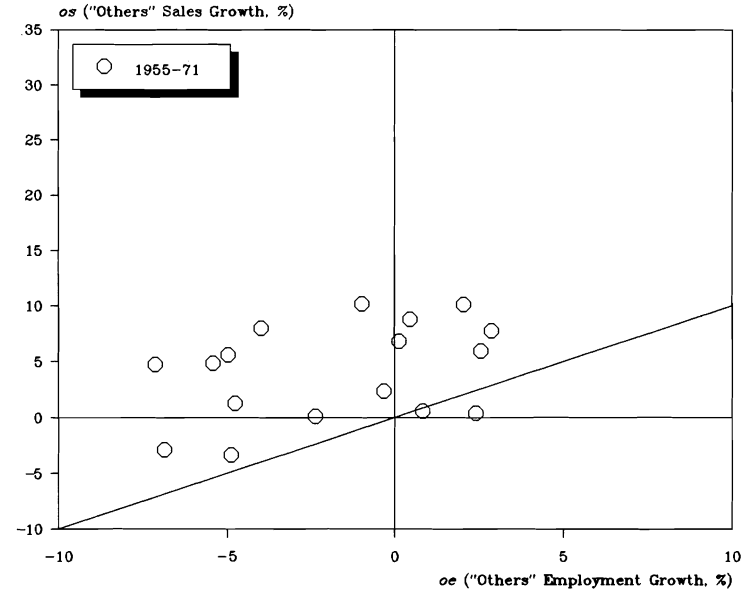
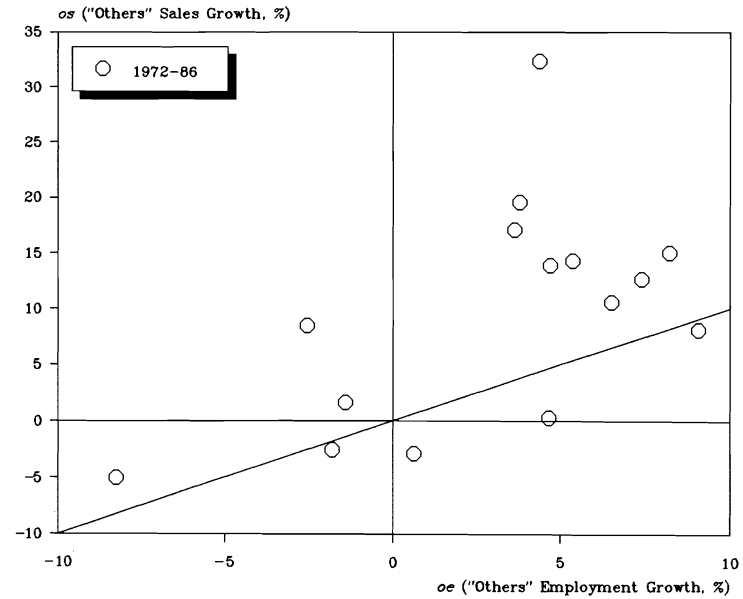


Figure 8-5d A business-industry decomposition of 'Others' "Inflation," 1972-86



the period of the 1950s and 1960s, while the lower graphs focus on the period of the 1970s and 1980s. (The precise cutoff years for the sub-periods correspond to 'turning points' apparent in Figure 8-6a below.) In analyzing these charts it is useful to identify three reference lines. The horizontal line going through the origin of each graph represents a zero business isogrowth. Observations lying above it designate a positive rate of growth for sales, while those lying below it denote falling sales. Similarly, the vertical line going through the origin is the zero industry isogrowth. Observations lying to the right of this isogrowth denote rising employment, while those lying to its left represent falling employment. Finally, the diagonal (45-degree) line is a zero isogrowth for the rate of "Inflation." Observations lying above this diagonal denote a positive rate of "Inflation" and those lying below it represent a negative rate.

Turning to the data, we can see that in the first sub-period, during the 1950s and 1960s, the Fortune 500 firms displayed a relatively low rate of "Inflation," stemming from a combination of rising sales and employment (the zero "Inflation" in 1958 arose from identical rates of decline for sales and employment). The experience of the 'Others' during that period was different. Their average rate of "Inflation" was slightly higher than the one experienced by the Fortune 500 (their observations are generally higher above the diagonal isogrowth than those of the Fortune 500) and this higher "Inflation" resulted from relatively lower rates of growth for sales combined with mainly *negative* rates of growth for employment. In the second sub-period, that of the 1970s and 1980s, the 'business-industry' interactions for the two groups have changed. The average rate of "Inflation" of the Fortune-500 was now higher than that of the 'Others.' The rates of growth of sales for the two groups were roughly the same and the main source of difference came from the 'industrial' sphere: while employment growth for the 'Others' was generally positive, it was mainly negative for the Fortune-500 firms, particularly during the 1980s.

The separate analyses presented in Figure 8-5 reaffirm that the interaction between the 'business' and 'industrial' spheres of the M&M sector was indeed dynamic in nature and changed over time. They further demonstrate that the "Inflation" experience of the two groups of firms was not at all similar. In fact, the 'business-industry' interaction for the Fortune 500 looked more like the *inverse*,

mirror-image of the comparable interaction experienced by the 'Others'! This is illustrated even more clearly in Figure 8-6a, where we chart the sales-employment relationship for both the Fortune 500 and for the 'Others.' (The diagram is useful in comparing not only the direction of change, but also the absolute levels of the variables.) During the 1950s and 1960s, the Fortune-500 exhibited almost a linear positive relationship between their sales and employment. For the 'other' firms, however, the general relationship between sales and employment in that period appeared to have been *negative*! In the following decades of the 1970s and 1980s, the experience of the two groups seemed to have been reversed. The 'other' firms now embarked on what was tantamount to a brisk 'growth-inflation,' while the Fortune-500 entered a period of stagnating employment despite the growing sales. Finally, during the 1980s, when the 'Others' continued their dual expansion of sales and employment, the relationship between these variables for the Fortune 500 turned *negative*, with rising sales and falling employment.

Consider now Figure 8-6b, where we trace the relationship between sales and employment for the entire M&M sector over the 1954-1986 period. This latter chart indicates a general positive relationship in the 1950s and 1960s, a positive -- though much less tighter -- relationship during the 1970s, and a mixture of positive and negative interactions during the 1980s. A comparison between Figure 8-6a and Figure 8-6b points to the hazard of over-aggregation. It is clear that, at least since the mid-1950, the overall macroeconomic interaction between 'business' and 'industry' in the M&M sector involved not parallel, but *conflicting* developments for the underlying groups of firms. The apparent 'growth-inflation' of the 1950s and 1960s involved rising employment for the Fortune-500, but *falling* employment for the 'Others.' The creeping 'stagflation' of the 1970s and the severe 'stagflation' of the 1980s were brought primarily by the Fortune 500, for employment by the 'Others' has *increased* throughout that period! If we were to rely only on the overall numbers, we would have completely missed this remarkable discordancy in the experience of the two groups.

The significance of this latter point could not be overstated. As our empirical analysis indicates, "Inflation" in the M&M sector arose from the different experience of the largest firms as opposed to that of smaller firms. This disparity also led to systematic processes of restructuring in both the 'business' and 'industrial' spheres of the M&M sector. Specifically, the 'growth-inflation' of the 1950s and 1960s

Figure 8-6a Sales *versus* employment for Fortune 500 and the 'Others'

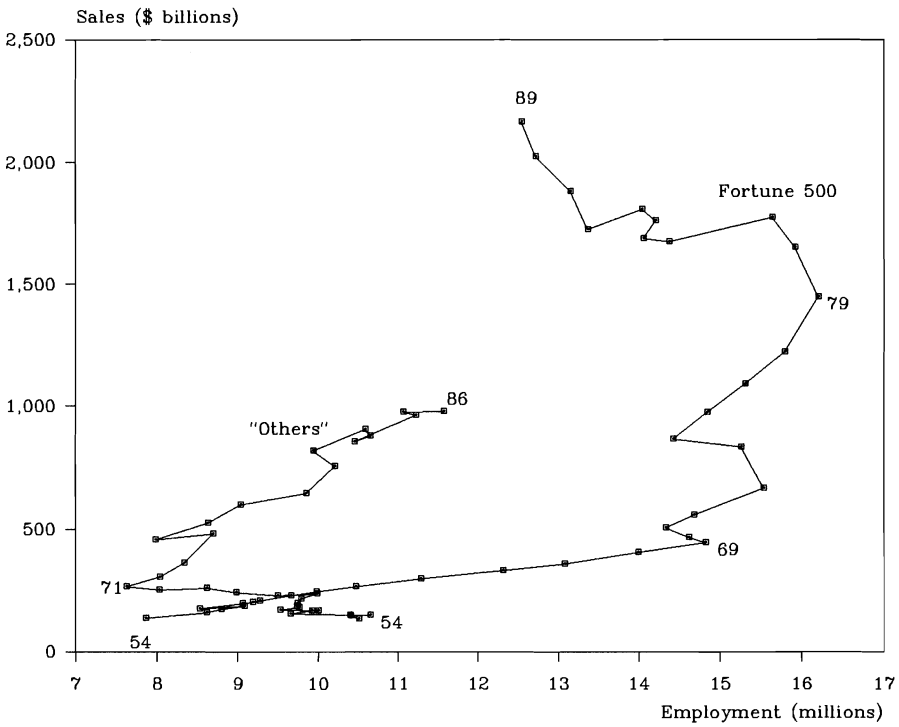
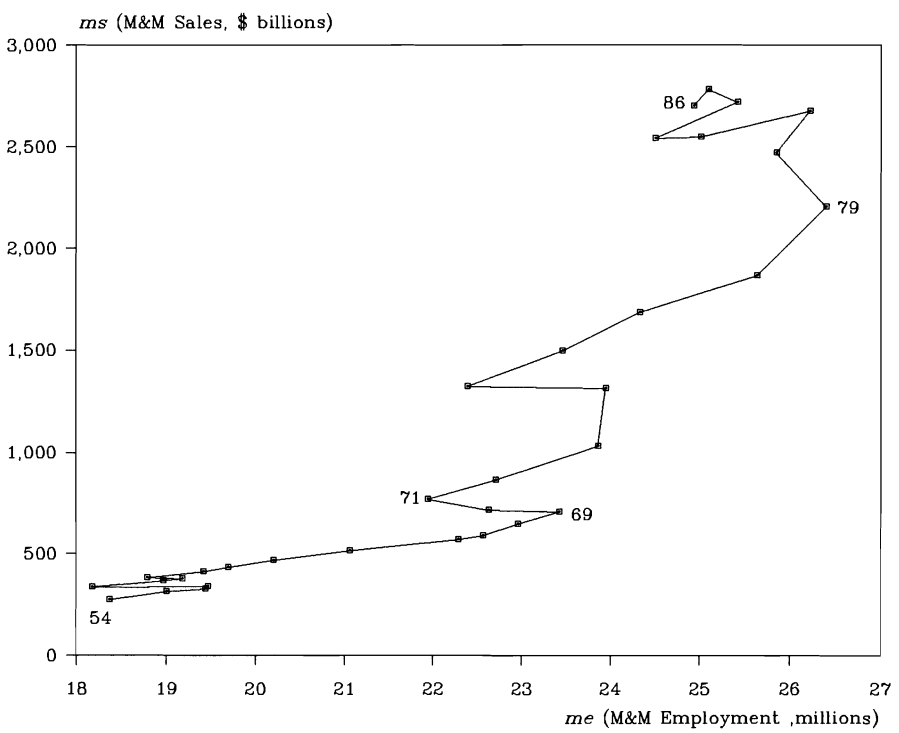


Figure 8-6b Sales *versus* employment in the M&M sector



involved rising aggregate concentration ratios for both sales and employment, while the so-called 'stagflation' of the 1970s and 1980s was associated with a stable aggregate concentration ratio for sales and a declining ratio for employment. From a macroeconomic perspective, however, these restructuring processes would have been wholly invisible. A strictly aggregate approach is equivalent to suggesting that "Inflation" is structurally 'neutral,' or if it is 'non-neutral,' that the consequent restructuring is simply immaterial; in other words, a macroeconomic framework implies that we could safely ignore the very structural roots underlying the inflationary process!

The systematic differences between the inflationary experiences of the large as opposed to smaller firms have altered the relative significance of each of those groups for the aggregate inflationary process in the M&M sector. These changes could be examined in a number of different ways and we begin by exploring the effect of the Fortune 500 group on the direction of "Inflation." Following the taxonomy presented in Section 8-2 of this chapter, we can define the 'business difference' (*BD*), the 'industry difference' (*ID*) and the combined 'business and industry difference' (*BID*) for the Fortune 500, as given by equations (25), (26) and (27), respectively:

(25) $BD \equiv FSS\ (fs - os)$

(26) $ID \equiv -FES\ (fe - oe)$

(27) $BID \equiv BD + ID\ .$

Figure 8-7a charts the annual values of *BD* between 1955 and 1986, and of *ID* for the period between 1955 and 1988. In Figure 8-7b we plot the annual values of *BID* over the 1955-86 period.

In examining these figures, we can discern certain systematic patterns which differentiate the experience of the 1950s and 1960s from that of the subsequent period of the 1970s and 1980s. During the first period, the business contribution of the Fortune 500 was inflation-augmenting, as indicated by the generally positive values of *BD* (the average value for *BD* over the 1955-70 period was 2.4 percent).

Figure 8-7a The 'Business Difference' and 'Industry Difference' for the Fortune 500

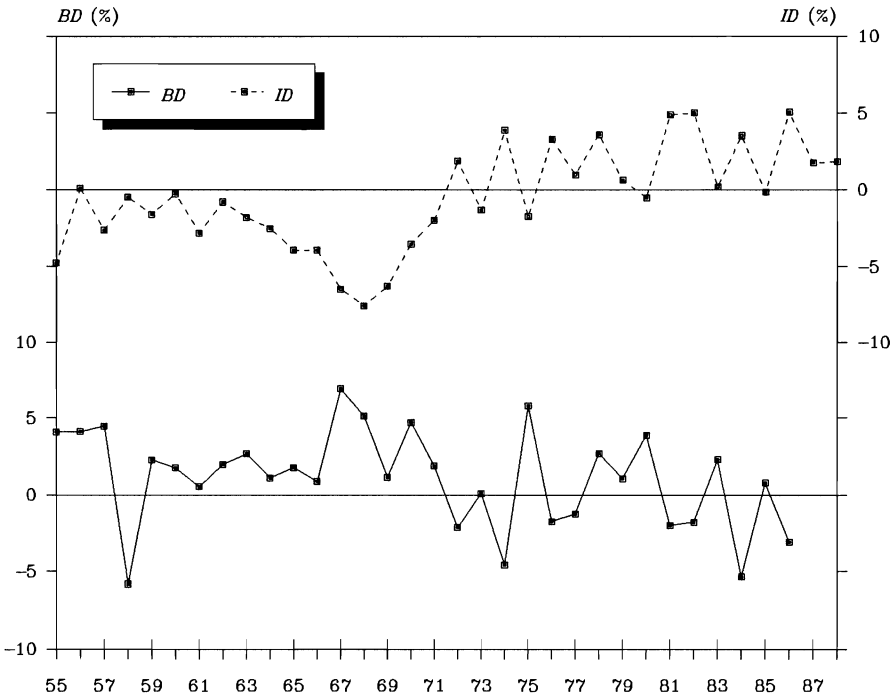
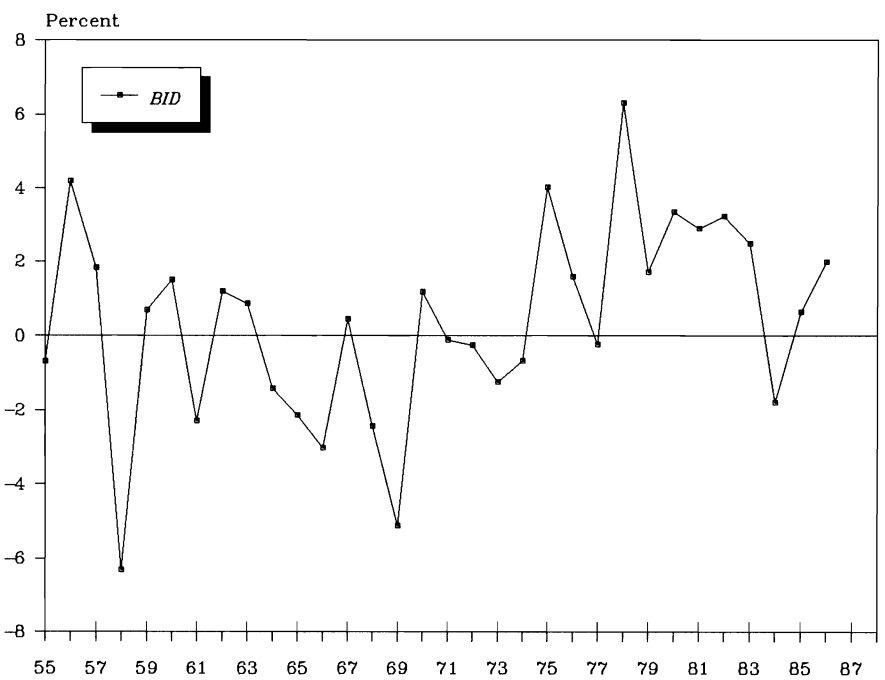


Figure 8-7b The 'Business-Industry Difference' for the Fortune 500



The business contribution of the Fortune-500 group tended to augment the rate of "Inflation" because the rate of growth of sales for the Fortune 500 was generally higher than the comparable rate for the 'Others.' This positive differential in growth rates also worked to raised the rate of aggregate concentration in the business sphere (*FSS*), thus increasing the inflation-augmenting effect of the Fortune-500 firms. The industry contribution of the Fortune-500 group, on the other hand, was inflation-abating throughout most of this period, as indicated by the negative values for *ID* (over the 1955-70 interval, the average value for *ID* was -3.1 percent). This tendency to lower the rate of "Inflation" was generated because employment for the Fortune 500 grew faster than the comparable numbers for the smaller firms. The growth-rate differential also intensified the inflation-abating effect of the Fortune-500 group by raising the level of aggregate concentration in this sphere (*FES*). Overall, the combined business and industry contribution of Fortune-500 firms during the 1950s and 1960s tended to be inflation-abating. Given that, on average, the inflation-abating effect in the industrial sphere exceeded the inflation-augmenting impact in the business sphere, their sum, *BID*, tended to be negative (the average value of *BID* for the period was -0.7 percent). We can also discern a downward trend in the *BID* series, which serves to indicate that the combined inflation-abating impact of the Fortune 500 tended to increase over time.

All of this changed in the subsequent period. During the 1970s and 1980s, the business contribution of the Fortune 500 was close to being inflation-neutral (over the 1971-86 period, the average value for *BD* was -0.2). The industry contribution, on the other hand, became inflation-augmenting (fluctuating around an average value of 1.7 percent for the 1971-86 period). Hence, on balance, the combined business and industry contribution of the Fortune 500 was generally inflation-augmenting (between 1971 and 1986, the average value for *BID* was 1.5 percent).

The data charted in Figures 8-7a and 8-7b tell us whether the Fortune 500 pushed up the rate of "Inflation" or pulled it down relative to what it would have been in the hypothetical absence of that group. These data do not indicate, however, the relative magnitude of that impact. That we could see from Figures 8-8a and 8-8b below. In the first of these charts, we contrast the actual percent-point

contributions to M&M "Inflation" (*mse*) made by the largest corporations (*FCON*), and by the smaller firms (*OCON*), where,

(28) $mse \equiv FCON + OCON$.

The data portray a highly interesting picture. During the 1950s and 1960s, the percent-point 'contributions' of the two groups were very similar; indeed, over the 1955-69 interval, the average contributions to "Inflation" of both the Fortune 500 and the 'Others' were 2.5 percent. In the subsequent period, however, things looked drastically different. Between 1971 and 1986, the average contribution of the 'Others' fell to 2.3 percent, while, in contrast, the average contribution of the Fortune 500 jumped to 6.0 percent![17]

In Figure 8-8b we present an alternative index for the groups' relative contributions to M&M "Inflation." This index, labelled *FCONR*, is computed as the percentage share of M&M "Inflation" (*mse*) attributed to the Fortune-500 firms, such that

(29) $FCONR \equiv (FCON/mse) \cdot 100.$

The graphical interpretation of this index in Figure 8-8b is straightforward. We take the annual rate of "Inflation" as always being equal to 100 percent, and chart the contribution of the Fortune 500 as a share of that total. (The relative contribution of the 'Others' is simply 100 – *FCONR*.) Note that the *FCONR* index could have two different meanings, depending on whether the overall rate of M&M "Inflation" is positive or negative. In the former case, a positive or negative value for *FCONR* denotes a corresponding

[17] The data for subsequent years are still incomplete so it is not yet possible to compute the percent-point contributions of each group after 1987. It is nevertheless plausible that the wide differentials in the contributions of each group persisted and even widened during the late 1980s. Sales for the Fortune 500 rose by 9.1 percent in 1987, by 7.7 percent in 1988 and by 7.0 percent in 1989. Employment, on the other hand, continued to decline, falling by 1.6 percent in 1987, by 3.3 percent in 1988 and by 1.3 percent in 1989. (The consequent rates of "Inflation" for the Fortune 500 in those years were 10.7, 11.0 and 8.3 percent, respectively.) We also have reason to believe (although accurate evidence are still unavailable) that the aggregate concentration ratio for sales increased in those years and the aggregate concentration ratio for employment continued its decline. If these latter conjectures are correct, then much of the recent resurgence in manufacturing "Inflation" was originated from the largest firms in that sector.

Figure 8-8a Percent-point contributions of Fortune 500 and the 'Others' to M&M "Inflation"

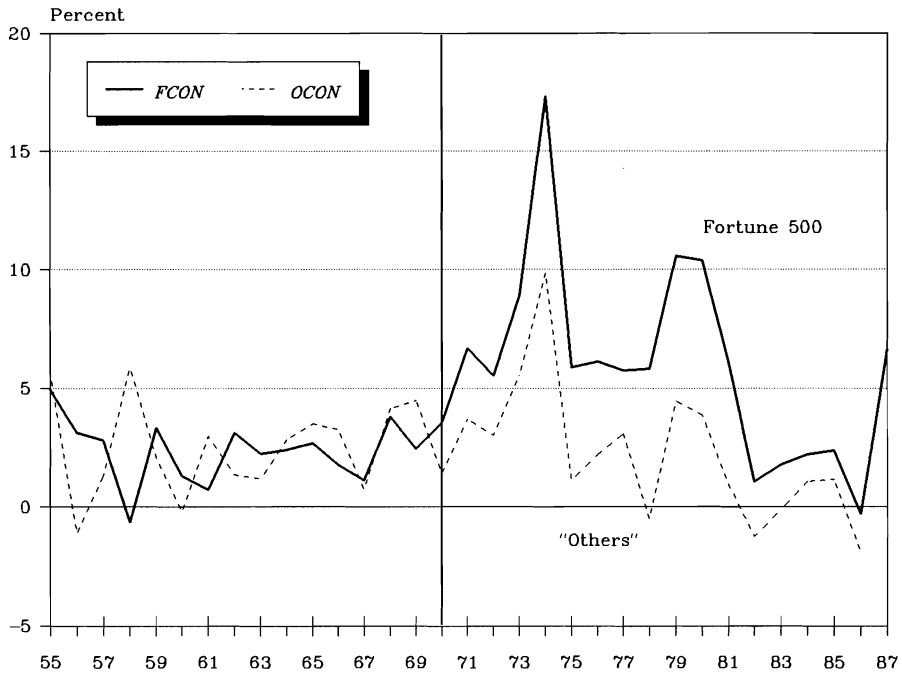
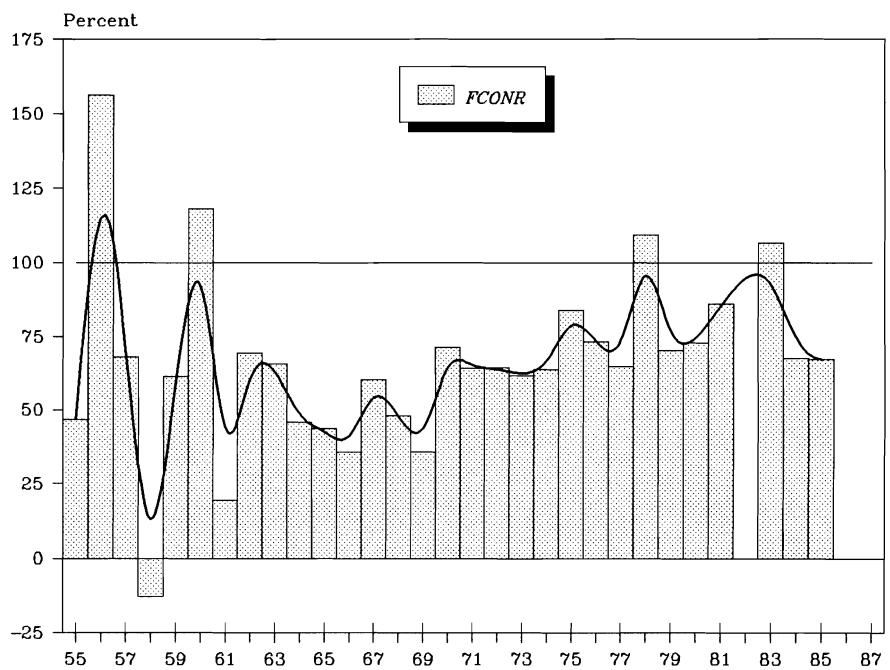


Figure 8-8b The share of Fortune 500 in M&M "Inflation"



positive or negative 'contribution' by the Fortune 500. In the latter case, however, *FCONR* has an opposite meaning, namely, that a negative value denotes a positive contribution, while a positive value represents a negative contribution. During 30 out of the 32 years between 1955 and 1986, the rate of M&M "Inflation" was positive, so, for most of the period, the first interpretation is appropriate. In 1982 and 1986, however, the rate of "Inflation" was negative and for those years we must interpret *FCONR* in an opposite way. In order to avoid confusion, we decided to omit these two observations from the chart.[18] In addition to the actual values of *FCONR*, Figure 8-8b also contains a thick curve representing a smoother path for the temporal behaviour of this variable.[19]

The two periods identified in Figure 8-8a are also apparent in Figure 8-8b. During the 1950s and 1960s, the relative contributions of both the Fortune 500 and the 'Others' oscillated around the 50 percent mark. The fluctuations were particularly pronounced during the 1950s, after which their amplitudes seemed to have declined. In this first period, the Fortune 500 were expanding their distributive share of M&M sales, but since the aggregate concentration ratio for employment rose even faster, their relative contribution to "Inflation" remained stable. In the early 1970s, as the rate of "Inflation" started to increase, the relative contribution of the Fortune-500 firms began to rise too. Since the mid-1970s, "Inflation" started to decline but, given the systematic nature of the earlier inflationary restructuring, the Fortune-500 firms were now the predominant inflationary force, accounting on average for more than 75 percent of its annual rate. The distributive shares of both sales and employment accounted for by the Fortune 500 reached their peak during the early 1970s. Since then, the largest corporations have more or less maintained their share in M&M sales; the increase in their relative contribution to "Inflation" stemmed almost exclusively from a fall in their share of M&M employment driven by a continuous contraction of their labour force.

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[18] As evident from Figure 8-7b, the combined business and industry contribution of Fortune 500 firms was inflation-augmenting in both 1982 and 1986. The data in Figure 8-8a indicate that, in 1982, the rate of M&M "Inflation" was −0.17 percent, but the contribution of the Fortune 500 group (*FCON*) was positive, amounting to 1.08 percent. In 1986, the rate of M&M "Inflation" was −2.3 percent, while the contribution of the Fortune 500 firms was only −0.33 percent.

[19] Smoothing was generated with the Harvard Graphics software package. The precise smoothing formula is not so important, given that we only seek to convey the *general* path of the variable.

8.7 Inflationary Restructuring: Why?

Differences in the performance of large and small firms have been documented extensively in the dual-economy literature. Economists such as Steindl (1945), Averitt (1968), Edwards (1975) and Bowring (1986), among others, have demonstrated that firms in the 'big economy' enjoyed higher rates of return than their smaller counterparts in the 'small economy' and that their performance in terms of key financial indicators was much more stable and far less risky. The dual-economy distinction has also affected the structural literature on inflation. Writers such as Galbraith (1957), Ackley (1959), Nordhaus and Godley (1972), Eichner (1973), Blair (1974), Beals (1975), Kaldor (1976) and Okun (1981), for example, distinguished between inflation in the fixed-price concentrated sector, and inflation in the flex-price sector of competitive industries. But, for these writers too, differences in the inflationary experience of the two sectors were largely a matter of *degree*. It has often been argued, for instance, that competitive prices experience strong fluctuations, where oligopoly prices oscillate only mildly around a steady inflationary trend, but the general conviction has been that, in both cases, prices move in more or less the same direction (see Chapter 4).[20]

This apparent similarity breaks down when we go beyond standard inflation indices. In this chapter we proposed that instead of focusing on price changes as a proxy for inflation, we should follow the framework developed in Chapter 7 and decompose the inflationary process into its underlying components. Specifically, we redefined "Inflation" as a dynamic interaction between the rates of change of sales and employment, or, in general, between the 'business' and 'industrial' spheres of economic activity. From this perspective, the inflationary experience of large and small firms is not at all similar. In the U.S. manufacturing and mining sector, differences between the rate of "Inflation" for the two groups were indeed largely a matter of degree, but the 'business' and 'industrial' forces driving the inflationary process in each group were drastically different. The disparity was primarily pronounced in the industrial sphere, where employment of the two groups usually moved in *opposite* directions.

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[20] Some, like Blair, argued that during recessions, oligopolistic firms tended to raise their prices at a time when competitive market prices were falling. This inverse pattern disappeared with the overall rise in the rate of inflation in the 1970s.

The dual-economy perspective is particularly illuminating when we consider inflation as a process of restructuring. Even when the sales and employment of large firms move in the same direction as those of smaller companies, they do not change at the same rate, and this means that inflation necessarily involves a continuous restructuring of distributive shares for the two groups. Over the past three decades, "Inflation" in the U.S. manufacturing and mining sector was propelled by two main restructural regimes -- first, by rising aggregate concentration ratios for both sales and employment and, then, by a falling concentration ratios for employment. Until the late 1960s, the share of the 500 largest firms in aggregate sales grew rapidly, but, since their share of employment rose even faster, their contribution to inflation was relatively low. The adverse ramifications for inflation of these rapid advances in concentration appeared only in the subsequent period. After 1970, the share of sales and employment accounted for by the 500 largest corporations reached an unprecedented level of 65 percent, and this substantially raised the impact of these firms on the overall inflationary experience of their corporate universe. During the 1970s and 1980s, the large firms maintained their share of sales, but started to reduce their employment levels. These relentless cuts in employment created severe stagflation in the 'big economy' and, given that the aggregate concentration ratios were now much higher than earlier, the stagflation in this sub-sector led to an overall stagflation in the manufacturing and mining sector as a whole.

The view of inflation as a process of restructuring opens fascinating areas for research. If the inflationary interaction between 'business' and 'industry' is driven by underlying processes of restructuring, then the *causes* of inflation must lie with these restructuring processes themselves. Thus, in order to explain the low and relatively stable 'growth-inflation' of the 1950s and 1960s, we must explain what caused sales in the big economy to rise faster than sales of smaller firms and why employment in the small economy was falling when it was rapidly rising for the big firms. Similarly, to have a better understanding of recent stagflation, we should be able to explain why, as small firms expanded their employment numbers, large firms worked to drastically reduced them. The question, then, is *why* did the boundaries separating the core and periphery changed in the manner described in this chapter? This 'why' is the last step of our journey and we turn to it now.

CHAPTER 9

DIFFERENTIAL PECUNIARY ACCUMULATION AND THE INFLATIONARY DYNAMICS OF CORPORATE SIZE

The early 1970s mark an important watershed in the post-war experience of the U.S. M&M sector: the happy combination of low inflation and low unemployment, which characterized much of the 1950s and 1960s, gave way to a far less appealing mixture of high inflation and severe stagnation, which lasted through much of the 1970s and the early 1980s. However, as the analysis in Chapter 8 indicated, this experience was not a commonly-shared one. Taking the inflationary process as a dynamic interaction between 'business' and 'industry,' we showed that the pattern of Fortune-500 "Inflation" was fundamentally different from that experienced by the 'Others.' If we limit ourselves to an aggregate perspective, the difference appears mainly quantitative: during the pre-1970 period, the 'Others" "Inflation" was higher, whereas after 1970, Fortune-500 "Inflation" took the lead. From a disaggregate perspective, however, the difference was also qualitative. In the first period, Fortune-500 "Inflation" was generated by a combination of rapid increases in sales accompanied by somewhat lower increases in employment, while for the 'Others,' "Inflation" arose from a very moderate increase in sales coupled with an actual *decline* in employment. After 1970, the situation has reversed. Both groups continued to increase their sales but, while 'Others' employment was rising, Fortune-500 employment was now falling.

This disparity is highly perplexing. How could these two groups, whose activities span the entire range of manufacturing and mining, exhibit such opposite temporal patterns? Indeed, why should the inflationary interaction between business and industry for large corporations be qualitatively different from the one generated by small firms? In our opinion, the key to these questions lies in the structural nature of "Inflation." The fact that sales and employment in each group rose at *different* rates (the 'Heterogeneity Principle') is closely related to the underlying processes of aggregate concentration. As we showed in Chapter 8, between the early 1950s and late 1960s, the Fortune-500 group managed to raise both its sales and employment faster than the 'Others,' thus leading to continuous increases in the

corresponding rates of aggregate concentration for these two variables. At the same time, since the rise in the aggregate concentration for employment was faster than that for sales, the rate of "Inflation" for the Fortune 500 during that period remained lower than the corresponding rate for the 'Others.' The post-1970 period marked a change of course. During the 1970s and 1980s, the rate of aggregate concentration for sales remained relatively stable, but the corresponding rate for employment fell sharply, causing Fortune-500 "Inflation" to rise above that of the 'Others.'

Given this intimate relationship between inflation and corporate restructuring, is it possible that they were both driven by the same cause? More specifically, is the disparity between the rates of "Inflation" for large and small firms rooted in the same process which alters the aggregate concentration for sales and employment? If there is such a mutual cause, what is it? How does it operate? In our view, inflationary restructuring stems from the fundamental process of large-scale capital accumulation, and the purpose of this chapter is to examine the analytical and empirical bases of this dependency.

Considering the detailed nature of our analysis, a brief overview may be in order. The chapter is divided into 10 sections. The first three sections develop our analytical framework, while the remaining seven examine the concrete experience of the M&M sector. We begin with the *modus operandi* of large firms. If large-scale capital accumulation is indeed the root cause of inflation and restructuring, we must first explore what it means: What exactly do large firms try to accumulate? What are the units of accumulation? And most importantly, what is the key yardstick for 'success'? These questions are addressed in the first section. We argue that, in the context of large-scale business enterprise, firms are driven by the quest for *differential pecuniary accumulation*. In other words, what is being accumulated is not congeries of physical capital goods, but a pecuniary sum of discounted future earnings. Furthermore, the main aim is not simply to accumulate, but to accumulate faster than the 'average.' Using a series of simple approximations, we define 'differential rate of accumulation' as the difference between the firm's own rate of accumulation and the 'average' rate of accumulation in its corporate universe. With this as our key variable of interest, we then move to explore the wider implications of large-scale accumulation. In the second section, we show that a positive differential rate of accumulation commonly means rising aggregate concentration; in other words, that in seeking to 'beat the average,'

large firms are in fact trying to alter the business structure in which they operate. In the third section, we carry our analysis one step forward. By what means, we ask, could the large firms achieve this double-sided goal of differential gain through structural change, and how do their restructuring ventures affect the macroeconomic patterns of inflation and stagnation? Since the pecuniary value of a corporation depends on expected earnings and risk, attempts to augment the differential rate of accumulation need to focus on the differential growth of profit and risk. Two strategic choices are explored. (1) The large firms could augment their differential *breadth* of accumulation by raising their employment per firm faster than the average, or (2) they could increase their differential *depth* of accumulation by boosting their profit per employee faster than the average firm in their universe. The first strategy is often carried out *via* mergers and acquisitions which tends to stabilize the growth of profits for the large firms, reduce risk and augment the differential rate of accumulation even further. This favourable context of rapid but stable differential pecuniary accumulation induces the large firms to maintain their rate of "Inflation" at a relatively low level. The second strategy is reverted to when there is a decline in merger activity. In this latter context, with only a limited expansion in their breadth of accumulation, the large firms must turn to their depth of accumulation and try to raise their profit per employee faster than the average. Their chief method of doing so is by raising their differential growth of sales per employee -- that is, by increasing their own rate of "Inflation" faster than the average. This is not a favoured strategy, however. First, it tends to destabilize the growth of profit and augment risk; second, it commonly culminates in an overall inflationary spiral which makes the redistributional outcome highly uncertain; and, third, the resulting inflation redistributes income from labour to capital, thus limiting the volume of mass consumption and enhancing the tendency toward industrial stagnation. Based on this reasoning, we argue that differential pecuniary accumulation gives rise to two basic patterns of inflationary restructuring: one characterized by rapid, merger-induced increases in aggregate concentration accompanied by relatively low inflation and unemployment, and another, typified by slower changes in aggregate concentration coupled with higher inflation and a more severe stagnation.

After outlining these broad analytical considerations, we examine their validity for the M&M sector. In the fourth section, we describe our basic data and outline the overall course of differential pecuniary accumulation for the Fortune-500 group. In the fifth section, we focus our attention on the

main factors affecting the differential rate of accumulation -- profit and risk -- and try to understand their historical interaction. Given the paramount role of profit in this interaction, we then turn in the sixth section to the factors affecting the growth of earnings, looking on the separate developments occurring in the breadth and depth of accumulation. Each of these areas is then examined individually in the seventh and eight sections. The results of this empirical analysis help explain the disparity between the inflationary experience of large and small firms revealed in Chapter 8. They show that the opposite evolution of employment for the two groups was rooted in the underlying pattern of merger and acquisitions. Furthermore, the analysis clearly indicates that "Inflation" for the Fortune-500 was indeed negatively related to their merger-related expansions in the breadth of accumulation. Was this a *deliberate* Fortune-500 strategy? The data seem to suggest it was. In section 9, we examine the redistributional consequences of inflation and show, firstly, that there was indeed a positive relationship between inflation and the share of profit in sales and, secondly, that this association benefited the large firms more than the small ones. The tenth section brings us to the end of our journey, where we summarize our findings and draw our conclusions.

A word of caution is necessary. Although our empirical analysis of the M&M sector tends to confirm our broad theoretical hypotheses, we should be careful not to over-generalize our findings. We are dealing here with historical, non-stationary processes which, in our view, do not reflect any immanent laws of motion. Ultimately, our concern is to raise questions more than to provide conclusive answers, so the evidence in this chapter should best be interpreted as suggestive, not definitive.

9.1 Differential Pecuniary Accumulation

Following our analysis in Chapter 6, we begin with the proposition that the basic guiding principle of big business is *differential pecuniary accumulation*. Specifically, this means (1) that the ultimate goal of large-scale business enterprise is the on-going accumulation of capital values, (2) that businessmen think about such accumulation solely in nominal terms, and (3) that they evaluate their success or failure on a purely differential scale, that is, relative to other firms. Our concern here is not with personal motives but rather with customary habits of thinking which have slowly become the

'objective' rules of large-scale business enterprise. The effective controllers of giant firms (professional executives or dominant absentee owners) may be animated by a variety of psychological drives, such as the quest for conspicuous consumption, public esteem, political influence, or bureaucratic authority. Yet these businessmen rarely perceive their *individual* goals as being inconsistent with the overriding *universal* tenets of 'differential pecuniary accumulation.' The principle of 'differential pecuniary accumulation' has far-reaching implications for the process of inflationary restructuring. Our purpose in this and the following two sections is to develop an analytical framework within which these implications can be explored.

In the modern system of large business enterprise, capital accumulation refers to the temporal increase in the pecuniary value of the corporation. This, however, is still an ambiguous statement. What exactly is being accumulated? What precisely do we mean by the 'value' of a corporation? In practice, the corporation has at least three observed values: the 'accounting value' of total assets reported in the financial statements, the 'market value' of equity and debt as determined by the current prices of stocks and bonds and, finally, the 'transaction value' which emerges occasionally when there is a change of effective ownership through a merger or acquisition. However, these magnitudes are rarely seen as denoting *the* value of the corporation. Instead, they are usually taken as indicators, or approximations of a more fundamental variable -- the so-called *underlying* or *true* value of the corporation.

The 'true' value of a corporation is a business convention. From the businessman's standpoint, the corporation is valuable because of its presumed capacity to appropriate future income, and its 'true' value is simply the present capitalization of these anticipated earnings. For simplicity, suppose we define this 'true' value A_i of a corporation i as equal to its capitalized earning capacity such that, for a given discounting period,

$$(1) \qquad A_i \equiv EC_i \,/\, (N \cdot \Gamma_i)\,,$$

where EC_i is some measure of the corporation's 'earning capacity' reflecting the nominal income the corporation is expected to earn, Γ_i is a multiplicative 'risk premium' for the presumable uncertainty associated with these future earnings, and N is the perceived 'normal' rate of return for the economy.[1]

Clearly, the corporation's 'true' value is not an 'objective' variable. From the perspective of an individual businessman, A_i depends on how that businessman views the corporation's future earnings and risk, on what he accepts as the normal rate of return and, finally, on his preferred time-frame for these conjectures (the 'discounting period.') Thus, different businessman or impartial observers may come up with different values for A_i and, from their own individual standpoints, each of these valuations would be 'correct.' As we interpret it here, the 'correctness' of A has nothing to do with the *ex post* accuracy of anticipated income. Although the future may reveal our errors, it could not alter the present and, since the 'true' value of a corporation is a *current* magnitude, it could be based only on our *present* beliefs, not on their *eventual* accuracy. Furthermore, the multiplicity of 'correct' valuations would persist even if we considered only those based on an accurate anticipation of earnings, simply because A_i depends not only on EC_i, but also on the arbitrary values of N and Γ_i. In other words, the same accurate prediction of future earnings could lead to more than one value for A_i, depending on what is deemed to be the 'normal' rate of return and the 'adequate' provision for 'risk.' For example, an accurate prediction of $100 million for EC_i, together with a value of 8 percent for N and 1.25 for Γ_i, would yield $1 billion as the 'true' value of the corporation. However, a combination of this same correct prediction for earnings, but with a normal rate of return of 10 percent and multiplicative 'risk' premium of 1.5, would imply a capitalized earning capacity of only $667 million. Similar variations in A_i may arise when we apply different discounting periods to a non-uniform flow of anticipated earnings.

In light of this inherent subjectivity and the resulting multiplicity of individual valuations, should we abandon the notion of an 'underlying' value? Not at all. Our main concern here is not with the 'objective' correctness of corporate values, but with their significance for the social process of capital accumulation. From this broader perspective, the 'underlying' value of the corporation is simply that

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[1] In the financial literature, it is customary to use an additive provision for risk. Using the notations of Equation (1) and Ω_i for the additive risk premium, we can write $A_i \equiv EC_i / (N + \Omega_i)$, where $\Omega_i = N(\Gamma_i - 1)$.

which is the most *consequential* for the dynamic working of business enterprise. Since capitalized earning capacity is ultimately a matter of convention, it follows that the most important value of the corporation is its *most conventional one* -- that is, the value dictated by the 'dominant' perceptions prevailing in the business community. Given the interactive context of modern investment markets, we may reasonably argue that, at any point in time, the individual views of businessmen regarding EC_i, N, Γ_i and the 'appropriate' discounting period will be clustered around some 'conventional' or 'accepted' norms. Although these are no more objective than the individual convictions from which they ultimately arise, such 'dominant' views assume -- through the forces of conformity -- an omnipotent existence. Consequently, we suggest that the corporation's 'true' value A_i depends specifically on the 'dominant' business views regarding EC_i, N, Γ_i -- all in reference to the 'most commonly accepted' discounting period.

Note that A_i is a composite artifact. It is a weighted average of 'dominant' conventions and hence could differ from the 'dominant' view on what the corporation is worth. While the choice between these distinct interpretations may have little practical significance (after all, we are dealing here with rather imprecise magnitudes), it is important for our analytical inquiry here. The businessman's ultimate concern may be with the corporation's 'true' underlying value, but his actions derive from and seek to affect the basic *determinants* of that value. In trying to augment its pace of accumulation, the modern corporation will focus specifically on raising earning capacity and reducing risk so as to affect what the 'business community' thinks about these variables. Similarly, in coming to evaluate different undertakings, investors will be looking for these same determinants. It is this preoccupation with the right-hand side components of Equation (1) which makes this composite definition of A_i central to our discussion.

The relationship between the corporation's 'true' value and its observed values can be examined on two separate levels. The value of A_i would usually differ from its observed proxies. This is most obvious when we examine the accounting value of 'total assets' as reported in the corporation's balance sheet. Accepted accounting principles dictate that assets be quoted at historical cost, so the aggregate value of those assets would reflect a complex set of temporal valuations. Other difficulties arise when

we consider the 'current value' of a corporation as given by the combined market value of its equity and debt. Although stock and bond prices supposedly reflect the contemporaneous 'market opinion' on the various elements of Equation (1), they are in fact heavily 'contaminated' by speculation. Even when a corporation is acquired by another firm, it is still hard to establish any meaningful relationship between the 'transaction value' and the prevailing capitalized earning capacity. A merger is usually conceived, negotiated and executed by a limited group of individuals, with a specific set of perceptions, operating under a unique set of circumstances. Given the singular nature of this process, there is little reason for the resulting transaction value to be similar to the contemporaneous A_i.

These discrepancies, perhaps, become less significant when we move from levels to patterns of change. Thus, if A_i has been consistently rising, we could reasonably expect that the corporation's observed values would tend to increase as well. Similarly, if A_i has been moving on a continuous downward trend, it would be highly unlikely for the accounting, market and transaction values not to follow suit. The magnitudes of these variables will certainly be different from one another, but their general movement will follow that of A_i. In fact, it may be no severe exaggeration to say that, in the final analysis, the fate of a modern corporation hinges primarily on this composite artifact of 'prevalent' views. For example, if the 'business community' foresees a healthy increase in the future flow of low-risk profits for Microsoft, the company will find it easier to raise additional equity and debt, the price of its stock will tend to rise and, if this corporation were to become a target for merger or acquisition, its transaction price would likely increase. On the other hand, if the general business outlook for a company like Chrysler is grim, its creditors may call in some loans, the price of its shares may plummet and, if this negative outlook persisted, Chrysler could simply go out of business. In these and every other case, the 'dominant' business view acts as the primary compass showing the direction which the corporation's observed values tend to follow.

From this perspective, the process of 'capital accumulation' is really an 'amalgamation of business conventions.' Business capital is a social institution, and much like any other social institution -- such as 'money,' 'free contract,' 'democratic government,' or even 'divine kingship' -- it, too, must be ultimately based on customary habits of thinking. In that sense, the corporation's capitalized earning

capacity A is a very 'real' variable: despite its fundamental intangibility, *it is the major preoccupation of business enterprise*. For this reason it may be argued that, in the context of a large-scale business enterprise, *the goal of capital accumulation is synonymous with an ongoing increase of* A_i.

The next question is how does one evaluate the pace of accumulation? What is the principal yardstick for financial success? One common practice is to argue that the ultimate goal of accumulation is the quest for hedonic consumption, and then subtract from the rate of change of A_i the rate of change of an appropriate price index to obtain the so-called 'real' rate of accumulation. As we see it, however, the primary essence of large-scale accumulation is not the *purchasing power* of accumulated capital, but rather the *business power* conveyed by that capital. 'Power' is always a differential relationship and could be evaluated only in differential terms. Within the antagonistic/emulative culture of 'free enterprise,' the ultimate issue is not merely how many more yachts the owner could buy, but the pace at which his nominal holdings grow *relative to those of other owners*. Thus, to the extent that capital accumulation is indeed the means and end of business power, it should be measured not against a basket of commodities, but in relation to other firms. The most significant financial standard for such comparison is the *average* performance for the corporate universe in which the individual firm operates. We turn to an examination of this yardstick now.

By analogy to Equation (1), suppose we define the 'average' corporate value A_a in a specific universe of corporations, such that

$$(2) \qquad A_a \equiv EC_a \,/\, (N \cdot \Gamma_a) \,,$$

where EC_a is what the 'business community' considers as the average earning capacity in the corporate universe, Γ_a is the dominant perception regarding the average risk premium and N is the commonly accepted value for the economy's normal rate of return. As a composite variable, the 'average' corporate value A_a would generally differ from the arithmetic average of the A_i's. From an analytical perspective, the former artifact is perhaps more adequate because it refers explicitly to the underlying perceived 'averages' for earning capacity and risk, that is, to the operational reference points of accumulation.

Moving from levels to rates of change, we can now define the *differential rate of accumulation* DRA_i for an individual corporation i as the difference between its own individual rate of accumulation a_i and the 'average' rate of accumulation a_a for the corporate universe in which it operates:

$$
\begin{aligned}
(3) \qquad DRA_i &\equiv a_i - a_a \\
&\approx [ec_i - (n + \gamma_i)] - [ec_a - (n + \gamma_a)] \\
&\approx (ec_i - ec_a) - (\gamma_i - \gamma_a) ,
\end{aligned}
$$

where a_i and a_a are the respective rates of growth of A_i and A_a, ec_i and ec_a are the rates of change of earning capacity EC_i and EC_a, γ_i and γ_a are the rates of change of the risk premia Γ_i and Γ_a, and n is the rate of change of the normal rate of return.[2] This differential rate of accumulation, we argue, is the principal target of large-scale business enterprise; to the extent that large corporations indeed strive toward some universal end, their prime focus is not some 'objective' profit or wealth function, but rather *the degree to which they exceed the average pace of accumulation*.

The quest for differential pecuniary accumulation is fundamentally different from customary notions about 'profit maximization.' Firstly, unlike the classical and neoclassical emphasis on *material* accumulation which is bound by some physical constraints, differential pecuniary accumulation is denominated in *nominal* units. Secondly, differential pecuniary accumulation focuses on *relative* performance. Even when a large firm succeeds in affecting its own rate of accumulation, its negligible influence on the 'average' rate of accumulation leaves its *DRA* indeterminate. Finally, corporate values are a matter of subjective conjectures. They depend on anticipations for earnings, unclear notions of risk, customary beliefs about a normal rate of return and arbitrary choices of discounting periods -- all of which tend to shift and swing independently of the so-called 'objective' circumstances. As it stands, then, the corporation's differential rate of accumulation DRA_i has no 'well-defined' properties and cannot be 'maximized.'

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[2] Since the normal rate of return appears in both equations (1) and (2), its rate of change is eliminated from the final expression. On 'risk classes' as usually associated with the earlier Modigliani-Miller literature, see Archer and d'Ambrosio (1967).

But how could the quest for differential pecuniary accumulation tell us something about inflationary restructuring if Equation (3) has no well-defined properties and DRA_i cannot be optimized? Is this elusiveness not detrimental to our inquiry? Not at all. With the growth of large distributional coalitions and collective action, the element of *choice* assumes a crucial significance, leaving the *eventual* course of events inherently uncertain. In this *historical* context, finding 'optimal solutions' for determinate logical systems may not be very helpful. Consequently, we seek not to predict business behaviour but rather to assess the evolution of business strategies; we do not wish to explain equilibrium and structural stability but rather to explore the dynamics of structural change. In short, we look for the unfolding of *historical alternatives*. If we are right and economic development is *not* predetermined, the notion of differential pecuniary accumulation becomes a very useful analytical tool. As we argue below, the relationship between inflation and restructuring is multidimensional and this is precisely what the principle of differential pecuniary accumulation helps us unveil. Instead of misleading us toward looking for the *inevitable*, it points out the *possible*.

9.2 Differential Pecuniary Accumulation and Aggregate Concentration

The emphasis on differential pecuniary accumulation has two far-reaching implications. It implies, firstly, that the goal of large-scale business activity is *inherently dynamic* and, secondly, that the successful realization of this goal is commensurate to *continuous business restructuring*. Let us examine these implications more closely. We started in the previous section by suggesting that large corporations were concerned not with the 'real' purchasing power of their assets, but with their nominal position relative to other firms. We then argued that, in a dynamic 'forward-looking' context, the main issue is not how the corporation's holdings compare with those of other firms, but rather how much faster they tend to expand. In other words, that the chief preoccupation of big business is not so much with *relative levels* as with *relative rates of change*. Now, if this emphasis on relative dynamics is warranted, it calls into question the traditional practice of building macroeconomic models on inherently static microeconomic foundations. The problem is fairly simple. In trying to exceed the 'average' pace of accumulation of their corporate universe, large firms are in effect seeking to *increase* their relative share in the aggregate

assets of that universe. In other words, their prime goal of differential pecuniary accumulation is akin to a *continuous restructuring of business relations and institutions*. But if this is indeed the *modus operandi* of the dominant firms in our economy, how could we assume that such an economy functions within a stable microeconomic structure?

These methodological issues are particularly significant because the 'drive to restructure' is, in effect, part of the business creed itself. We have already emphasized in Chapter 6 that, under the new order of mature capitalism, business success depends on ceaseless restructuring. Here, we go even further, suggesting that continuous structural change is not only the *means* of large-scale accumulation, but also its *most fundamental goal*.[3] Large firms do not operate within a stable economic environment, nor do they treat their environment as given. On the contrary, the broad consequences of their actions and, most importantly, their very *aims*, could be understood only in terms of incessant structural change. Indeed, as we have illustrated in the previous chapter and demonstrate further below, dynamic restructuring is the principal link between microeconomic behaviour and macroeconomic phenomena. To assume that, 'for the purpose of analysis,' structure is somehow static, is to divorce that analysis from one of the most crucial features of modern capitalism.

The most important structural manifestation of differential pecuniary accumulation is the *process of aggregate concentration*. The nature of this link becomes evident as we broaden our focus from the single giant corporation to the 'big economy' as a whole. Suppose we adopt an operational definition for the 'core' of a given corporate universe as comprising the L largest firms in that universe, such as the 500 largest firms of the 'industrial' sector. The aggregate concentration ratio for this universe could then be given by the proportion of total assets controlled by the L core firms, such that

$$(4) \qquad ACR_A \equiv A_L/A \ ,$$

[3] This view is closer to Veblen, who saw the large corporation as an *active* destabilizing force, than to Olson, who interpreted the actions of such firms as *passive* responses to changing circumstances.

where A_L is the total value of the L core corporations and A is the aggregate value of entire corporate universe. This ratio can be approximated by Equation (5):

$$(5) \qquad ACR_A \approx (A_l \cdot L) \,/\, (A_a \cdot NUM) \,,$$

where A_l is the value of a 'typical' core firm, L is the fixed number of core firms, A_a is the 'average' corporate value, and *NUM* is the number of firms in the corporate universe. [The value of a 'typical' core firm is analogous to that of the 'average' corporation as defined in Equation (2).] Moving now from the *level* of aggregate concentration to the *process* of aggregate concentration we get

$$(6) \qquad acr_A \approx (a_l - a_a) - num \,,$$

or

$$(7) \qquad acr_A \approx DRA_l - num \,,$$

where acr_A is the rate of aggregate concentration ($\Delta ACR_A/ACR$) and *num* is the rate of change of the number of firms ($\Delta NUM/NUM$). The rate of aggregate concentration, then, is approximately equal to the differential rate of accumulation for a 'typical' core firm less the relative change in the overall number of firms. If we rewrite Equation (7), such that

$$(8) \qquad DRA_l \approx acr_A + num \,,$$

we can see that the differential rate of accumulation for a 'typical' core firm depends positively on both the increase in aggregate concentration, as well as on the rise in the total number of firms. Since core firms have little control over the total number of firms in their universe, their effort to 'out-perform' the average would tend to raise the rate of aggregate concentration. Thus, to the extent that large firms are indeed driven by the principle of differential pecuniary accumulation, their composite goal would call for *an ever-increasing rate of aggregate concentration*!

If these conjectures are valid, they imply that, contrary to common conceptions, the process of aggregate concentration is not merely a *consequence* of modern economic development but, indeed, its very *raison d'être*. What we claim here, is that the on-going increase in the share of assets controlled by the largest firms in our economy is neither a strategic means of accumulating 'real' wealth, nor a Darwinian corollary resulting from the competitive pursuit of that hedonic end. Instead, we submit that the order of significance must be reversed: the increases in the amount of 'real' wealth controlled by the large corporations should be viewed as coincidental to the ultimate redistributional goal of increasing aggregate concentration.

This shift of focus from the static realm of tangible variables to the dynamic arena of nominal distribution raises several fundamental questions. Given the primacy of differential pecuniary accumulation, we must now ask what determine the differential rate of accumulation DRA_l for a 'typical' core firm? Under what circumstances will this rate be positive, zero or negative? What could large firms do to increase this rate? And most significantly, what are the consequences of differential pecuniary accumulation for the macroeconomic dynamics of inflation and stagnation? We turn to address these question now.

9.3 The Core's Differential Rate of Accumulation and Macroeconomic Dynamics

To reiterate, as defined in Equation (3), the differential rate of accumulation for a 'typical' core firm l is given by

$$(3) \qquad DRA_l \approx a_l - a_a \approx (ec_l - ec_a) - (\gamma_l - \gamma_a) \, .$$

The level of DRA_l thus depends on the differential growth of earning capacity $(ec_l - ec_a)$, as well as on the differential growth of the risk premia $(\gamma_l - \gamma_a)$. These two differences are not independent of each other, of course. Both expected earning capacity as well as its associated 'risk' premium depend on what

happens to actual earnings and, given this link, we may expect that there also be some relationship between $(ec_l - ec_a)$ and $(\gamma_l - \gamma_a)$. Let us examine these interrelated components more closely, beginning with the differential growth of earning capacity.

As defined in the first section, earning capacity *EC* refers to anticipated corporate income -- including both interest on debt and net profit on equity. While the magnitude of this variable depends on past and current conditions, the exact nature of that dependency is unfortunately obscure and probably quite unstable. We can reasonably conjecture, however, that the most important factor affecting earning capacity *EC* is the corporation's actual net profit Π and that, *over a sufficiently long period of time*, the two variables will tend to move more or less in the same direction. Indeed, a rising trend for net profit is usually accompanied by expectations that the trend will continue and also that this will enable the corporation to service a larger debt load. Similarly, an ongoing decline for net profit commonly raises fears for further decreases and it also tends to downgrade expectations about the corporation's debt-service capacity. Businessmen could, of course, anticipate an upturn or a downturn in earnings before it actually occurs so, for a while, *EC* and Π would move in opposite directions. This, however, would constitute only a short-term aberration. Sooner or later, net profit Π would change direction, or, if that failed to happen, there would be a reversal in the course of earning capacity *EC*. Over an extended period of time, the two magnitudes are still likely to follow the same general path.

Suppose, then, that for both a 'typical' large corporation *l*, as well as for the 'average' firm *a*, earning capacity *EC* and net profit Π move together, and suppose further that the ratio of their earning capacities EC_l/EC_a moves together with the ratio of their net profit Π_l/Π_a, so

$$(9) \qquad (ec_l - ec_a) = \psi\ (\pi_l - \pi_a)\ ,$$

where ψ is a non-stationary positive parameter. In conventional business terms, Equation (9) means simply that the faster the expansion of the firm's net profit relative to the average, the more rapidly will its expected earning capacity grow relative to the average. This need not always be the case, of course, but it is the 'common sense' which guides business action: future expectations are affected by current

developments and, in order to raise the differential growth of earning capacity, you must strive to increase the differential growth of current profits.

In what ways could the corporation affect this latter differential? Conceptually, the net profit of a firm (Π) could be viewed as depending on both the ***breadth of accumulation***, denoted by the number of employees working for the firm, and the ***depth of accumulation***, designated by the level of net profit per employee, such that

(10a) $\Pi = E \cdot \Pi E$,

where E is the number of employees, and ΠE is net profit per employee as given by the ratio Π / E. This could be decomposed further by writing the depth of accumulation ΠE as a product of sales per employee SE and the markup K, such that

(10b) $\Pi = E \cdot SE \cdot K$,

where SE is the ratio of sales revenues to employment (S/E) and K is the ratio of net profit to sales revenues (Π / S).

If, by analogy, we use these equations to describe the sources of net profit both for a 'typical' core firm as well as for the 'average' firm, we can then approximate the *differential* rate of growth of net profit ($\pi_l - \pi_a$) for a 'typical' core firm, such that

(11a) $(\pi_l - \pi_a) \approx (e_l - e_a) + (\pi e_l - \pi e_a)$

or

(11b) $(\pi_l - \pi_a) \approx (e_l - e_a) + (se_l - se_a) + (k_l - k_a)$,

where, for each type of firm, e is the rate of growth of employment per firm, πe is the rate of growth of net profit per employee, se is the rate of growth of sales per employee and k is the rate of change of the markup. Thus, the extent to which the net profit of a 'typical' core firm grows faster than the 'average' depends on two principal factors: (1) the differential increase in the *breadth* of accumulation given by $(e_l - e_a)$, and (2) the differential increase in the *depth* of accumulation denoted by $(\pi e_l - \pi e_a)$. This latter magnitude is, in turn, the approximate sum of two separate differences: (2a) the differential rate of growth of sales per employee $(se_l - se_a)$ (which is simply the difference between the respective rates of "Inflation" for the large and 'average' firm), and (2b) the differential rate of change for the markup $(k_l - k_a)$.

In order to assess the significance of this decomposition, we assume for the rest of this chapter that all variables pertaining to the 'average' and typical 'large' denote simple arithmetic averages for the corporate universe and its core, respectively. Because of aggregation problems, these approximations may not be very accurate but, since our concern here is only with very general trends, the potential imprecision need not be a major matter for concern.

The Breadth of Accumulation. Core firms can expand their breadth of accumulation either internally, by creating new industrial capacity and hiring new workers to operate it, or externally, by buying other companies and taking over their existing capacity and labour force. While the effect of both methods on e_l is identical, their impact on e_a -- and, hence, on the *differential* increase in the breadth of accumulation $(e_l - e_a)$ -- is different. To explain this difference, consider the rate of growth of average employment e_a as given by Equation (12)

$$(12) \qquad e_a \approx e - num \ ,$$

where e is the rate of growth of overall employment in the corporate universe and *num* is the rate of change of the total number of firms. By inspecting this relationship, it is clear that both internal and external growth for core firms have a positive impact on e_a. Internal growth raises e but has no effect on *num*. External growth *via* mergers and acquisitions, on the other hand, lowers *num* but leaves e

unchanged. (We refer here only to intra-universe mergers and acquisitions which merely transfer employees between different firms of the same universe. The effect on e_a of acquiring firms from *outside* the corporate universe is identical to that of internal growth.) Note, however, that while the impact on e_a of both methods of expansion is positive, there is an important difference in magnitudes: since core firms tend to acquire relatively *large* firms, the effect of their external growth on *num* will tend to be significantly smaller than the impact of a comparable internal growth on *e*. Now, in practice, the specific choice of any *individual* firm between internal or external expansion has only a negligible impact on $(e_l - e_a)$ simply because, in a large universe of corporations, even the biggest firm is still too small to significantly affect e_a. That could not be said, however, for the experience of the entire core. Everything else remaining the same, if *most* large firms chose to expand externally by buying other firms, the differential increase in their breadth of accumulation would be higher than if they decided to expand internally by creating new capacity.[4]

The Depth of Accumulation. Net profit per employee ΠE could be augmented by cutting cost per employee which raises *K*, by generating "Inflation" which increases sales per employee and boosts *SE* as well as *K*, or through some combination of both. These two methods are nevertheless different in that cost-cutting could be achieved independently by the individual firm, while raising sales revenues per employee through "Inflation" usually necessitates the cooperation of other firms. Specifically, since the ability to increase productivity and reduce factor cost is often independent of corporate size, we may reasonably argue that cost-cutting alone could have only a limited impact on $(k_l - k_a)$. The simultaneous augmenting of *SE* and *K via* "Inflation," on the other hand, requires collective action and hence depends largely on the *initiative of large firms*. Unlike cost-cutting, then, the *concurrent rise of SE and K must start*

[4] To illustrate the potential significance of these differences, consider a universe of 200,000 firms and 40,000,000 employees in which there is a core of 500 large corporations, each employing 40,000 workers. Suppose first that a single core firms raises its employment by 50 percent to 60,000. If the expansion takes place internally, it will increase the average employment by 0.05 percent (from 200 to 200.1), so the $(e_l - e_a)$ differential will be 49.95 percent. If the firm chooses to expand externally by acquiring another firm with 20,000 employees, there will be a reduction of 0.0005 percent in the number of firms (from 200,000 to 199,999), so the $(e_l - e_a)$ difference will be marginally higher, at 49.9995 percent. Suppose now that every core firm adds 20,000 employees and that all of them do it in the same way. Achieving this through internal growth will raise average employment by 25 percent (from 200 to 250), so the $(e_l - e_a)$ differential will be only 25 percent. Adding the same number of employees through external growth, on the other hand, will reduce the number of firms by 0.25 percent (from 200,000 to 199,500), so the differential expansion $(e_l - e_a)$ for core firms will be almost twice as high, at 49.75 percent.

at the core. These initial inflationary increases may be subsequently followed by smaller firms. Furthermore, workers may respond by demanding and receiving higher wages, so cost will rise as well. Yet, the initial spark would usually stem from the big economy and, *at that point in time*, since the depth of accumulation for large firms is rising faster than the average, the "Inflation" impetus would have the effect of raising $(\pi e_l - \pi e_a)$. In the modern context of mature capitalism, with an already ongoing inflation, the mere increase in *SE* is of course no longer sufficient to assure a distributional gain. Under these latter circumstances, the key toward raising the differential depth of accumulation shifts from the rate of "Inflation" itself, to *changes* in the rate of "Inflation." Thus, within the inflation-prone environment of large-scale business enterprise, the 'inflationary spark' from the core means not simply a higher *SE*, but a higher *se*.

These considerations may help explain certain patterns in the historical interaction between corporate restructuring and macroeconomic stagflation. To begin with, note that core firms are strongly disposed toward external growth. As we elaborated in Chapter 6, the evolution of U.S. capitalism since the end of the 19th century was characterized by the chronic spectre of excess capacity. With technological progress continuously outpacing population growth, profits depended crucially on the 'strategic limitation of industry.' Existing industrial operations had to be ceaselessly rationalized which meant that, for the large firms, increases in the breadth of accumulation had to depend mainly on external growth through mergers and acquisitions. Moreover, business amalgamation was in many cases a primary prerequisite for industrial rationalization which made large firms even more inclined toward external expansion.

Now, as long as core firms continue to expand externally, their breadth of accumulation is likely to grow faster than the average, so $(e_l - e_a)$ will tend to be positive. That means that, even if their profits per employee grow only as fast as the average -- that is, even if $(\pi e_l - \pi e_a)$ is approximately zero -- these corporations will still be able to expand their overall net profit faster than the average firm in their universe, and maintain a positive value for $(ec_l - ec_a)$. Large firms are not prevented, of course, from also trying to exceed the average growth of sales per employee but, as long as $(e_l - e_a)$ is deemed to be 'sufficiently' high, that additional course of action is not very likely.

The rationale behind this strategic choice is fairly simple. The ultimate goal of large-scale business enterprise is the differential accumulation of *capital* and, as can be seen from Equation (3), this depends not only on earning capacity, but also on risk. External growth through mergers and acquisitions consolidates the power of corporate coalitions, which facilitates cooperation and stabilizes the growth of profit. In many cases, external growth also leads to higher product diversification which tends to stabilize the growth of profit even further. The strategy is highly beneficial for it enables the large corporation not only to exceed the average growth of profit, but also to curtail its relative risk premium. It is under these advantageous circumstances of external growth -- and usually only under these circumstances -- that large firms find it feasible to establish a so-called 'target' rate of return and follow 'markup pricing' to achieve it. As we argue below, attempting to boost the differential growth of profit with higher "Inflation" tends to destabilize the growth of profit and adversely affect the associated risk premium. With 'healthy' increases in the differential breadth of accumulation, however, there is no need to 'rock the boat.' Net profit and, hence, earning capacity tend to grow faster than the average, while the stability of net profit reduces the relative risk premium which augments the differential rate of accumulation even further.

External growth may not always be feasible or even desirable, however. Mergers and acquisitions depend on a host of factors -- such as the prospects of enhanced monopolistic control, speculative gains, tax savings, overhead rationalization, and changing attitudes of policy markers and regulators -- and when these or similar factors reduce the external growth of core firms, they also tend to lower the corresponding value of $(e_I - e_a)$. In fact, even if mergers and acquisitions were to continue unabated, adding every year to the ranks of each large firm a given number of relocated employees, the impact of these transfers on the rate of growth e_I would gradually diminish with the growing magnitude of E_I.

When their breadth of accumulation no longer grows faster than the average, core firms reluctantly try to alter their depth of accumulation. At such times, the apparently passive practices of markup pricing are no longer useful and must give way to inflationary initiatives toward raising ΠE. The

eventual benefit for core firms from perusing this alternative strategy is uncertain, however. An inflationary spark emanating from the core creates a ripple effect of rising prices and wages throughout the economy. This raises costs per employee for the core firms, as well as the average net profit per employee in the corporate universe, which, together, tend to reduce the initial differential gains of large firms. Furthermore, the heightened instability increases the relative risk premium associated with the earnings of large firms, which tends to adversely affect their overall rate of accumulation. Finally, and perhaps most importantly, in the context of a 'closed' market with little population growth, expanding the depth of accumulation commonly means stagflation -- that is, not only inflationary increases in sales, but also stagnating or even falling employment and output (see below). These considerations explain some of the self-expressed 'dislike' of large firms for inflation. They would much rather rely on external employment growth but, when that is infeasible, raising sales per employee remains their only alternative option.

In the context of large-scale business enterprise, there is then an intimate link between stagflation and the differential pecuniary accumulation of core firms. As we have argued in Chapter 6, persisting excess capacity and growing profits could coexist only with managed stagnation and ongoing inflation, and that necessitates the collective action of corporate coalitions. The role of large firms in the inflation process is crucial. Inflation could certainly arise without the collective action of large corporations but it could rarely *last* without it. Under the 'unfortunate' combination of rapid technological advances and limited population growth, an ongoing increase in prices could not be maintained without the strategic limitation of industrial output, and that could be administered only by the large corporate coalitions. In this sense, we could say that the large corporations are the modern *inflation makers*, while the smaller firms operate as *inflation takers*. This dichotomy does not imply that periphery firms must somehow 'abide' by the core's rate of inflation. Indeed, as our analyses in the previous chapter suggested, small firms raised their prices faster than the large corporations during much of the 1950s and 1960s, and then increased them more slowly during the 1970s and 1980s. The crucial point here is not that one group of firms experiences a more rapid inflation than the other, but rather that without the strategic cooperation among the large firms, mature capitalism would have very little inflation to begin with. Firstly, there is a certain minimum rate of inflation which emanates from the very

process of coalition formation: the increasing capitalization of progressively larger business alliances has to be 'supported' by higher profits which, in the context of excess capacity, can be achieved only with rising prices. Secondly, substantial changes in the overall level of inflation could be sustained only with the 'consent' of the large core coalitions. Inflation, then, is an integral part of the growth and restructuring of large-scale business enterprise. It emanates from the big economy and that is why we view the large core firms as 'inflation makers.'

Given this paramount role of 'inflation makers,' we can say that the overall rate of inflation prevailing in any corporate universe depends first and foremost on the *inflation consensus* at the core of that universe. On the face of it, the inflation consensus seems a rather innocent variable: it is simply what the largest corporate coalitions regard as an 'adequate' rate of inflation under the circumstances. Since the 1960s, economists have paid considerable attention to the notion of inflationary expectations. In our opinion, it is mostly in the corporate core, among the effective controllers of the large 'inflation makers,' that these expectations become a significant inflationary force. For the small, inflation-taking firms, inflationary expectation are at most a *guide for reaction*. In the core, on the other hand, such expectations constitute a *plan of action*. For core firms, the main question is not only how to survive in a changing world, but also how to alter it. For these companies, the real issue is not how to *maintain* their relative position despite the oncoming inflation, but how they should use inflation to *improve* that position. To do that, however, they must act collectively and that requires that they share similar inflationary expectations. In other words, the core's rate of inflation depends not simply on the inflationary plans of individual large firms, but on their *common* inflation consensus.

Although this consensus rate could not be predicted with any scientific accuracy, it is probably related -- though only in a very rough way -- to the distributional path chosen by the large corporate coalitions. A positive differential rate of accumulation for these groups could be achieved in one of two ways: either directly through a redistribution of profit between large and small business firms, or indirectly through a redistribution of income from labour to business. By raising their differential *breadth* of accumulation -- usually during a merger wave -- core firms achieve their differential goal *directly*, without altering the overall distribution between labour and capital income. This business-to-business

redistribution is likely to limit the inflation consensus at the core and, thus, the overall rate of inflation in the corporate universe. Without mergers and acquisitions, however, direct business-to-business becomes insignificant, thus driving core firms toward increasing their differential *depth* of accumulation. This latter strategy works *indirectly*, hinging on the ability of core firms to redistribute labour income faster than the average firm in their universe. To achieve this end, the large firms usually need to raise their inflation above the average. The consensus rate of inflation increases and an inflationary spiral gets under way.

Clearly, this relationship between inflation and corporate restructuring could not be reduced to any mathematical or statistical expression. First, while the inflation consensus may hinge on the actual value of $(e_l - e_a)$, it also depends on what the large firms deem 'satisfactory' or 'appropriate' -- and that may vary across time and place. For example, when the value of this differential drops significantly, say at the end of a long merger wave, large firms may regard the resulting differential rate of accumulation as 'intolerablly' low by recent historical standards. Following a decade of relatively moderate differential accumulation, however, this same rate may become more acceptable. Secondly, the overall rate of inflation depends not only on the initial spark from the core, but also on the response of smaller firms and workers, which in turn may alter the inflation consensus at the core. Thus, when the inflationary response of smaller firms and workers is belated and moderate, core firms will find their inflation strategy effective and that will keep their inflation consensus low. When the overall inflationary reaction is rapid, however, the initial inflationary gains may be reduced, prompting the large firms to upscale their inflation consensus even further.[5] These qualifications limit our ability to *predict* the rate of inflation. Fortunately, however, they do not diminish our understanding of its underlying *causes*.

Most conflict theories of inflation (such as Rowthorn, 1977 and 1980 for example) see the struggle between labour and capital as the root cause of inflation. While this overall conflict certainly affects inflation, in our opinion, the more crucial conflict is the one raging between firms through their

[5] A similar negative association between the overall rate of inflation and the extent to which inflation redistributes income in favour of the large firms was already suggested by Kotz (1982). His inflation theory, however, is rooted in the notion of limit-pricing which is fundamentally different from our analytical framework here (see Chapter 4).

quest for differential pecuniary accumulation. The ultimate goal for the inflation makers is to exceed not the rate of growth of wages, but the average pace of accumulation. From their limited perspective, the redistribution of income between labour and capital is merely a means by which that goal could be achieved. From a broader point of view, however, these two modes of redistribution carry drastically different implications. Direct firm-to-firm redistribution does not alter the labour share of income, so as long as core firms succeed in expanding the breadth of accumulation faster than the average, the process of business restructuring leaves a relatively little mark on the effective demand for wage goods. This, of course, does not imply full-capacity utilization and price stability. In order to increase profits despite growing productivity, the large firms must still rationalize their industrial operations through a combination of unemployment and price inflation. But as long as the overall distribution between capital and labour income remains relative stable, this stagflation will remain stable and low as well.

All of this changes when large firms try to achieve a differential rate of accumulation by raising their prices and markups faster than the average. The ultimate goal is still to redistribute profit between firms, but the means of achieving it is by reducing the share of labour income in their own sales. The likely outcome of this core strategy is a universal business drive toward higher prices which, as we show below, tends to reduce the overall share of labour income. The eventual consequence of this labour-to-business redistribution is stagnating wage-good consumption with obvious detrimental consequences for the general level of industrial activity. It is under these circumstances, when the area of contention shifts from the breadth to the depth of accumulation, that we tend to get a stagflationary crisis.

With this overall framework in mind, we can now return to the inflationary experience of the U.S. M&M sector. Our goal is to examine whether inflation and restructuring in that sector were indeed related to the differential pecuniary accumulation of the Fortune-500 core of firms in the manner suggested here. The following questions will be addressed in sequence: (1) What was the nature of differential pecuniary accumulation in the M&M sector? How did the pace of accumulation for the large firms compare with the M&M average? (2) What was the underlying pattern of interaction between profit and risk? (3) What factors contributed to the differential expansion of profit? Specifically, what

were the relative contributions of the breadth and depth of accumulation? (4) In the breadth of accumulation, what were the roles of external and internal growth? How were these affected by the changing patterns of mergers and acquisitions? (5) What happened to the depth of accumulation? How was it influenced by the differential rate of "Inflation" and the differential growth of the markup? (6) Does the inflation strategy of the Fortune 500 core appear consistent with our broad hypothesis? That is, did the large firms maintain a relative low inflation when their breadth of accumulation was rising faster than the average, but pushed it up when the relative increase in employment was no longer sufficient? To what extent was this strategy beneficial?

9.4 Differential Pecuniary Accumulation in the M&M Sector: Beginnings

Our analysis for the U.S. manufacturing and mining sector is based on five principal variables. In addition to sales and employment which were defined in Chapter 8, we also use data on assets, net profit and the number of corporations, as described below.

Assets figures are those which are reported in the corporations' end-of-year balance sheet statements, inclusive of consolidated domestic and foreign subsidiaries when reported. Data for all M&M firms are published by the Internal Revenue Service (IRS) in its *Statistics of Income, Corporations Income Tax Returns*. For Fortune-500 corporations, data are from the *Fortune 500* annual directory. Data for the 'Others' are computed as a residual between the M&M and Fortune 500 totals.

Net Profit refers to the overall annual profit net of taxes, including reported income of consolidated domestic and foreign subsidiaries. Figures for all M&M firms are computed from the IRS's *Statistics of Income, Corporations Income Tax Returns*, as the sum of income less deficit (pre-tax), wholly tax-exempt interest on government obligations, foreign tax credit, investment credit, and other credits -- less income tax.[6] Data for the Fortune-500 firms are from the *Fortune 500* directories and those for the 'Others' are again calculated as a residual.

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[6] Non-available data for the following years were imputed as an average of adjacent (preceding and trailing) observations: wholly tax-exempt interest on government obligations (1962, 1965), foreign tax credit (1952, 1957, 1961, 1965) and investment credit (1962, 1965).

Number of Corporations in the M&M universe is from the IRS's *Statistics of Income, Corporations Income Tax Returns*. The number of 'other' firms is given by subtracting from this total the Fortune-500 corporations.

With these basic data, we compute three sets of variables as in Table 9-1 -- both in levels (upper-case notations) as well as in rates of change (lower-case notations). There are five aggregate variables which approximate the overall size of the M&M universe, the Fortune-500 core and the periphery of 'other' firms. Then, there are four corporate-size indicators which provide different measurements for the average corporate size in each group (these are derived by dividing each aggregate variable by the corresponding number of firms). Finally, for each group of firms we calculate three different ratios. (As we indicated earlier, the corporate-size variables in each group may differ from the corresponding values for the so-called 'average' corporation in that group. However, since our analysis is concerned only with broad tendencies, the potential inaccuracies need not concern us here.) In Table 9-2, we list our operational variables for the various *differential* rates of change pertaining to a 'typical' Fortune-500 corporation. These are calculated by subtracting from the rate of change for a Fortune-500 firm the corresponding rate of change for an 'average' M&M firm (the differential-risk index listed at the bottom of the table is defined in the following section). We turn to consider these now, beginning with the differential rate of accumulation.

Our first question concerns the overall historical record of differential pecuniary accumulation. How did the pace of accumulation for the large Fortune-500 firms compare with the M&M average? What was the temporal pattern of their *DRA*? How did it change over time? Because there are no data on the 'true' value of a corporation, the answers to these questions must be indirect. As we have argued in the first section, it is reasonable to expect that, over a sufficiently long period of time, the corporation's accounting value of total assets will move together with its underlying 'true' value. This positive association is liable to be even stronger when we focus not on any particular firm, but on the average for a group of firms. So as long as we restrict our analysis to the general movement of averages, we could use the value of total assets as a reasonable approximation for capitalized earning capacity and as a basis for assessing the pace of differential pecuniary accumulation.

Table 9-1 Variable definitions and names: levels (upper-case) and rates of change (lower-case)

Variable Definition	Variable Name: All M&M Firms	Fortune 500	"Others"
Aggregates			
Assets ($ billion)	*MA ma*	*FA fa*	*OA oa*
Sales ($ billion)	*MS ms*	*FS fs*	*OS os*
Net Profit ($ billion)	*MΠ mπ*	*FΠ fπ*	*OΠ oπ*
Employees (million)	*ME me*	*FE fe*	*OE oe*
Number of Corporations	*MNUM mnum*	500 --	*ONUM onum*
Corporate Size			
Assets per Firm ($ billion)	*MAZ maz*	*FAZ faz*	*OAZ oaz*
Sales per Firm ($ billion)	*MSZ msz*	*FSZ fsz*	*OSZ osz*
Net Profit per Firm (million)	*MΠZ mπz*	*FΠZ fπz*	*OΠZ oπz*
Employees per Firm	*MEZ mez*	*FEZ fez*	*OEZ oez*
Ratios			
Sales per Employee ($)	*MSE mse*	*FSE fse*	*OSE ose*
Net Profit per Employee ($)	*MΠE mπe*	*FΠE fπe*	*OΠE oπe*
Markup (Net Profit/Sales, %)	*MK mk*	*FK fk*	*OK ok*

Table 9-2 Differential rates of change for a Fortune-500 firm: operational variables

Assets per Firm (Differential Rate of Accumulation, *DRA*)	$faz - maz$
Net Profit per Firm	$f\pi z - m\pi z$
Employees per Firm (Breadth of Accumulation)	$fez - mez$
Net Profit per Employee (Depth of Accumulation)	$f\pi e - m\pi e$
Sales per Employee	$fse - mse$
Markup	$fk - mk$
Differential-Risk Index (Normalized Deviations from Average)	$\lvert f\pi zn \rvert - \lvert m\pi zn \rvert$

Consider then Figures 9-1a and 9-1b, which describe the evolution of different size-indicators for assets over the 1950-1989 period. In Figure 9-1a, we plot the value of assets for an average Fortune-500 firm (*FAZ*), for an average 'other' firm (*OAZ*) and for an average M&M firm (*MAZ*). As the data indicate, the assets size of a typical Fortune-500 firm grew continuously between 1954 and 1989. The average asset size for the 'Others' remained more or less stable during the late 1950s and early 1960s, after which it, too, started to rise. Finally, the average assets per firm in the M&M universe grew only moderately between 1950 and 1965 and then began to increase more rapidly.

The relative pattern of development for the Fortune-500 firms is indicated in Figure 9-1b and summarized in Table 9-3. (In order to minimize cross referencing, we will be using this same table format repeatedly, with additional estimates being added as we proceed.) The Assets-per-Firm Ratio (*FAZ/MAZ*) denotes the ratio between the assets of a Fortune-500 corporation and those of an average M&M firm, and is charted in the upper part of this figure. In 1954, when Fortune-500 firms had an average asset level of $216 million and the corresponding value for an average M&M firm was $1.5 million, this ratio stood at 144. By 1970, the average asset size of Fortune-500 firms quadrupled to $864 million, and since the assets of an average M&M firm only doubled to $3 million, the Assets-per-Firm Ratio rose to 288. This ratio continued to climb, reaching a peak of 347 in 1981, and then declined to a level of 324 in 1986, when Fortune-500 firms had average assets of $3,122 million as compared with $9.6 million for an average M&M firm.

The rate of growth of the Assets-per-Firm Ratio *FAZ/MAZ* could be approximated by the differential rate of accumulation (*faz–maz*), as described by the bar chart at the bottom of Figure 9-1b. The overall pattern emerging from these data is one of a positive but *declining* differential rate of accumulation for the core firms. During the 1955-1970 period, this rate averaged 4.5 percent and, with the exception of 1968 and 1970, was positive throughout. This seems to have changed in the subsequent period between 1971 and 1986. The average value for (*faz–maz*) dropped to a meagre 0.8 percent and there was a marked increase in its year-to-year fluctuations, with many negative observations.

Figure 9-1a Total assets per firm

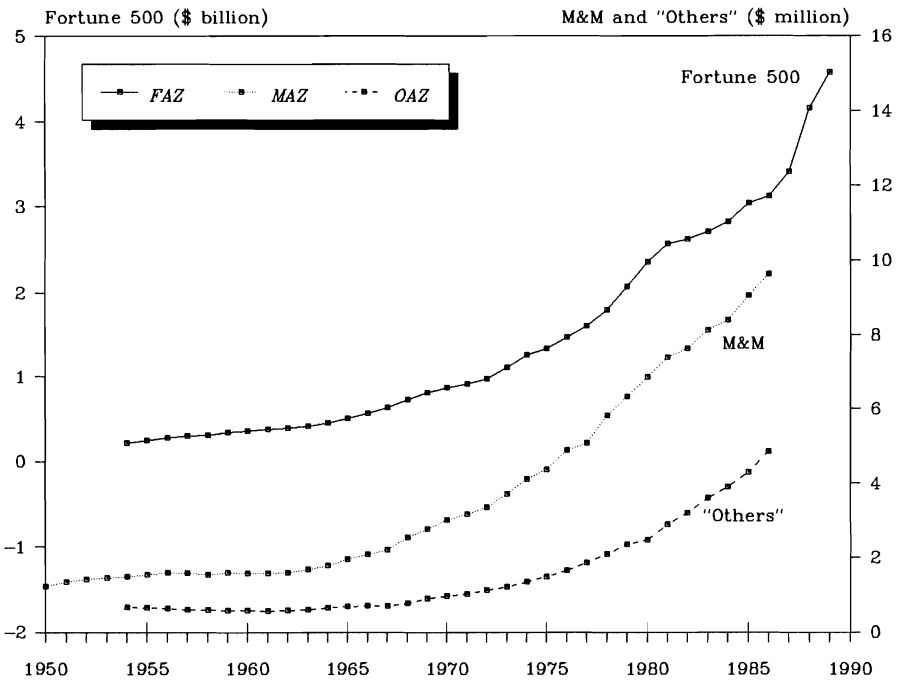


Figure 9-1b Differential pecuniary accumulation

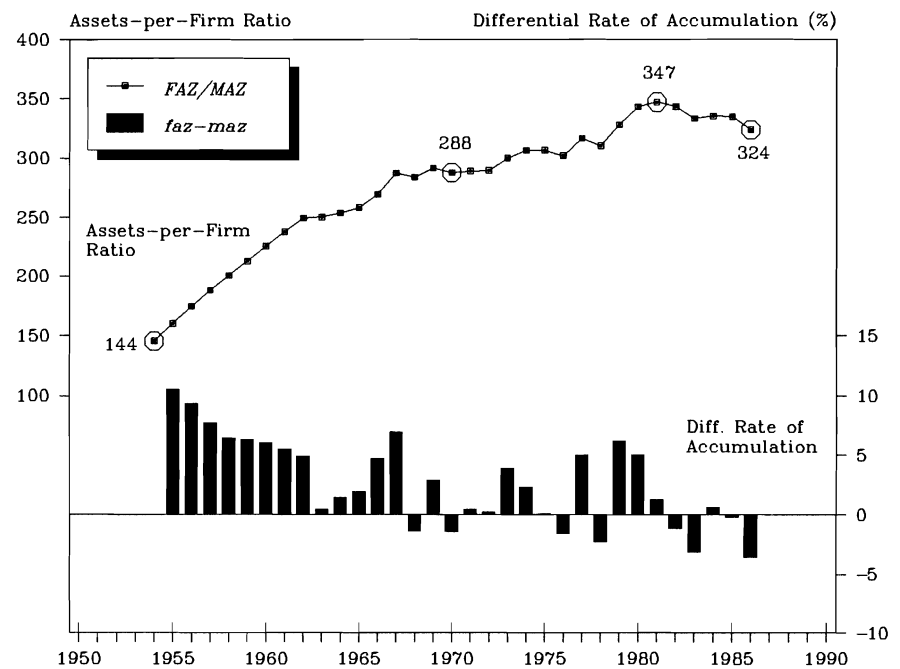


Table 9-3 Differential rates of change for a Fortune-500 firm (annual averages, percent)

Differential rate of change of:		1955-70	1971-86
Assets per Firm (Differential Rate of Accumulation, *DRA*)	$faz - maz$	4.5	0.8
Net Profit per Firm	$f\pi z - m\pi z$		
Employees per Firm (Breadth of Accumulation)	$fez - mez$		
Net Profit per Employee (Depth of Accumulation)	$f\pi e - m\pi e$		
Sales per Employee	$fse - mse$		
Markup	$fk - mk$		
Differential-Risk Index (Normalized Deviations from Average)	$\|f\pi zn\| - \|m\pi zn\|$		

In summary, over the past three decades, Fortune-500 firms found it increasingly difficult to 'beat the average': despite an ongoing expansion of their *own* assets, their *differential* rate of accumulation was slowly falling, approaching a near-zero average during the 1970s and 1980s. What were the causes behind this relative decline? How were these causes related to the *modus operandi* of the large firms? And what was the impact of these developments on the inflationary experience of the M&M sector? We turn to consider these issues now.

9.5 Profits and Risk

Recall that, in its abstract form, the differential rate of accumulation $(a_l - a_a)$ for a 'typical' large corporation l is given approximately by the differential rate of growth of the firm's earning capacity $(ec_l - ec_a)$, less the differential rate of change for its risk premium $(\gamma_l - \gamma_a)$. In Section 9-3 we also suggested that the magnitude of both of these differences depended on the temporal behaviour of *net profit*: the differential growth of anticipated earning capacity was affected by the differential rate of growth of net profit, while the differential rate of change in the risk premium was influenced by the relative variability in the growth rates of profits for the large and 'average' firm. Now, if our estimated differential rate of accumulation $(faz - maz)$ which is based on the accounting value of total assets is proportionate to the underlying differential rate of accumulation $(a_l - a_a)$ which is based on the

corresponding 'true' values, it follows that both differentials will be affected by the temporal behaviour of net profits in a similar way. Specifically, we would expect ($faz - maz$) to be influenced positively by the differential rate of growth for net profit ($f\pi z - m\pi z$), where $f\pi z$ and $m\pi z$ are the respective rates of change of net profit per firm for the Fortune 500 and the M&M universe, and negatively by the differential risk index ($|f\pi zn| - |m\pi zn|$), where $f\pi zn$ and $m\pi zn$ are corresponding measures of profit-growth variability which we shall define later. Let us examine these distinct influences, beginning with the rate of growth of net profit per firm.

Figures 9-2a and 9-2b chart relevant profit data for the 1950-1989 period. In Figure 9-2a, we contrast the annual profit per firm for the Fortune 500, the 'Others' and the M&M universe as a whole. In general, we distinguish between two main periods: the 1950s and 1960s which were characterized by relative stability, as opposed to the 1970s and 1980s in which there were marked fluctuations in all three series. During the first period, the average net profit for a Fortune-500 firm rose more or less continuously, from $17 million in 1954, to $43 million in 1970. Profits for the 'Others,' however, did not change by much, fluctuating around an average level of $23,000. For the M&M universe, profit per firm rose only marginally, from $75,000 in 1954, to $95,000 in 1970. The 1970s brought substantial changes. Within a decade, Fortune-500 firms more than tripled their average profits, which reached a level of $156 million by 1979. The relative increase for the 'Others' was even more spectacular: from an average loss of $6,800 in 1970 to an average net profit of $229,000 in 1979. Net profit per firm in the M&M universe was also rising rapidly, increasing five-fold to a level of $529,000 by 1979. Further changes in direction occurred in the early 1980s. While profits for the large core firms fluctuated around $150 million, those for the 'Others' as well as for the average M&M firm dropped sharply. (For the 'Others,' average net profit fell to pre-1970 levels.) During the late 1980s, there was a marked increase in the Fortune-500 series, but we have no comparable data for the two other series.

These relative changes are summarized in Figure 9-2b, as well as in Table 9-4, where they are contrasted with period averages for the differential rate of accumulation. In the upper part of Figure 9-2b, we plot the Profit-per-Firm Ratio $F\Pi Z/M\Pi Z$, while in the lower part we chart the ($f\pi z - m\pi z$) differential which is approximately equal to the rate of change of $F\Pi Z/M\Pi Z$. During the

Figure 9-2a Net profit per firm

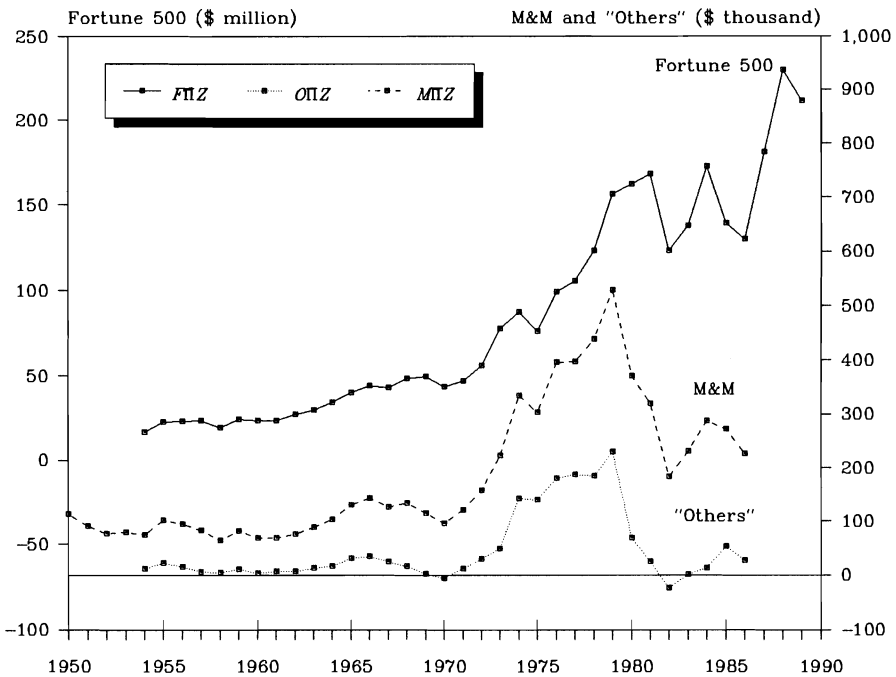
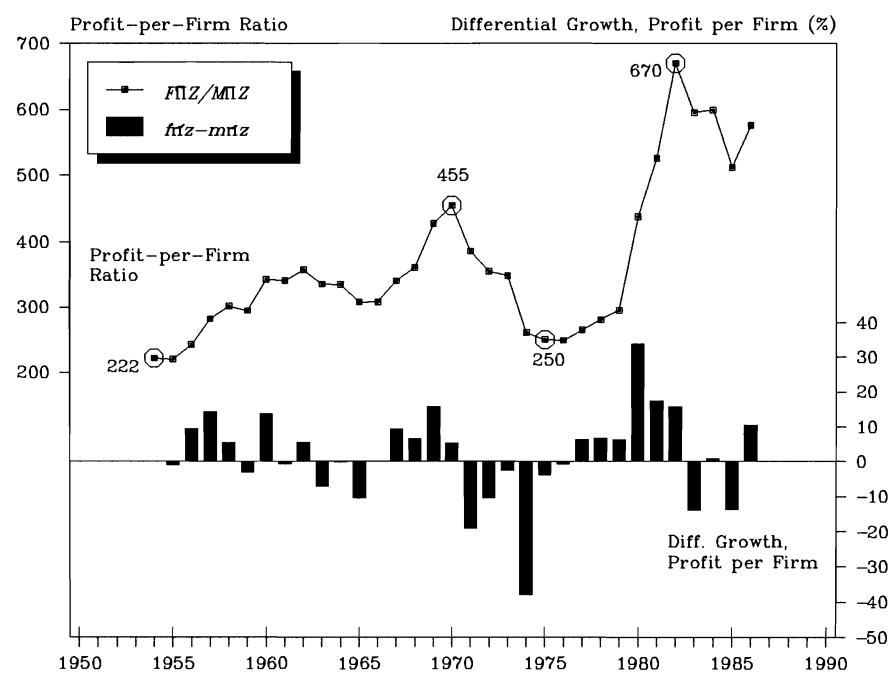


Figure 9-2b Net profit per firm: differential indicators



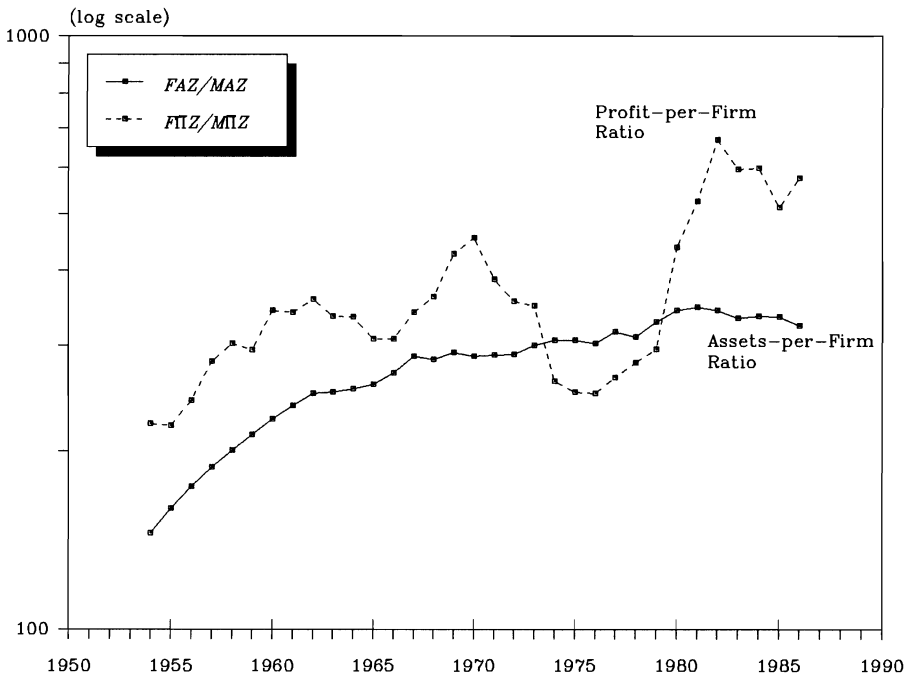
1950s and 1960s, Fortune-500 firms enjoyed a generally positive differential rate of growth for their net profits. The Profit-per-Firm Ratio $F\Pi Z/M\Pi Z$ followed an upward trend and, with an annual average of 3.9 percent for $(f\pi z - m\pi z)$, this ratio more than doubled from 222 in 1954, to 455 in 1970. The early 1970s brought a sharp reversal of trend. While profits for Fortune-500 firms were increasing rapidly, those for the average M&M firm rose even faster and, so, within half a decade (by 1975), $F\Pi Z/M\Pi Z$ has been reduced to a level of 250. Then came another turnaround. The rapid increase of $M\Pi Z$ was lessened somewhat, $(f\pi z - m\pi z)$ became positive once again and the Profit-per-Firm Ratio started to rise. After 1980, with the sharp drop in $M\Pi Z$, the ascent intensified, bringing $F\Pi Z/M\Pi Z$ to a new peak of 670 in 1982, which was subsequently followed by some decline.

Table 9-4 Differential rates of change for a Fortune-500 firm (annual averages, percent)

Differential rate of change of:		1955-70	1971-74	1975-86
Assets per Firm (Differential Rate of Accumulation, *DRA*)	$faz - maz$	4.5	1.7	0.5
Net Profit per Firm	$f\pi z - m\pi z$	3.9	-17.5	5.4
Employees per Firm (Breadth of Accumulation)	$fez - mez$			
Net Profit per Employee (Depth of Accumulation)	$f\pi e - m\pi e$			
Sales per Employee	$fse - mse$			
Markup	$fk - mk$			
Differential-Risk Index (Normalized Deviations from Average)	$\lvert f\pi zn \rvert - \lvert m\pi zn \rvert$			

How have these relative changes in profits affected the differential growth of assets for Fortune-500 firms? To consider this question, we plot in Figure 9-3 the Assets-per-Firm Ratio FAZ/MAZ, alongside the Profit-per-Firm Ratio $F\Pi Z/M\Pi Z$. (Average growth rates for both ratios are given in Table 9-4.) During the 1954-1970 period, the two series followed a similar trend: the Assets-per-Firm Ratio grew at an average annual rate of 4.5 percent, while the Profit-per-Firm Ratio expanded at an only marginally slower average rate of 3.9 percent. In the subsequent post-1970 period, the general association between the two ratios was no longer apparent. From 1971 to 1974, $F\Pi Z/M\Pi Z$ dropped at an average annual rate of 17.5 percent, while the growth of FAZ/MAZ merely slowed down

Figure 9-3 Differential pecuniary accumulation and relative profitability



to an average of 1.7 percent. Then, between 1975 and 1986, when $F\Pi Z/M\Pi Z$ was rising at an average rate of 5.4 percent per annum, the annual growth of FAZ/MAZ dropped further, to an average of 0.5 percent. All in all, from 1970 to 1986, the Profit-per-Firm Ratio rose by 27 percent, whereas the Assets-per-Firm Ratio increased by only 13 percent.

One possible explanation for this shifting relationship is a changing balance between the growth of profit and risk. During the 1950s and 1960, Fortune-500 firms enjoyed a rapid but relatively *stable* differential growth in their net profit. That had a positive impact on their differential growth of earning capacity while keeping risk premiums low -- a happy combination which fuelled the brisk differential accumulation evident in Figure 9-3. The situation was no longer as favourable during the 1970s and 1980s, when substantial variations in the differential growth of profits were associated with much smaller changes in the differential growth of assets. The reason may be traced to the heightened instability of profit growth and its effect on risk premiums, which we now examine more closely.

Consider Figures 9-4a and 9-4b, and Table 9-5 which provide some indications for this growing instability and its potential implications for risk premiums. In Figure 9-4a, we contrast the rate of growth of net profit per firm for the Fortune 500 ($f\pi z$) with the comparable rate for the average M&M firm ($m\pi z$). A visual inspection of this figure confirms that the variations in both series increased considerably after 1970. The data also reveal changes in period averages. As we can see in Table 9-5, between 1955 and 1970, the average rate of growth of net profit per firm was 7.0 percent for the Fortune-500 firms, but only 3.1 percent for the M&M universe. During the subsequent 1971-1986 period, the average rate for Fortune-500 firms rose marginally to 8.6 percent, while the corresponding rate for the M&M universe almost tripled to 8.9 percent.

What was the effect of these changes on relative risk premiums? The common approach to risk is to look on the variability of the *rate of profit on capital*, but that may not be wholly adequate when the magnitude of capital is, in itself, a function of profit. The problem is that, with forward-looking capitalization of earning capacity, the value of a corporation would tend to grow and contract together with profit, thus moderating the fluctuations in their ratio. This effect is partially concealed when we use

Figure 9-4a Growth rates of profit per firm

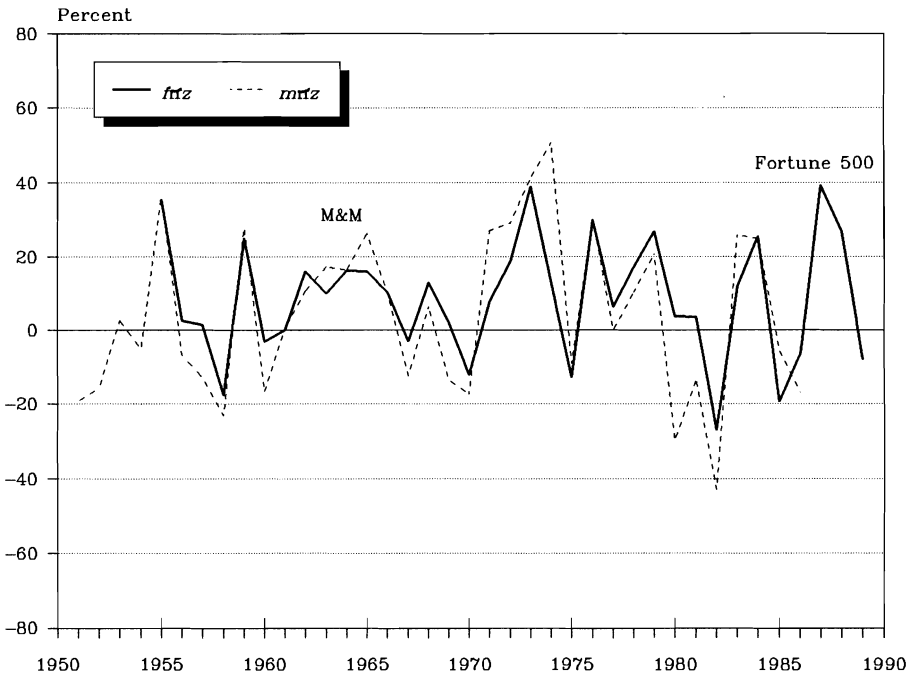
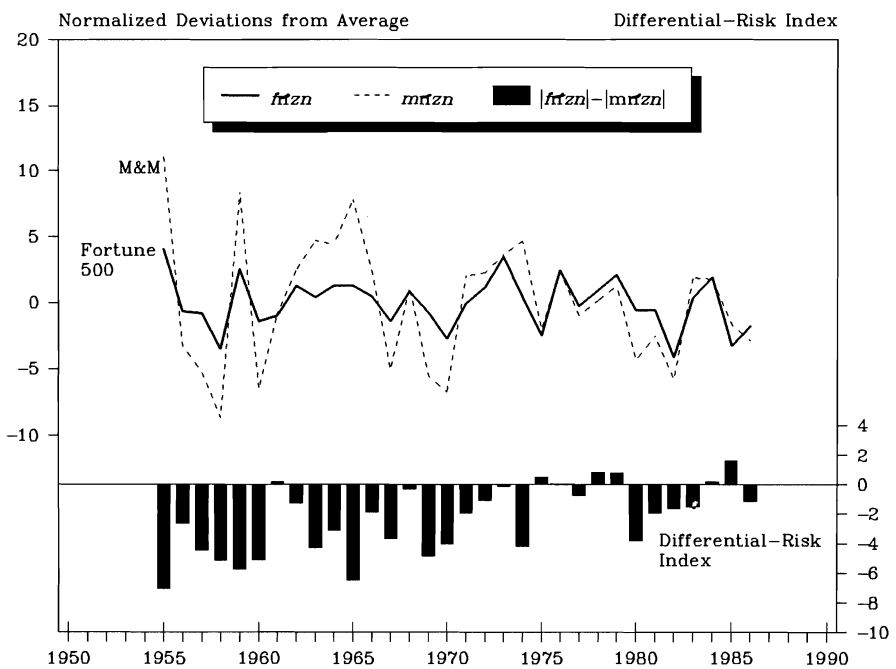


Figure 9-4b Risk indicators



historical values for assets, but is clearly evident when we deal with current values as quoted on the stock and bond markets. In order not to blur the picture, we focus only on profits. If the goal is a rapid growth of profit, the risk stems from fluctuations in that growth, so instead of looking at variations in the rate of profit, we should deal directly with variations in the *rate of growth of profit*.

Table 9-5 Net profit per firm: selected variability indicators (annual averages)*

	Rates of Growth (%)		Normalized Deviations from Period Average		Differential-Risk Index
Period	Fortune 500 ($f\pi z$)	M&M ($m\pi z$)	Fortune 500 ($f\pi zn$)	M&M ($m\pi zn$)	($\|f\pi zn\| - \|m\pi zn\|$)
1955-1970	7.0 (13.6)	3.1 (18.6)	0 (1.9)	0 (6.2)	-3.7
1971-1986	8.6 (18.3)	8.9 (26.7)	0 (2.1)	0 (3.0)	-0.9

* Standard deviations in brackets

To quantify these variations, let us define $f\pi zn$ as the normalized deviation of $f\pi z$ from its period average, such that

(13) $$f\pi zn \equiv (f\pi z - \overline{f\pi z}) \,/\, \overline{f\pi z}$$

and $m\pi zn$ as the normalized deviation of $m\pi z$ from its own period average:

(14) $$m\pi zn \equiv (m\pi z - \overline{m\pi z}) \,/\, \overline{m\pi z}\,,$$

where $\overline{f\pi z}$ and $\overline{m\pi z}$ are the average values for $f\pi z$ and $m\pi z$, respectively, over a given time interval. In order to account for changes in the average rates of growth, we computed $f\pi zn$ and $m\pi zn$ in stages: first for the 1955-1970 period (using the appropriate period averages $\overline{f\pi z}$ and $\overline{m\pi z}$ listed in Table 9-5), then for the 1971-1986 period (with its own values for $\overline{f\pi z}$ and $\overline{m\pi z}$) and, finally, we concatenated them to create 2 continuous series for the entire 1955-1986 period which are plotted in the upper part of

Figure 9-4b. In the bottom of the figure we chart the difference between the *absolute* values of these two normalized series. This latter difference could be interpreted as a differential-risk index: the annual values of ($|\pi zn| - |m\pi zn|$) indicate the extent to which the normalized deviations of πz from its period averages fell below or above the comparable normalized deviations of $m\pi z$ from its own period averages. Negative values for this index would signify that the growth of net profits for a Fortune-500 firm is more stable than the corresponding rate for the average M&M firm, while positive values would suggest it is more unstable.

The data indicate that, during the 1955-1970 era, net profit per firm in the Fortune-500 group not only grew much faster but was also far less risky that the M&M average. Indeed, while the standard deviation for $m\pi zn$ amounted to 6.2, it was merely 1.9 for πzn. This greater stability of profit-growth is illustrated by the large negative values for the differential-risk index ($|\pi zn| - |m\pi zn|$), which averaged −3.7 during that period. The data also show, however, that this 'variability-gap' was slowly closing, particularly after 1970. During this latter period, there was a marked increase in the average value $m\pi z$, which had the effect of reducing the standard deviation of $m\pi zn$ by more than a half, to 3.0. This, together with an increase in the standard deviation of πzn to 2.1, shrunk the negative magnitude of the differential-risk index to an average of only −0.9 over the 1971-1986 period.

Clearly, there was a gradual erosion over the past three decades in the 'stability-edge' which large firms reputedly possess over their smaller counterparts.[7] This, of course, is a *retrospective* view and hence would have been partly concealed from the *contemporary* business view which prevailed during the unfolding of events. Furthermore, the precise impact of variations in profit-growth on the subjective perceptions of 'risk' is forever obscure. Yet, given the persistent shrinking of ($|\pi zn| - |m\pi zn|$), it would seem safe to conclude that there must have been also a corresponding decrease in the (negative) magnitude of ($\gamma_l - \gamma_a$), which then contributed toward the falling tendency of ($faz - maz$).

[7] While there is abundant evidence on the positive link between corporate size and the stability of *rate* of profit (see, Bowring, 1986, pp. 134-150, for example), the effect of corporate size on the stability of the *growth* of profit received little or no attention. Moreover, most studies focus on a cross-section analysis for a given period of time and do not explore the possible variations of risk *over time*.

To summarize, during the 1950s and 1960s, Fortune-500 firms enjoyed a high positive value for ($fz - m\pi z$) and a large negative value for ($|fzn| - |m\pi zn|$) which, together, assured their high differential rate of accumulation ($faz - maz$). During the 1970s and 1980s, there were changes in the rates of growth of profit which affected both ($fz - m\pi z$) and ($|fzn| - |m\pi zn|$). The strong fluctuations in profits must have influenced expected earning capacity but, given the short-term nature of these fluctuations, the effect could not have been very large, which may partly explain the weaker impact of ($fz - m\pi z$) on ($faz - maz$) during that period. At the same time, the enhanced variability in the growth rates of profit shrank the (negative) value of ($|fzn| - |m\pi zn|$), and that may have contributed toward a lower average value for ($faz - maz$).

Given the crucial impact of net profit on both earning capacity and risk, it is clear that our analysis of differential pecuniary accumulation must start with the differential growth of net profit. Specifically, we must ask what determined the average magnitude of ($fz - m\pi z$)? Why was this difference relatively stable during the 1950s and 1960s? What made it more unstable in the 1970s and 1980s? To answer these questions, we need to break ($fz - m\pi z$) down to its constituent components.

9.6 Differential Changes in the Breadth and Depth of Accumulation: An Overview

In Section 9-3, we decomposed the differential rate of growth of net profit for a 'typical' large corporation *l*, such that

(11a) $(\pi_l - \pi_a) \approx (e_l - e_a) + (\pi e_l - \pi e_a)$,

where $(e_l - e_a)$ denoted the differential increase in the *breadth* of accumulation and $(\pi e_l - \pi e_a)$ designated the differential expansion in the *depth* of accumulation. Using our operational variables listed in Table 9-1, this could be written for a 'typical' Fortune-500 firm, such that

(11c) $(fz - m\pi z) \approx (fez - mez) + (fe - m\pi e)$,

where *fez* and *mez* denote the rates of growth of employment per firm in the Fortune-500 and M&M groups, respectively, while $f\pi e$ and $m\pi e$ are the corresponding rates of growth of profit per employee in the two groups. Within this operational framework, the differential growth of the breadth of accumulation is denoted by (*fez* – *mez*), whereas the differential growth of the depth of accumulation is given by ($f\pi e - m\pi e$).

Consider now Figures 9-5a and 9-5b, in which we contrast the historical evolution of the Employment-per-Firm Ratio *FEZ/MEZ* with that of the Profit-per-Employee Ratio $F\Pi E/M\Pi E$, as well as their respective rates of growth, (*fez* – *mez*) and ($f\pi e - m\pi e$). Table 9-6 includes relevant summary statistics for our analysis. Overall, the data point to a major shift in the relative significance of (*fez* – *mez*) and ($f\pi e - m\pi e$). During the first period, between 1955 and 1970, the primary source for the differential growth of profit emanated from the breadth of accumulation. While the average annual value of ($f\pi e - m\pi e$) was actually negative, at – 1.9 percent, the average for (*fez* – *mez*) was a positive 5.6 percent, leading to an average of 3.9 percent for ($f\pi z - m\pi z$). In other words, Fortune-500 firms were raising their breadth of accumulation so much faster than the average firm, that even with their depth of accumulation declining against the average, they still managed to enjoy a brisk differential expansion in their net profit per firm.

Table 9-6 Differential rates of change for a Fortune-500 firm (annual averages, percent)

Differential rate of change of:		1955-70	1971-74	1975-86
Assets per Firm (Differential Rate of Accumulation, *DRA*)	$faz - maz$	4.5	1.7	0.5
Net Profit per Firm	$f\pi z - m\pi z$	3.9	– 17.5	5.4
Employees per Firm (Breadth of Accumulation)	$fez - mez$	5.6	1.4	1.5
Net Profit per Employee (Depth of Accumulation)	$f\pi e - m\pi e$	– 1.9	– 19.5	4.0
Sales per Employee	$fse - mse$			
Markup	$fk - mk$			
Differential-Risk Index (Normalized Deviations from Average)	$\lvert f\pi zn \rvert - \lvert m\pi zn \rvert$	– 3.7	– 0.9	

Figure 9-5a The breadth and depth of accumulation: ratios

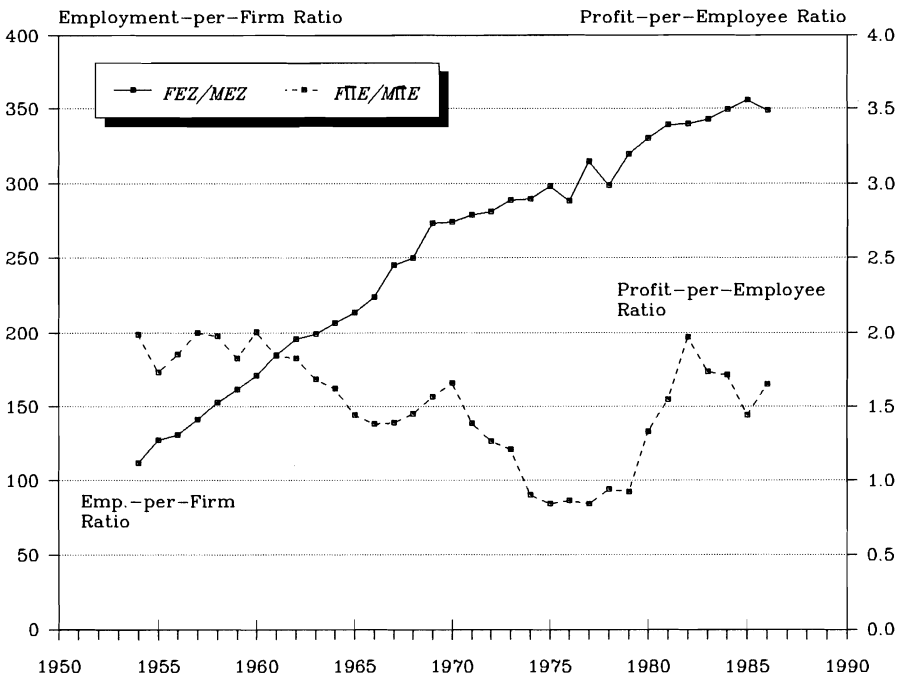
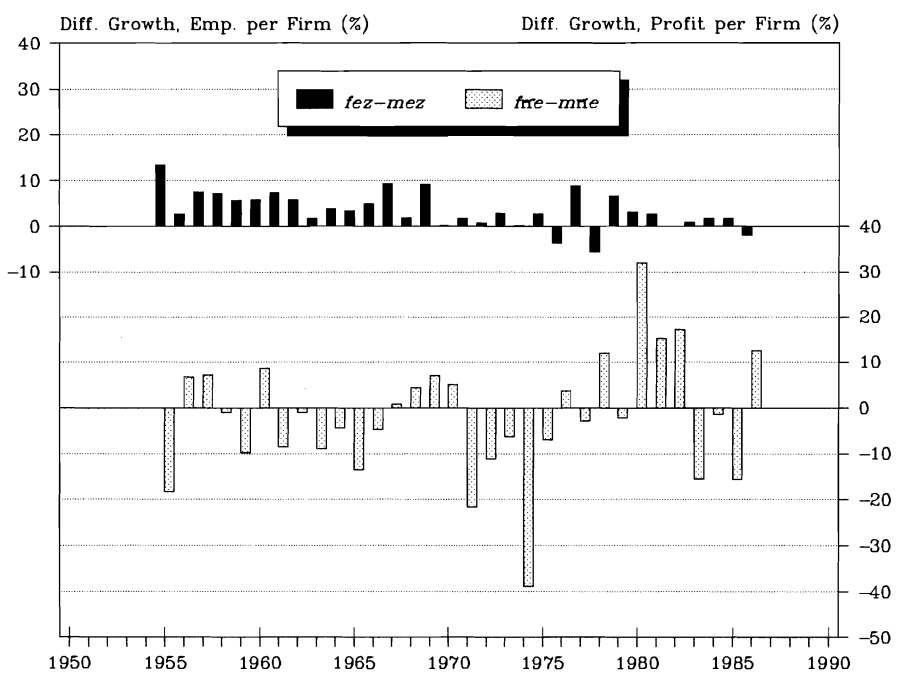


Figure 9-5b The breadth and depth of accumulation: differentials



The relative role of these components changed after 1970, with the marked decline in the average value of (*fez* – *mez*). Between 1971 and 1974, the differential growth of employment per firm dropped to annual average of 1.4 percent. At the same time, the differential growth of net profit per employee (*fπe* – *mπe*) declined to an average of – 19.5 percent, pulling (*fπz* – *mπz*) down to annual average of – 17.5 percent. After 1975, the average annual value of (*fez* – *mez*) remained a low 1.5 percent, but that of (*fπe* – *mπe*) experienced a sharp reversal: it rose to 4.0 percent, pushing up the average annual value of (*fπz* – *mπz*) to 5.4 percent.

In summary, while during the 1950s and 1960s, the differential growth of net profit per firm (*fπz* – *mπz*) was affected mainly by the breadth of accumulation, during the 1970s and 1980s it was mainly the depth of accumulation which generated most of the changes. Furthermore, as the data in Figure 9-5b make fairly clear, it was this shift of emphasis, from the breadth to the depth of accumulation, which also generated much of the increased instability of (*fπz* – *mπz*) after 1970. We now turn to examine developments in each of these areas, beginning with employment per firm.

9.7 The Breadth of Accumulation

Let us commence by examining the overall historical evolution of employment per firm for the various groupings in the M&M universe. Consider first Figure 9-6a, in which we chart the average number of employees per firm for the Fortune 500, for the 'Others' and for the M&M sector as a whole. The data reveal major disparities in the experience of the different groups. Between 1954 and 1970, Fortune-500 firms almost doubled their average size -- from 15,715 to 29,215 employees per firm. The historical record for the 'Others' constituted almost a mirror image: these smaller firms saw their average size shrinking by more than a half -- from 81 employees per firm in 1954, to 38 in 1970. The experience for the 'average' M&M firm was mixed: first a decline from an average size of 141 employees per firm in 1955, to 99 in 1962, and then a certain increase, to 107 by 1970. Turning to Figure 9-6b, we can see how these different trends affected the relative position of large firms. With Fortune-500 firms rapidly expanding their breadth of accumulation amidst an overall contraction or stagnation for the average M&M firm, the Employee-per-Firm Ratio *FEZ/MEZ* was rising at an average annual rate of

Figure 9-6a Employment per firm

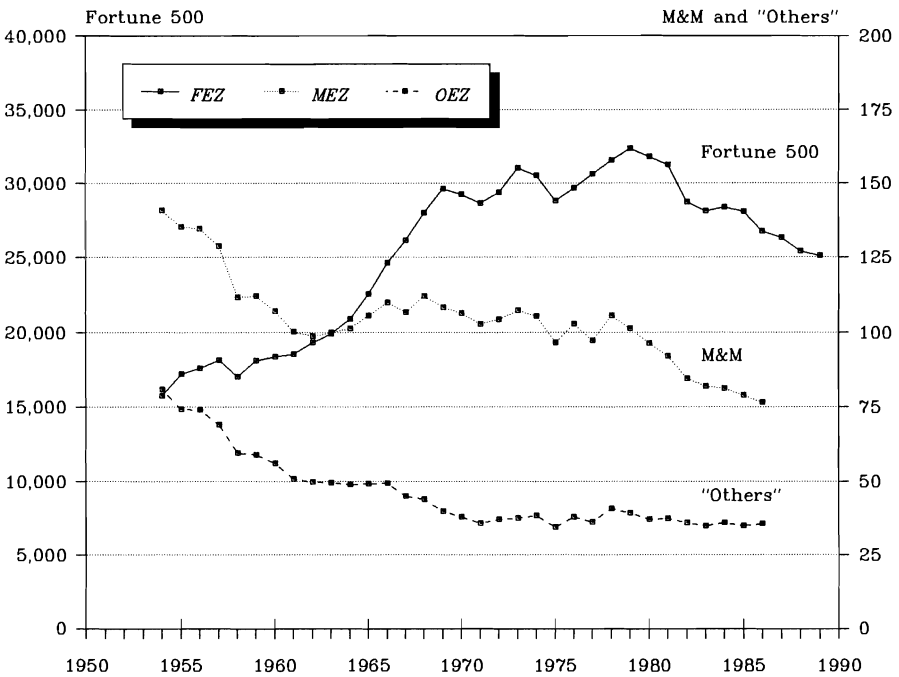
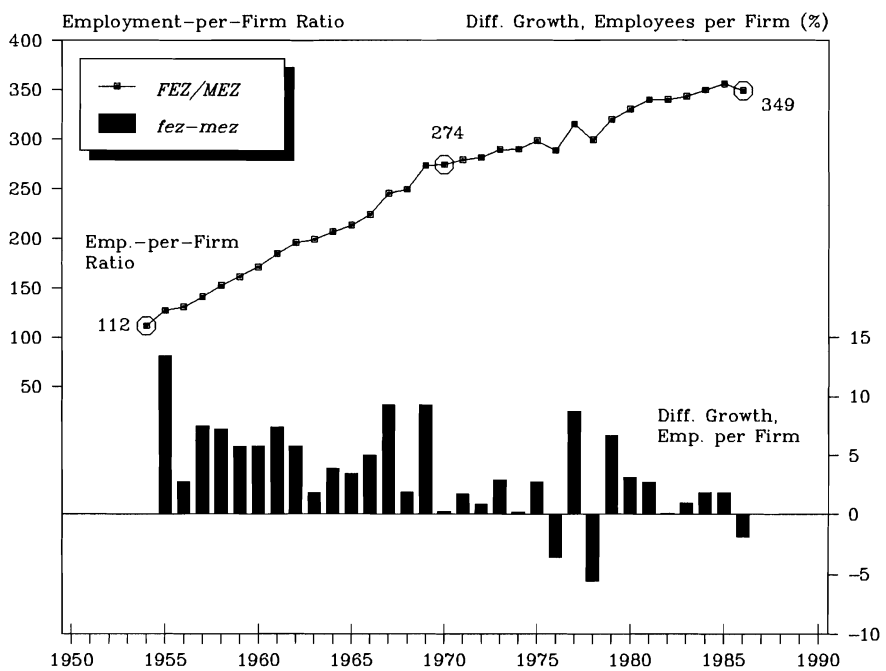


Figure 9-6b Employment per firm: differential indicators



5.6 percent, from 112 in 1954, to 274 in 1970 [the annual rates of change of *FEZ/MEZ* are given by the bar chart for (*fez – mez*) at the bottom of the figure].

The 1970s and 1980s brought substantial changes in trend. The Fortune-500 firms were no longer growing as fast as they did in the 1950s and 1960s. Between 1971 and 1979, their employment per firms rose only slightly to 32,387 and then started to decline rapidly, to 26,724 in 1986 and then further down to 25,080 in 1989. For the 'Others,' the 1970s and 1980s were marked by relative stability, with employment per firm fluctuating mildly around an average level of 37. In the entire M&M sector, employment per firm was slowly declining, reaching 77 by 1986. These changes affected a substantial reduction in (*fez – mez*), which fell to an annual average of 1.5 percent over the 1971-1986 period. Thus, in contrast to the near-tripling of *FEZ/MEZ* during the 1950s and 1960s, the value of this ratio was now growing much more slowly, reaching 349 by 1986.

At first glance, the contours of these historical developments may seem perplexing. How is it possible, one could ask, for there to be such large differences between the movements of *FEZ* and *OEZ*? In particular, how could the employment size of large and small firms move in *opposite* directions, as they did throughout the first period, between 1954 and 1970? Such a differential-growth pattern may be possible when we compare the record of *individual* companies which operate in *different* industries, but here we are dealing with *averages* for two groups whose activities span the *entire* industrial sector. With the number of 'other' firms growing by more than 50 percent -- from 138,613 in 1954, to 211,772 by 1970 -- it is clear that this sector indeed shared the 'prosperity' of the 1950s and 1960s, so why did the average size of 'other' firms *shrink* throughout that period? On the other hand, how could employment per firm in the Fortune-500 sector grow so much faster than what was warranted by the overall expansion of the industrial sector? The answer to these question has to do with the *sources* of employment growth.

The average number of employees per firm could change either through internal or external growth, but only the latter could lead to such divergent behaviour of the kind recorded in Figure 9-6a. Internal growth or decline commonly emerges in response to macroeconomic circumstances and hence

tends to have a similar impact on *FEZ* and *OEZ*. External expansion or contraction, on the other hand, are the consequence of mergers and acquisitions and, to the extent that these work by 'redistributing' employees from one group of firms to the other, they will have *opposite* effects on *FEZ* and *OEZ*. Provided that this inter-group redistribution is sufficiently intense, its opposite effects on employment growth for large and small firms may completely overshadow the similar effects of macroeconomic conditions, whatever they may be.

To consider these issues, we now turn to Figures 9-7a, 9-7b and 9-7c, in which we describe the effects of different growth components on the behaviour of employment per firm in each group of corporations. (The precise computations of these components are explained in Appendix C.) Beginning with the Fortune 500, we can decompose the change in employment per firm ΔFEZ_t, such that

$$(15) \qquad \Delta FEZ_t = \Delta FEZ.DI_t + \Delta FEZ.DE_t + \Delta FEZ.F_t ,$$

where $\Delta FEZ.DI_t$ is domestic internal growth attributed to the net creation of jobs within the United States by Fortune-500 firms, $\Delta FEZ.DE_t$ is domestic external growth stemming from mergers and acquisitions which 'redistribute' employees from the 'Others' to Fortune-500 corporations, and $\Delta FEZ.F_t$ is the net growth attributed to variations in the number of employees working for foreign subsidiaries of Fortune-500 firms (including both internal and external changes). (In this and the following decompositions, we treat external expansion into non-M&M areas as a facet of internal growth.) Now, suppose that, beginning with the level of FEZ_t in 1954, we added in each subsequent year *t* the annual contribution of $\Delta FEZ.DI_t$. The cumulative series -- which we label *Cum* $\Delta FEZ.DI_t$ -- tells us what would have happened to employment per firm had the Fortune 500 experienced only domestic internal growth. Using this same procedure for the other sources of growth, we can similarly compute the path of employment per firm with only domestic external growth (*Cum* $\Delta FEZ.DE_t$) and the cumulative effect of foreign growth (*Cum* $\Delta FEZ.F_t$). These hypothetical paths, along with the actual values for *FEZ*, are plotted in Figure 9-7a.

Figure 9-7a Sources of employment growth: Fortune 500

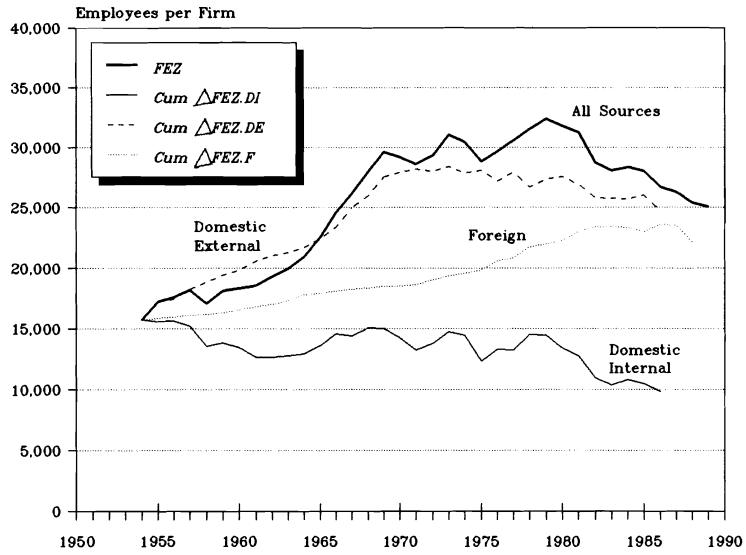


Figure 9-7b Sources of employment growth: 'Others'

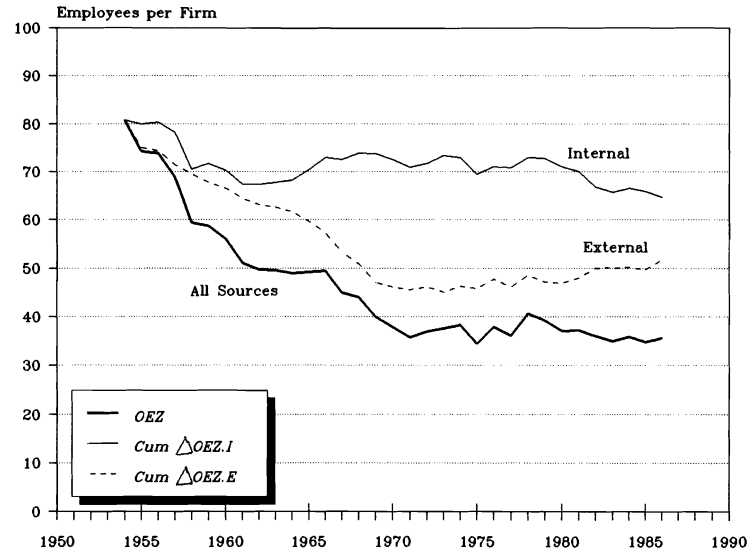


Figure 9-7c Sources of employment growth: M&M sector

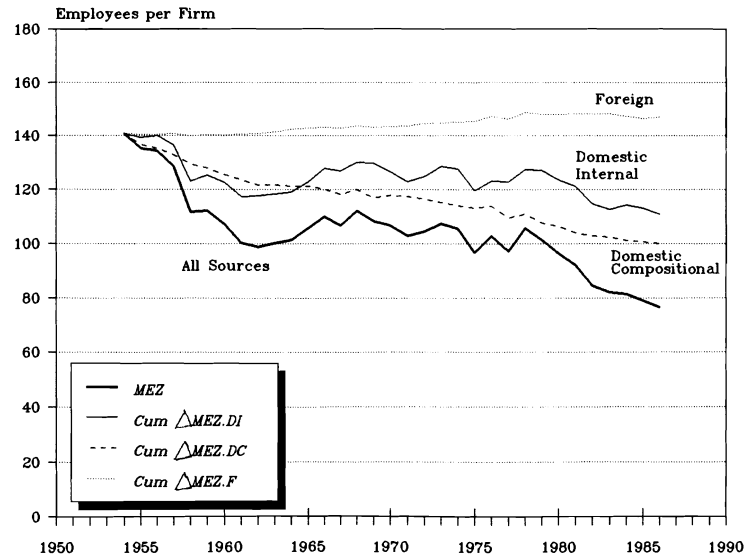
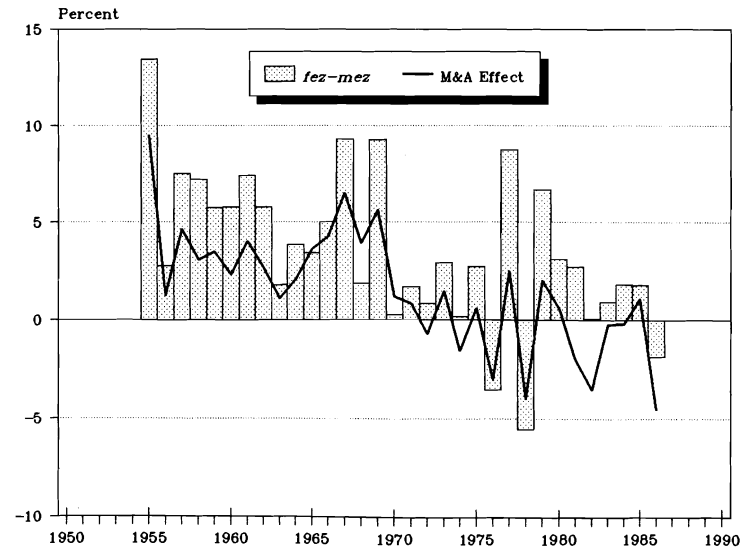


Figure 9-7d Differential employment growth and the M&A Effect



The decomposition for the other groups proceed in much the same way. Ignoring the negligible foreign operations of the 'Others,' we have

$$(16) \qquad \Delta OEZ_t = \Delta OEZ.I_t + \Delta OEZ.E_t ,$$

where $\Delta OEZ.I_t$ and $\Delta OEZ.E_t$ denote the internal and external changes in employment per firm, respectively. The cumulative effect on *OEZ* of internal growth is then given by *Cum* $\Delta OEZ.I_t$, and that of external growth by *Cum* $\Delta OEZ.E_t$, which together with *OEZ* are charted in Figure 9-7b.

Finally, for the entire M&M universe, we have

$$(17) \qquad \Delta MEZ_t = \Delta MEZ.DI_t + \Delta MEZ.DC_t + \Delta MEZ.F_t .$$

Here, $\Delta MEZ.DI_t$ is the contribution of domestic internal growth to M&M employment per firm, $\Delta MEZ.F_t$ is the corresponding contribution of foreign growth and $\Delta MEZ.DC_t$ denotes domestic compositional changes. (These compositional shifts arise from disproportionate variations in the number of small and large firms. Since most newly incorporated firm are small, the proportionate net increase in the total number of M&M firms *MNUM* is far larger than the corresponding proportionate increase in the overall M&M employment *ME*, and that tends to lower *MEZ* even if there are no changes in the actual size of existing firms.) With these definitions, the path of M&M employment per firm with only internal growth is given by *Cum* $\Delta MEZ.DI_t$, the path with only domestic compositional growth by *Cum* $\Delta MEZ.DC_t$, and that with only foreign growth by *Cum* $\Delta MEZ.F_t$. These series, together with *MEZ* are plotted in Figure 9-7c. Let us now turn to examine the historical record as told by the different figures.

Overall, it seems clear that, for all three groups, the impact on employment per firm of internal growth was characteristically different from the effects of external, compositional and foreign growth. Specifically, in each of the cases, internal growth seems to have influenced the pattern of short-term fluctuations, while the latter sources of growth were mainly responsible for long-term changes.

Furthermore, while the pattern of internal growth was similar for the three groups, their comparable experiences with the other sources of growth were quite different.

Taking a closer look at these charts, we can see that, for the Fortune-500 firms, the near-doubling of *FEZ* between 1954 and 1970 had very little to do with domestic internal growth. Over that period, a 'typical' Fortune-500 corporation in fact eliminated 1,485 jobs which, in the absence of other factors, would have lowered *FEZ* from 15,715 employees in 1954, to 14,230 in 1970. The level of *FEZ* nevertheless increased, firstly through the addition of foreign employees, which more than offset the internal decline in domestic employment, but, primarily, due to the very rapid external growth *via* mergers and acquisitions. Indeed, external growth on its own could explain almost the entire increase in *FEZ* over the 1954-1970 period! The other side of this process is evident when we examine the comparable experience of 'other' companies as depicted in Figure 9-7b. The number of employees per firm in that group fell from 81 in 1954, to 38 in 1970 -- but only about 15 percent of that decline was due to internal reasons. Most of the drop came as a consequence of external decline -- probably through acquisitions of large 'other' firms by their Fortune-500 counterparts.

The significance of this employee 'reallocation' is consistent with what we know on the conglomerate merger-wave of the 1950s and 1960s. According to Ravenscraft and Scherer (1985, Table 2-4, p. 30), the top 200 manufacturing firms (ranked by sales) more than doubled their average number of business lines per company from 4.8 in 1950 to 10.9 by 1975. Further evidence (Table 2-7, p. 36) indicate that, out of the newly added lines of business, about 75 percent were added through acquisitions as compared with only 25 percent which were added *via* internal growth. Finally, most large firms tended in that period to acquire lines of business which were substantially smaller than their main operation (p. 29), suggesting that the majority of these lines were previously part of the small economy. In interpreting the historical record, Scherer and Ross (1990, p. 94) concluded that, were it not for these conglomerate mergers, the share of value added in domestic manufacturing accounted for by the 200 largest manufacturing firms would have *fallen* from 34 percent in 1950, to 28 percent by 1975 -- instead of *rising*, as it did, to 44 percent.

These data, together with our own findings on the sources of employment growth, may serve to cast some doubt on the common belief that the maturation of modern capitalism brought a principal change in the *modus operandi* of big business. At the turn of the century, Veblen (1904, pp. 24-5) identified the chief preoccupation of large-scale business enterprise with 'an alert redistribution of investments from less to more gainful ventures' and with the 'strategic control of the conjunctures of business through shrewd investments and coalitions with other business men.' During the 1950s and 1960s, there was a growing conviction among liberal as well as radical economists that this characterization was no longer adequate. The modern corporation of the mid-twentieth century, many argued, was fundamentally different from its predecessor of the late nineteenth century. Galbraith, in his *New Industrial State* (1967), for example, insisted that the goal of pecuniary accumulation had given way to the quest of 'stability' for the technostructure, while Baran and Sweezy in their *Monopoly Capital* (1966, p. 29) suggested that the present-day corporation manager was once again fully immersed in the 'surveillance and regulation of a given industrial process with which his livelihood is bound up.'

The data presented in this section suggest a somewhat different interpretation. Fortune-500 firms may be concerned with their underlying industrial operations, but that does not necessitate that they stop buying and selling firms. In fact, their reputed concern for stability all but *dictates* that they continue and expand by mergers and acquisitions. Maintaining stable oligopolistic profits requires that there be no 'over-investment' in industrial capacity, so Baran and Sweezy's 'surveillance and regulation' may not be so different from Veblen's 'industrial sabotage' after all.[8] That is not to say, of course, that large firms do not invest in their existing operations. It only means that, on the whole, such investment must not lead to any appreciable internal increase in capacity and employment. The 'success' of large firms in fulfilling this requirement is clearly evident from the historical path of *Cum* Δ*FEZ.DI* in Figure 9-7a. However, limiting investment in one's own industry does not solve the oligopolistic dilemma. With their profits rising faster than their 'need' for additional productive capacity, large firms are constantly faced with a chronic lack of 'offsets to savings.' As Bowring (1986) convincingly argued

[8] Later, Sweezy acknowledged that he and Baran neglected to appreciate the crucial role of financial activity. In Magdoff and Sweezy (1983), he identified the duality of 'production' and 'finance' as a potential explanation for chronic stagflation. Unlike Veblen, however, Magdoff and Sweezy did not take this distinction further, to explore the interaction between stagflation and corporate restructuring.

(thought almost a century after Veblen made this very claim), the persistent threat of creating excess capacity in their home industries, compels core firms to *continuously* diversify into non-core areas of the small economy. Unlike Veblen, however, Bowring seems to imply that large firms will expand by creating new capacity in the industries to which they enter, and that is *not* supported by the evidence. While Fortune-500 have indeed become increasingly diversified, the data suggest their diversification was achieved almost exclusively through *external* growth, that is, by taking over smaller firms.

The 'redistribution' of employees from the 'others' to the Fortune-500 had to come to an end, however. In their expansion into new, non-core areas, Fortune-500 rarely bother with small companies and go directly after the leading corporations. Yet, this method of entry cannot be used forever since, after a certain point, there will be no more sufficiently large non-core firms left to be acquired. Indeed, the ongoing conglomerate merger movement eventually eliminated many of the large firms in the 'Others' group and, by the early 1970s, with *OEZ* standing at less than half of its 1954 level, there were simply not too many 'other' candidates worth buying. In fact, many large firms started to divest some of their less successful acquisitions. According to Ravenscraft and Scherer (1985, ch. 6), during the 1970s and early 1980s, there were thousands of divestitures by large firms, and this is also suggested by our own data in Figures 9-7a and 9-7b which show for that period a positive external contribution to *OEZ* and a corresponding external deductions from *FEZ*. The receding of the merger movement in the 1970s was only temporary, however. The ever-present predicament of excess capacity meant that, on the whole, external growth was still the only 'safe' way to offset large corporate savings. The underlying pressure to expand was as strong as ever and, with the greatly relaxed antitrust attitude of the new Reagan Administration which took power in 1981, the merger movement was once again resumed. Since the early 1980s, there was a dramatic increase in the number and indeed the size of mergers. This time, however, many of the takeover targets were themselves part of the Fortune-500 core. For example, in the 1983-88 period alone, 67 of the Fortune-500 firms were 'swallowed' by other Fortune-500 corporations, while another 15 were turned into privately-held firms (Newport, 1989). Yet, despite the unprecedented size of many of these mergers (which often reached multibillion-dollar proportions), they had very little effect on *FEZ* and *OEZ*. The reason is fairly simple. When one Fortune-500 firm is acquired by another, its place is taken by the largest among the 'Others.' But since the conglomerate

merger wave of the 1950s and 1960s reduced the average size of the large 'other' firms, the effect on *FEZ* and *OEZ* of such inter-group movements became rather negligible. This, together with ongoing divestitures, meant that net external growth during the 1970s and 1980s had a mildly negative effect on *FEZ*. The impact of foreign growth, on the other hand, was generally positive during that period and, if it were only for these two sources, *FEZ* would have continued to rise. Domestic internal growth did not remain neutral, however. As we describe later in Section 9.10, the 1970s and 1980s were marked by a growing penetration of imports which heightened the spectre of excess capacity for the Fortune 500 and forced them toward a massive industrial 'rationalization.' Indeed, many of the large mergers of the 1980s were motivated by the need to curtail 'superfluous' operations. All in all, between the late 1970s and the mid-1980s, large-scale layoffs and plant closing by the Fortune 500 generated a substantial internal decline in their domestic operations, leading to a 15 percent drop in *FEZ*.

Turning to Figure 9-7c, we can see that for the average M&M firm, there was some increases due to growing foreign employment, but that these were relatively insignificant in arresting the long-term decline of *MEZ*. Part of that decline could be attributed to internal contraction, primarily during the late 1950s and early 1960s, and then again during the early 1980s. The main driving force, however, was the compositional shift in the size-structure of firms which accounted for a full 2/3rds of the drop in *MEZ* between 1954 and 1986.

How have these various sources of change affected the *differential* growth of employment for a 'typical' Fortune-500 firm? In order to assess the balance of evidence, we first decompose (*fez* – *mez*) such that

$$(18a) \quad (fez - mez)_t = \Delta FEZ_t/FEZ_{t-1} - \Delta MEZ_t/MEZ_{t-1}$$
$$= (\Delta FEZ.DI_t + \Delta FEZ.DE_t + \Delta FEZ.F_t)/FEZ_{t-1}$$
$$- (\Delta MEZ.DI_t + \Delta MEZ.DC_t + \Delta MEZ.F_t)/MEZ_{t-1}$$

and then rearrange by 'source', so

$$(18b)\quad (fez - mez)_t = (\Delta FEZ.DI_t/FEZ_{t-1} - \Delta MEZ.DI_t/MEZ_{t-1}) \quad /domestic\ internal$$
$$+ (\Delta FEZ.DE_t/FEZ_{t-1}) \quad /domestic\ external$$
$$- (\Delta MEZ.DC_t/MEZ_{t-1}) \quad /domestic\ compositional$$
$$- (\Delta FEZ.F_t/FEZ_{t-1} - \Delta MEZ.F_t/MEZ_{t-1}) \; . \quad /foreign$$

In Table 9-7, we record the average annual values for each of these components during the two sub-periods of 1955-1970 and 1971-1986. The results reported in this table could be interpreted in two ways. During any given period, they indicate the contribution of each source of growth to the average level of (*fez* – *mez*). They could also be used to assess how each of these factors affected the change in (*fez* – *mez*) which occurred between the two periods.

Table 9-7 Differential rates of growth of employee per firm for the Fortune 500: decomposition by source (annual averages, percent)

	All Sources	Domestic Internal		Domestic External	Domestic Composit.	Foreign	
Period	$(fez - mez)$	$\frac{\Delta FEZ.DI_t}{FEZ_{t-1}}$	$\frac{\Delta MEZ.DI_t}{MEZ_{t-1}}$	$\frac{\Delta FEZ.DE_t}{FEZ_{t-1}}$	$\frac{\Delta MEZ.DC_t}{MEZ_{t-1}}$	$\frac{\Delta FEZ.F_t}{FEZ_{t-1}}$	$\frac{\Delta MEZ.F_t}{MEZ_{t-1}}$
1955-70	5.6	-0.6	-0.6	3.7	-1.2	0.9	0.2
1971-86	1.5	-0.9	-1.0	-0.7	-1.1	1.1	0.2

These summary statistics accentuate the pivotal role of mergers and acquisitions. First, we can see that internal growth had practically no impact on (*fez* – *mez*) since, in each period, the annual averages for $\Delta FEZ.DI_t/FEZ_{t-1}$ were almost identical to those of $\Delta MEZ.DI_t/MEZ_{t-1}$. The effect on (*fez* – *mez*) of compositional shifts was positive, but it hardly changed between the two periods: the annual average for this variable was – 1.2 percent between 1955 and 1970, and – 1.1 percent between 1971 and 1986. The impact of foreign growth was similar. It, too, contributed positively to (*fez* – *mez*), but the effect in the first period (0.7 percent) was small and not much different from that in the second period (0.9 percent). The principal reason why (*fez* – *mez*) dropped from an average annual rate of 5.6 percent during the 1956-1970 period, to 1.5 percent during the subsequent 1971-1986 period, was the dramatic change which occurred in the contribution of domestic external growth: from an annual average

of 3.7 percent in the first period, it fell to – 0.7 percent in the second. This crucial significance of external growth is illustrated in Figure 9-7d, where we contrast the annual values of (*fez* – *mez*) with those for $\Delta FEZ.DE_t/FEZ_{t-1}$ which we label here as the 'Mergers and Acquisitions Effect.' The chart illustrates both the tight short-term correlation between the two series, as well as their positive long-term relationship.

In summary, mergers and acquisitions had a fundamental effect on the Fortune-500 employment per firm and on its differential rate of growth relative to the average M&M firm. To be sure, Fortune-500 firms would have expanded their breadth of accumulation faster than the average even without external growth, but their differential expansion in that case would have been far more stable that it actually was. Instead of averaging as much as 5.6 percent between 1954 and 1970, and only 1.5 percent from 1971 to 1986, the average annual value of (*fez* – *mez*) in the absence of mergers and acquisitions would have been 1.9 percent in the first period and marginally higher, at 2.2 percent, in the second. This effect of mergers and acquisitions on the breadth of accumulation had an indirect but crucial impact on the inflationary experience of the M&M sector. Specifically, it affected developments in the depth of accumulation in a way which alleviated inflationary pressures until 1970 and raised them thereafter. We turn to consider these links now.

9.8 The Depth of Accumulation

As we have seen in Section 9.6, the focus of differential profit growth for the Fortune-500 firms shifted from the breadth of accumulation during the 1950s and 1960s, to the depth of accumulation during the 1970s and 1980s. The underlying changes in the depth of accumulation are depicted in Figure 9-8a, where we contrast the historical development of net profit per employee in the various corporate categories, and in Figure 9-8b which summarizes the interaction between the performance of the Fortune 500 and the M&M universe. Relevant summary statistics for these and the remaining charts of this section are included in Table 9-8.

While Figure 9-8b reveals continuous changes in the Profit-per-Employee Ratio $F\Pi E/M\Pi E$, the variations in the 1954-1970 period were clearly much smaller than those occurring in the subsequent

Figure 9-8a Net profit per employee

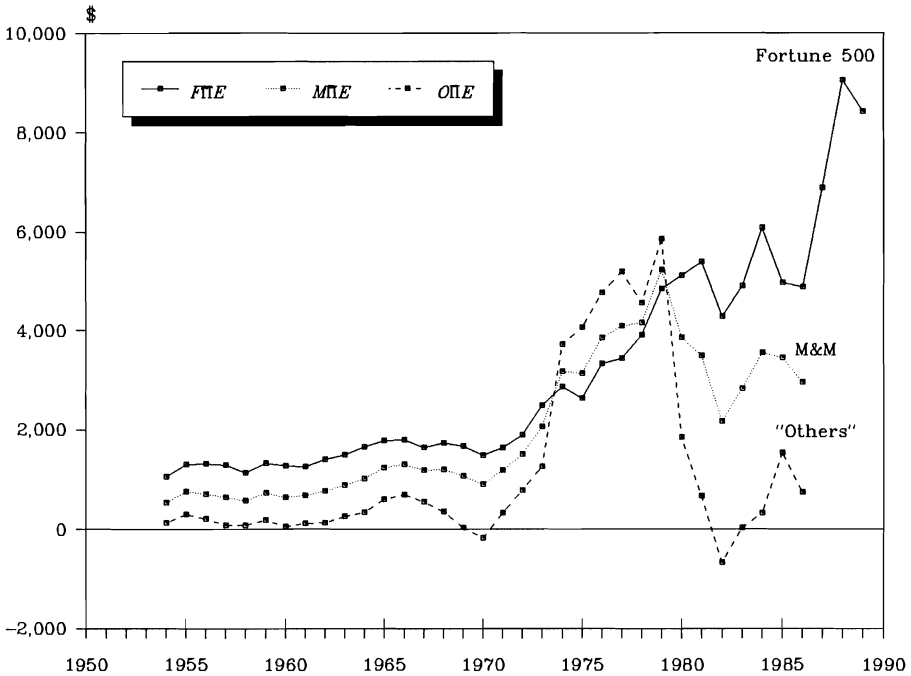
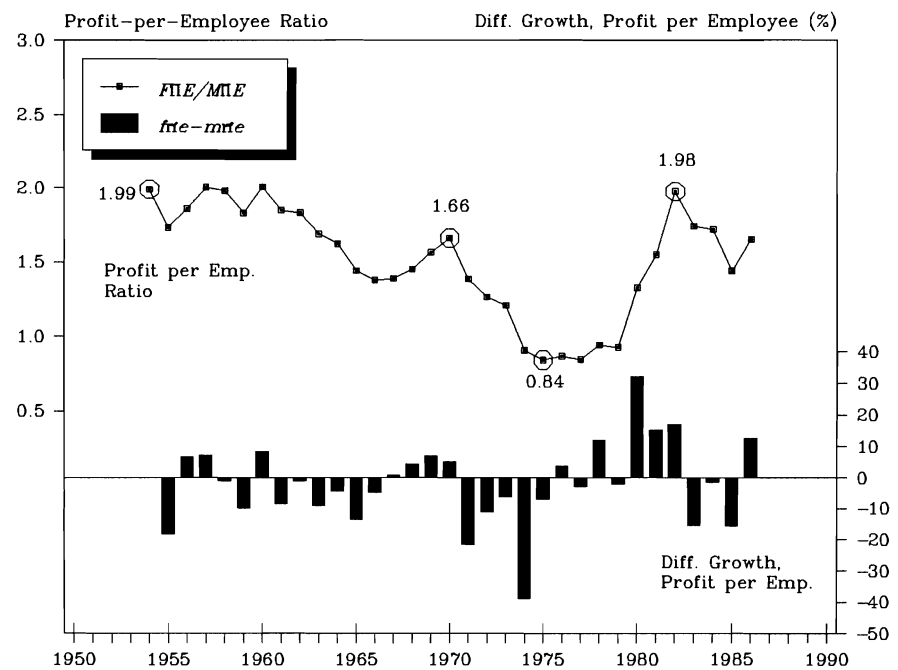


Figure 9-8b Net profit per employee: differential indicators



period between 1971 and 1986. The relative stability of this ratio until 1970 reflects similarities in the movement of the underlying profit-per-employee series depicted in Figure 9-8a. For the Fortune 500, profit per employee $F\Pi E$ grew by 41 percent, from \$1,052 in 1954, to \$1,484 by 1970. For the 'Others,' $O\Pi E$ declined by 230 percent -- from \$138 in 1954, to -\$179 by 1970 -- but that had a relatively small impact on $M\Pi E$. During the 1950s and 1960s, there was a rapid rise in the overall number of Fortune-500 employees, coupled with a decline in the corresponding number for the 'Others' (see Chapter 8). This shift, which resulted mainly from the conglomerate merger wave, implied that changes in $O\Pi E$ were becoming decreasingly significant relative to $F\Pi E$ in affecting the average profit per employee in the M&M sector as a whole. Overall, $M\Pi E$ rose somewhat faster than the $F\Pi E$: it increased by 69 percent from \$529 in 1954, to \$895 by 1970. As a result, the Profit-per-Employee Ratio $F\Pi E/M\Pi E$ fell at an average annual rate of 1.9 percent -- from 1.99 in 1954, to 1.66 by 1970 [the approximate rates of growth for $F\Pi E/M\Pi E$ are given by the bar chart for $(f\pi e - m\pi e)$ at the bottom of Figure 9-8b].

Table 9-8 Differential rates of change for a Fortune-500 firm (annual averages, percent)

Differential rate of change of:		1955-70	1971-74	1975-86
Assets per Firm (Differential Rate of Accumulation, *DRA*)	$faz - maz$	4.5	1.7	0.5
Net Profit per Firm	$f\pi z - m\pi z$	3.9	-17.5	5.4
Employees per Firm (Breadth of Accumulation)	$fez - mez$	5.6	1.4	1.5
Net Profit per Employee (Depth of Accumulation)	$f\pi e - m\pi e$	-1.9	-19.5	4.0
Sales per Employee	$fse - mse$	-0.9	-0.3	1.5
Markup	$fk - mk$	-0.8	-16.3	2.2
Differential-Risk Index (Normalized Deviations from Average)	$\lvert f\pi zn \rvert - \lvert m\pi zn \rvert$	-3.7	-0.9	

This drop in $F\Pi E/M\Pi E$ must have been only a minor cause of concern for Fortune-500 firms since, as we already know, during that period, the Employment-per-Firm Ratio FEZ/MEZ was expanding at a brisk average rate of 5.6 percent per annum. The predicament for the Fortune-500 firms arose only after 1970, when, with the receding conglomerate merger movement and enhanced divestitures, the increase in FEZ/MEZ has moderated considerably. Under these new circumstances,

developments in the depth of accumulation became far more significant than before. And indeed, we can see how, after 1970, the Profit-per-Employee series started to experience much stronger fluctuations. For the Fortune 500, there was a more or less continuous expansion throughout the 1970s, with $F\Pi E$ rising more than threefold and reaching \$5,103 by 1980. For the 'Others,' the changes have been even more dramatic. From an average loss of \$179 per employee in 1970, $O\Pi E$ climbed very rapidly, surpassing $F\Pi E$ and reaching \$3,712 by 1975!. The increase continued, though at a slower pace, until 1979, when $O\Pi E$ reached a peak of \$5,850, still higher than the comparable value for the Fortune 500. The 1980s brought further changes. Whereas the Fortune 500 experienced some slowdown in the growth of $F\Pi E$, the 'Others' saw their average net profit per employee $O\Pi E$ plummet from \$5,850 in 1979, to -\$675 in 1982, rise again to \$1,525 in 1985, and then decline to \$736 in 1986. (There was a large increase in $F\Pi E$ during the late 1980s, but we have no comparable data for the two other categories.)

During this period, there was a reversal in the relative impact of $F\Pi E$ and $O\Pi E$ on $M\Pi E$. As we say in Chapter 8, after 1970, the share of 'Others' in M&M employment began to rise, so $O\Pi E$ started to have an increasing influence on $M\Pi E$. We can indeed see in Figure 9-8a that, much like $O\Pi E$, net profit per employee in the M&M universe rose to surpass $F\Pi E$ through most of the 1970s and then dropped below it during the 1980s. The consequence of this heightened variability in the underlying profit-per-employee series was enhanced instability for the $F\Pi E/M\Pi E$ ratio: it fell sharply in the early 1970s, stabilized for the rest of the decade and, then, rebounded in the early 1980s.

In summary, these historical details, together with a second bird-eye view over Figures 9-8a and 9-8b, suggest that the depth of accumulation was not an 'area of contention' until 1970, but that it become one thereafter. During the 1950s and 1960s, the race for differential pecuniary accumulation took place mainly within the breadth of accumulation, primarily through mergers and acquisitions. The Fortune 500 enjoyed a rapid differential growth in employee per firm combined with low risk premiums, so there was no apparent need for any destabilizing increases in profit per employee. When the conglomerate merger movement ended in the late 1960s, however, the Fortune 500 were left with no other alternative and reluctantly turned to expanding their depth of accumulation. And, indeed, the end results were not necessarily favourable. Initially, their differential growth of net profit per employee fell,

and when it subsequently started to rise, there was already a considerable deterioration in their relative risk position (see Section 9.5).

Why has the depth of accumulation proven a more 'problematic' area for the Fortune 500? The reason is fairly simple. As we explained in Section 9.3, changes in employment per firm are rarely 'contagious,' and when the Fortune 500 expand through mergers and acquisitions, the resulting increase in *FEZ* has no meaningful effect on *MEZ*. Changes in net profit per employee, on the other hand, tend to 'spread' much more rapidly, and a rising *FΠZ* for the Fortune 500 is bound to affect *MΠZ*, both directly as well as indirectly through its impact on *OΠZ*. Furthermore, in raising their depth of accumulation, large firms may adversely affect their risk premium and possibly their breadth of accumulation, so the overall impact on their differential rate of accumulation becomes highly uncertain.

Symbolically, we can decompose the differential growth of net profit per employee into two components, such that

$$(19) \qquad (f\pi e - m\pi e) \approx (fse - mse) + (fk - mk) ,$$

where $(fse - mse)$ is the differential growth of sales per employee and $(fk - mk)$ is the differential growth of the markup. In order to raise $(f\pi e - m\pi e)$, Fortune-500 firms must increase their rate of "Inflation" fse with the hope that this will raise fk [recall that, since cost cutting is often independent of firm size, its effect on $(fk - mk)$ is likely to be negligible]. The problem for these firms is that the average M&M "Inflation" mse, as well as the growth of the M&M markup mk are 'indeterminate.' The spark of a higher Fortune-500 "Inflation" may raise mse and enhance the general inflationary pressures with uncertain consequences for $(fk - mk)$. This interaction between the components of Equation (19) may shed some light on the inflationary experience of the M&M sector and we proceed to examine it more closely now.

Consider, first, Figure 9-9a, which charts data for sales per employee in the different groups, and Figure 9-9b, which depicts the Sales-per-Employee Ratio and the Fortune-500's differential rate of

Figure 9-9a Sales per employee

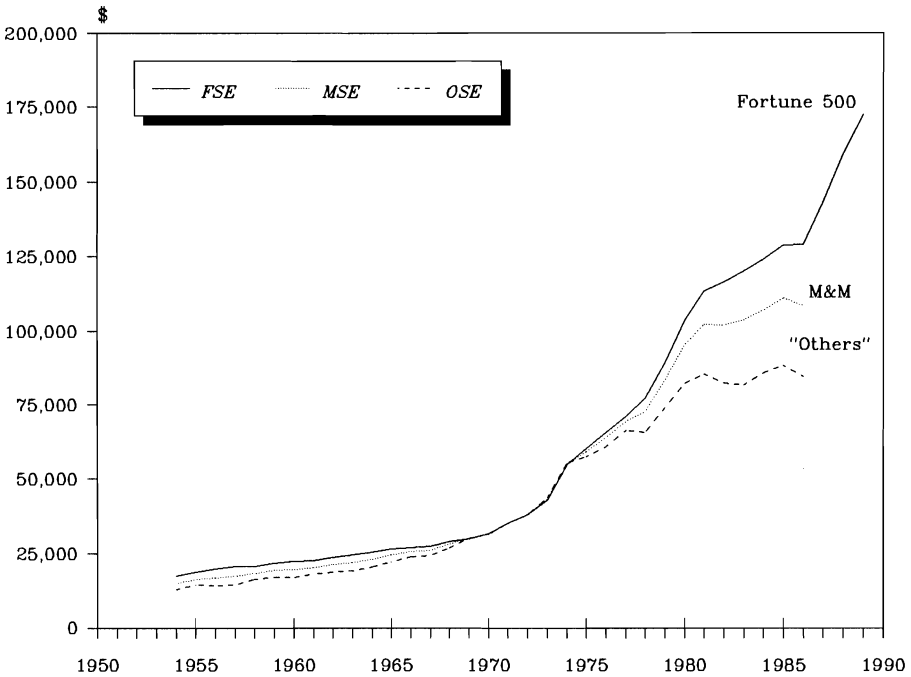
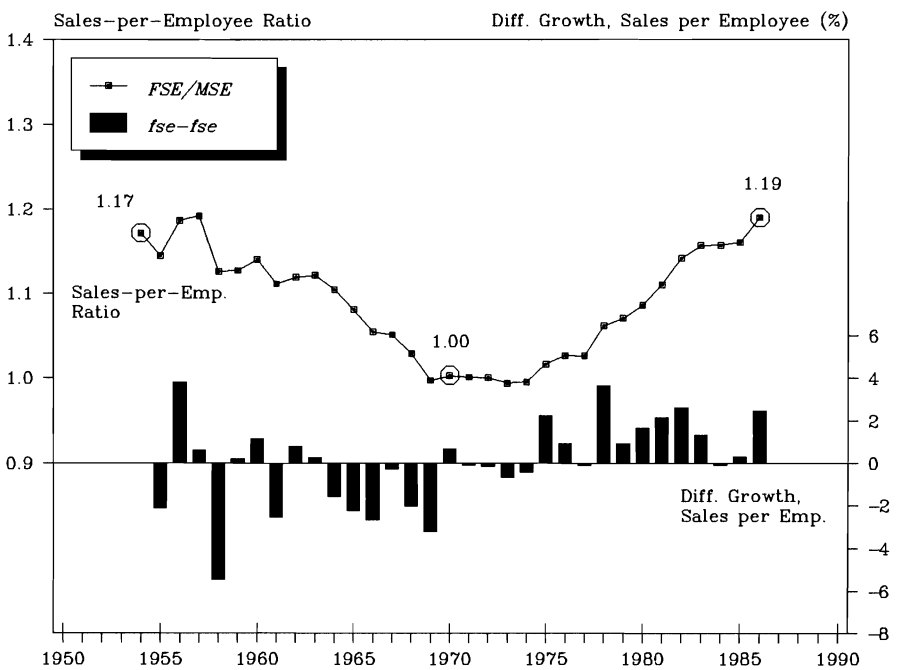


Figure 9-9b Sales per employee: differential indicators



"Inflation." We can see that, until 1970, sales per employee for all groups rose relatively slowly. However, as we have already shown in Chapter 8, the rate of "Inflation" was not uniform across the different groups of firms. While the Fortune 500 expanded *FSE* at an average annual "Inflation" rate of 4 percent (from $17,408 in 1954, to $31,759 in 1970), the 'Others' were raising *OSE* faster, at an average annual rate of 5.7 percent (from $12,948 in 1954, to $31,533 by 1970). For the M&M sector as a whole, sales per employee *MSE* expanded at an average "Inflation" rate of 4.9 percent, from $14,857 to $31,679 over that same period. The consequences for the Sales-per-Employee Ratio *FSE/MSE* was a gradual decline at an average annual rate of −0.9 percent from 1.17 in 1954, to 1.00 in 1970.

The 1970s brought a sharp acceleration of "Inflation" in all corporate categories. For a while, between 1971 and 1974, sales per employee in all three groupings expanded at similar annual rates: 14.8 percent for the Fortune 500, 15.7 percent for the 'Others' and 15.2 percent for the M&M sector as a whole. We can see in Figure 9-9b, that the Sales-per-Employee Ratio (temporarily) stabilized during that period around a value of unity, with the differential pace of "Inflation" (*fse* − *mse*) averaging a negligible −0.3 percent a year.

From 1975 onward, sales per employee for the three groups were once again diverging. Contrary to the pre-1970 period, however, the rate of "Inflation" for the Fortune 500 was now higher, not lower than the comparable rates for the 'Others' and the entire M&M sector. From a level of $54,664 in 1974, *FSE* rose at an average annual rate of 7.5 percent, reaching $128,979 by 1986. (As we can see in Figure 9-9a, Fortune-500 "Inflation" accelerated again during the late 1980s but, unfortunately, there are no comparable statistics for the other two categories.) The rate of "Inflation" for the 'Others' was far lower: rising at an average rate of only 3.8 percent per annum, *OSE* increased from $55,383 in 1975, to $84,556 by 1986. For the M&M sector, the rate of "Inflation" was 6.0 percent and that raised *MSE* from $55,925 in 1974, to $108,368 in 1986. As a consequence of these shifts in the relative rates of "Inflation," the (*fse* − *mse*) differential rose to an annual average of 4.0 percent, pulling the Sales-per-Employee Ratio *FSE/MSE* from 1.00 in 1974, to 1.19 by 1986, which was approximately where it stood in the mid-1950s.

The overall historical contours in Figures 9-9a and 9-9b suggest that developments in the breadth of accumulation were indeed consequential for the "Inflation" experience affecting the depth of accumulation. The link between these two realms is illustrated more directly, firstly in Figure 9-10a, where we contrast the Employment-per-Firm Ratio *FEZ/MEZ* with the Sales-per-Employee Ratio *FSE/MSE* and, secondly, in Figure 9-10b, which relates the respective rates of growth for these ratios, as approximated by (*fez* – *mez*) and (*fse* – *mse*). Based on these charts, we can conjecture that, as long as the merger movement of the 1950s and 1960s enabled Fortune-500 firms to expand their depth of accumulation much faster than the average, these firms could allow their sales per employee to rise more slowly than the average (as was shown in Figure 9-9a). Part of the ensuing decline in *FSE/MSE* was the consequence of the Fortune 500 acquiring 'other' firms with lower sales per employee. The overall effect on *FSE/MSE* of this compositional shift, however, was only marginal. The main reason behind the downward trend of *FSE/MSE* until 1970 was the "Inflation" strategy of large firms. With the Employment-per-Firm Ratio *FEZ/MEZ* rising so fast, Fortune-500 firms found it permissible, and maybe even desirable, to accept a low inflation consensus and to let their own sales per employee rise more slowly than the average. At the time, this historical experience was reflected in the writings of many economists as evidence of a new industrial order (see Chapter 4). The large bureaucratic corporation was seen as a stability-seeking organization, habituated toward gently adjusting to changing circumstances. With its fixed-markup policies and reputed 'smoothing' techniques, the large firm was inhibited from taking any initiative, becoming a mere transmitter of cost signals. The 'price maker' of the 1930s apparently resurfaced as the 'inflation taker' of the 1960s. However, since the early 1970s, with the differential increase in the breadth of accumulation slowing down, the Fortune-500 could no longer maintain their 'moderation.' The long-term decline in *FSE/MSE* had to come to an end and with it disappeared the reputed sluggishness of corporate giants. For a while, there was a 'neck to neck' "Inflation" race between the Fortune-500 and the 'average' but, eventually, from the mid-1970s onward, the Fortune 500 were emerging as the clear 'winner' with the *FSE/MSE* ratio starting its ongoing ascent.

The link between differential changes in the depth of accumulation and the relative pattern of "Inflation" appears all the more significant when we note that it holds not only for long trends, but also for short-term variations. This is clearly illustrated in Figure 9-10b, where we can see the very tight

Figure 9-10a Employment-per-Firm and Sales-per-Employee ratios

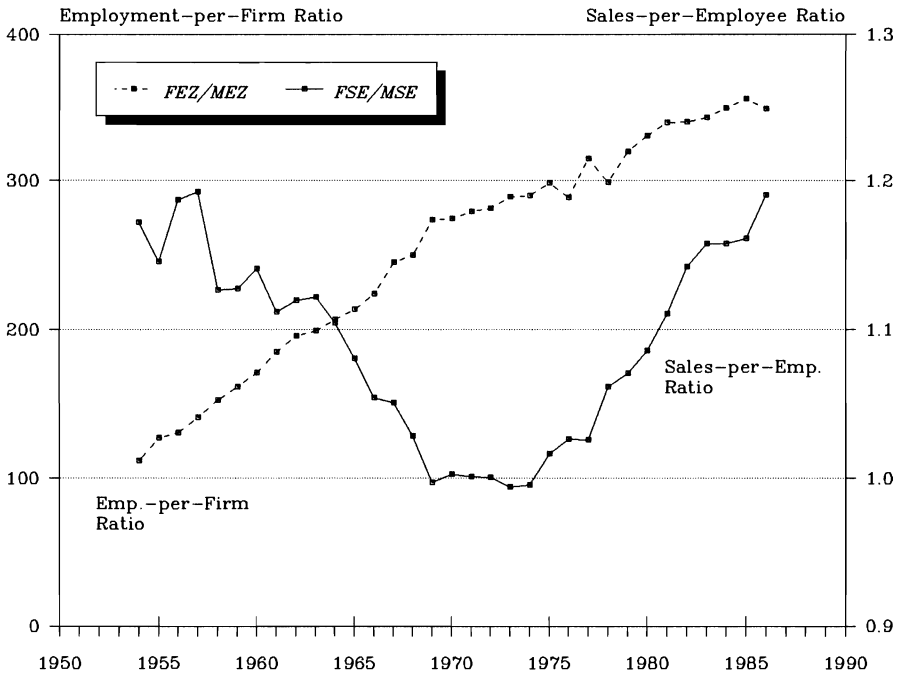
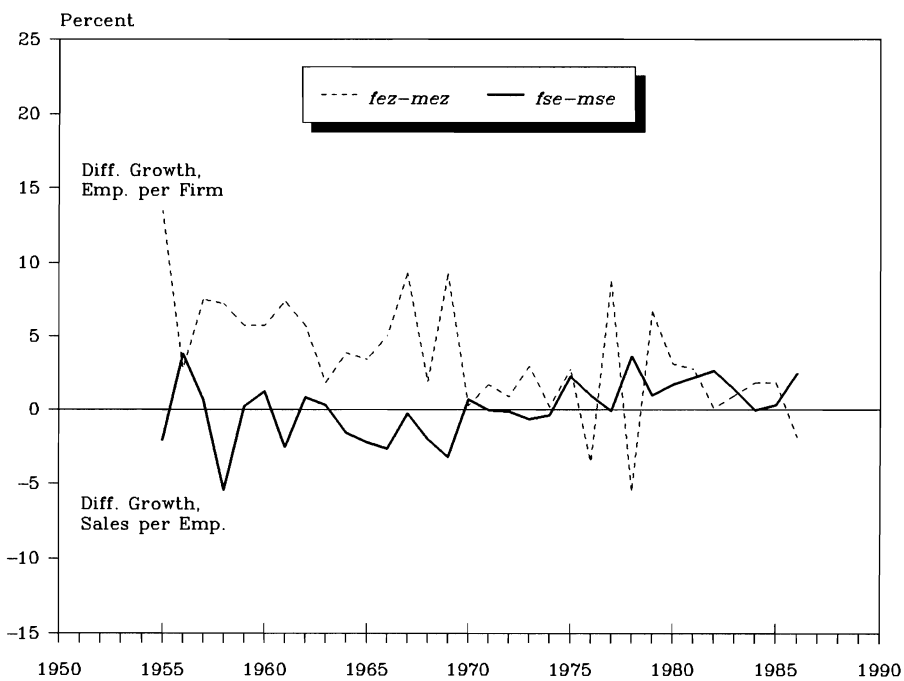


Figure 9-10b The breadth of accumulation and "Inflation": differential changes



inverse correlation between the oscillations of (*fez* – *mez*) and (*fse* – *mse*), particularly before 1970. This may serve to suggest that the large corporations were probably never 'inflation-passive,' not even during the relatively tranquil 1950s and 1960s. The data appear to indicate that, in seeking to alter their "Inflation" relative to the average, core firms may have tried to counteract not only long-term shifts in *FEZ/MEZ*, but also the annual fluctuations of that ratio!

Being able to determine their own rate of "Inflation" *fse*, and by that to influence the differential growth of sales per employee (*fse* – *mse*), is still insufficient for the Fortune 500, however. In order to positively affect the differential growth of profit per employee (*fπe* – *mπe*), their "Inflation" strategy must also have a desirable impact on the differential growth of the markup, and that is not easy to ensure.

Consider now Figure 9-11a, where we chart the markup of net profit on sales in the different corporate categories, and Figure 9-11b, which describes the Markup Ratio and its approximate rate of change. In that second figure, we also include for the purpose of comparison, the Profit-per-Employee Ratio as charted earlier in Figure 9-8a. The data presented in Figure 9-11a will be analyzed in some detail later. At this stage, we should simply observe that the it was mainly the underlying changes in these markups, through their effect on the Markup Ratio *FK/MK*, which determined the historical course of the Profit-per-Employee Ratio *FΠE/MΠE*. In terms of Figure 9-11b, it is clear that the contemporaneous variations in the Sales-per-Employee Ratio had only a secondary impact, illustrated by the vertical distance between *FΠE/MΠE* and *FK/MK*. The primary role of the markup is evident mainly in the second period of the 1970s and early 1980s. As we can see from Table 9-8, the rapid decline of the Profit-per-Employee Ratio *FΠE/MΠE* between 1971 and 1974 (at an average annual rate of – 19.5 percent) was instigated primarily by the sharp drop of the Markup Ratio *FK/MK* (at an average annual rate of – 16.3 percent). Similarly, during the 1975-86 period, the 4.0 percent annual rate of increase of *FΠE/MΠE* was affected more from the annual 2.2 percent rise in the Markup Ratio, than from the corresponding 1.5 percent increase in the Sales-per-Employee Ratio.

Heading to this secondary role of *FSE/MSE*, should we conclude that the "Inflation" strategy of Fortune-500 firms was largely inconsequential in affecting (*fπe* – *mπe*) and, by extension, (*faz* – *maz*)?

Figure 9-11a **Profit markups**

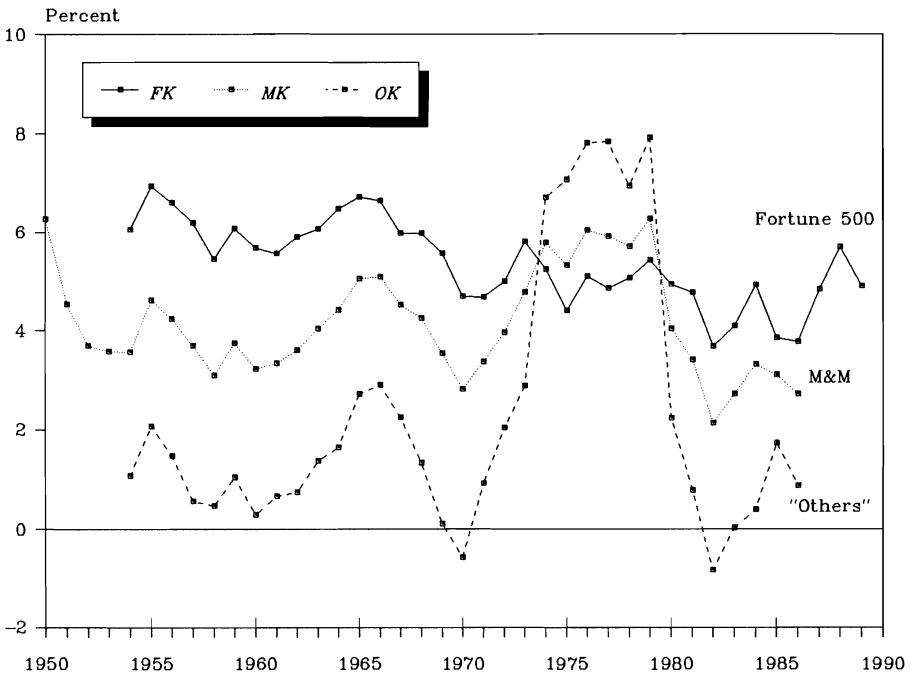
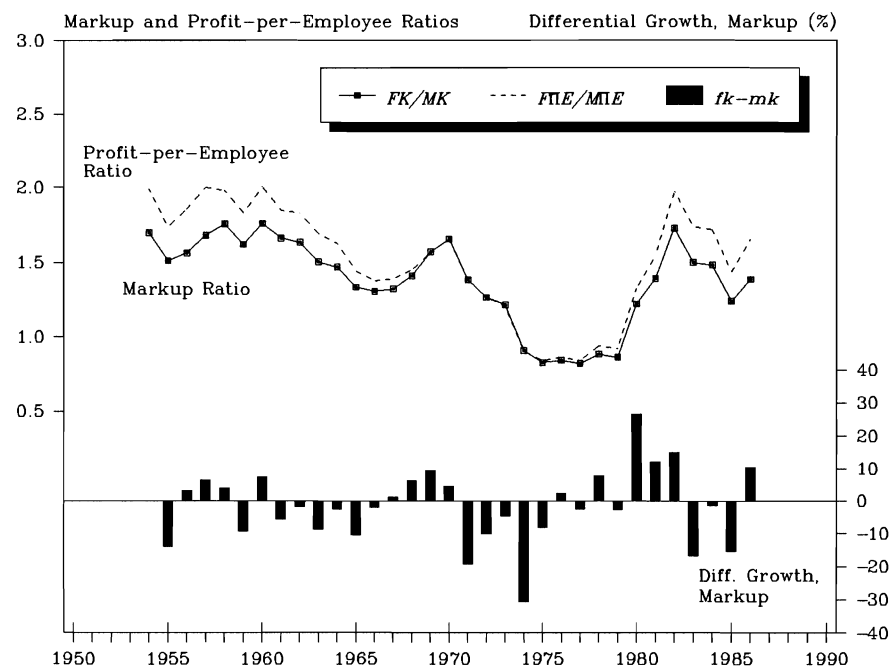


Figure 9-11b **Profit markups: differential indicators**



Not at all. While the *direct* contribution of "Inflation" to the differential development of net profit per employee may have been relatively small, its *overall* effect, including the impact it had on the differential evolution of markups, was not. We turn to analyze these relationships now.

9.9 Inflation and Redistribution

In section 9.3, we identified the large core corporations as the 'inflation makers' of modern capitalism. We argued that although price increases could arise for a variety of reason, in the context of chronic excess capacity, the inflation process could be *sustained* only through the strategic limitation of industrial activity by the large corporate coalitions. The overall rate of inflation hence depends largely on the 'inflation consensus' among core firms. When they expand their breadth of accumulation faster than the average, these firms 'need' only a low inflation, whereas when their expansion of employment per firm is not much faster than the average, they feel 'compelled' to push inflation higher.

In order to examine this hypothesis, it is necessary to look into the relationship between inflation and the relative performance of large and smaller firms. Underlying our reasoning in the first paragraph is the premise that the inflation consensus embodies the common interest of the large firms. In other words, we presume that the large firms take it that they would indeed gain from a low inflation in the first case, and from a higher inflation in the second. But is this assumption warranted? Is there a factual basis to substantiate such a conviction? Do large firms really benefit from inflation? Note that the answer to these questions could not prove whether or not the large firms are indeed the 'root' of inflation: showing that these firms gain from inflation does not necessary mean that they instigate it. But the evidence are nevertheless important. In order to 'support' an ongoing rate of inflation, the large firms must believe that it is in their interest to do so, and that requires that the gains be observable. Without these visible benefits there could be no 'inflation-consensus,' and without that consensus the 'inflation-making thesis' becomes indefensible. Our goal in this section, then, is to examine the impact of inflation on the relative performance of large and small firms and in that light to interpret the historical development of inflation itself.

Consider, first, Figures 9-12a to 9-12d, in which we relate the Fortune-500 rate of "Inflation" *fse* to the markup *FK*. The first two charts on the left (12a and 12b) provide data for the 1950s and 1960s, while those on the right (12c and 12d) detail the experience of the 1970s and 1980s. The picture emerging from these data is quite clear: during both of these periods, "Inflation" had a tight positive impact on the profit markup. In other words, regardless of what prompted the large firms to alter their rate of "Inflation," the general outcome was for their profit share in sales to rise when "Inflation" was increasing and fall when "Inflation" was decreasing. In a way, the remarkable regularity of this relationship makes the customary distinction between cost-push and profit-push inflation somewhat irrelevant. This is accentuated by Figure 9-13, where we chart the respective rates of growth for the Fortune-500 net profit and 'cost' (computed as the difference between sales revenues and net profit). As the figure makes clear, the two variables were closely correlated, so it is rather trivial that if the rate of Fortune-500 "Inflation" was positively associated with changes in profit, it must have been also positively related to variations in cost. Unfortunately, the preoccupation with identifying the 'push-factor' serves to divert attention from another, perhaps more important fact, and that is that cost and profit tend to change at *different* rates. In the case of the Fortune 500, the relative changes in profit were commonly much *larger* that those in cost, and on this we must focus. If we adopt a teleological point of view which looks for the 'purpose' of social phenomena, the ultimate reason for inflation must be sought in its *redistributional consequences*. From this perspective, the Fortune-500 record must then be viewed as a clear case of *profit-share inflation*.

Given these findings, we should now turn to examine the experience of the 'Others': Were these firms enjoying distributional gains similar to those won by the Fortune-500? The answer to this question could be learnt from Figures 9-14a to 9-14d, in which we relate the rate of "Inflation" *ose* for the 'Others' to the contemporaneous values of their profit markup *OK*. Unlike the case of the Fortune 500, the relationship between "Inflation" and the markup for these smaller firms has undergone significant changes. During the first period of the 1950s and 1960s, there was no apparent association between the two variables. Despite the fact that in those years "Inflation" for the 'Others' was faster than for the Fortune-500, smaller firms did not seem to have gained from it. This situation changed since the early 1970s, when the markup *OK* and the rate of "Inflation" *ose* began to move together. There was also,

Figure 9-12a "Inflation" and the markup for the Fortune 500, 1954-1969

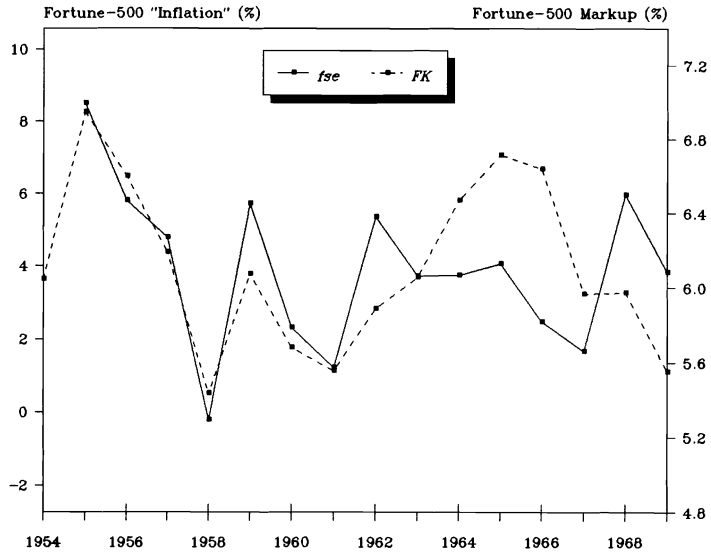


Figure 9-12b "Inflation" and the markup for the Fortune 500: a functional presentation, 1955-1969

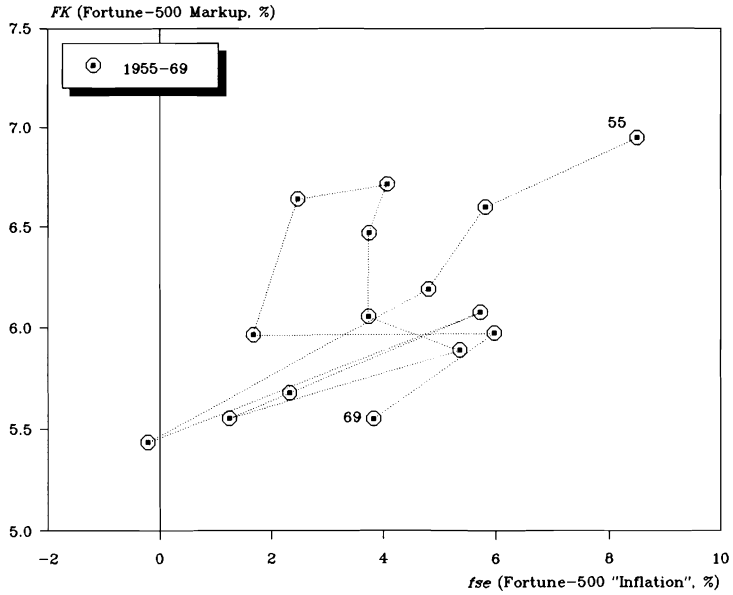


Figure 9-12c "Inflation" and the markup for the Fortune 500, 1970-1989

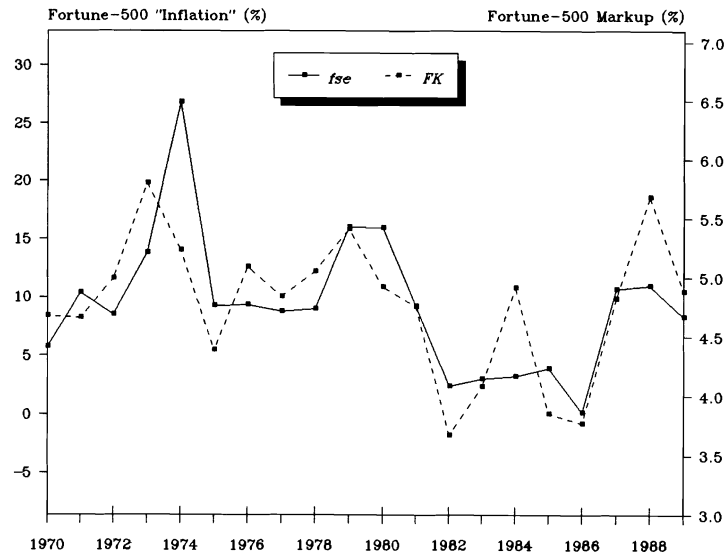


Figure 9-12d "Inflation" and the markup for the Fortune 500: a functional presentation, 1970-1989

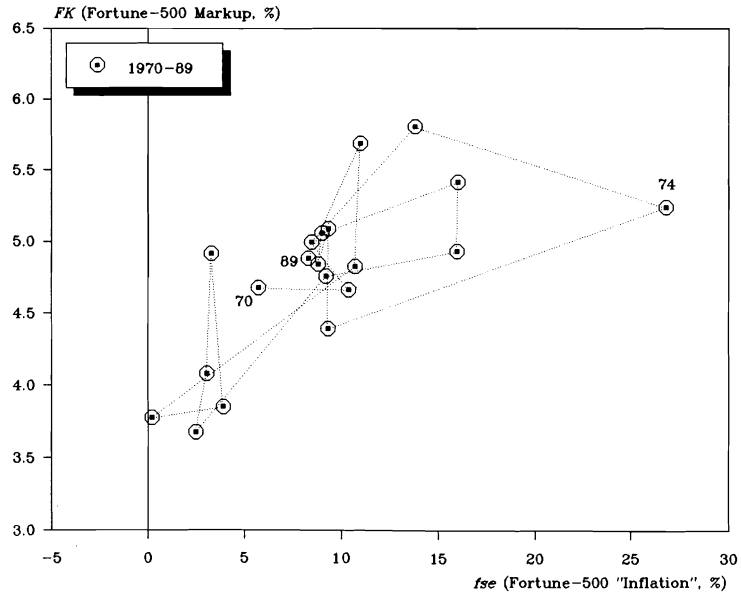


Figure 9-13 Changes in profit and cost for the Fortune 500

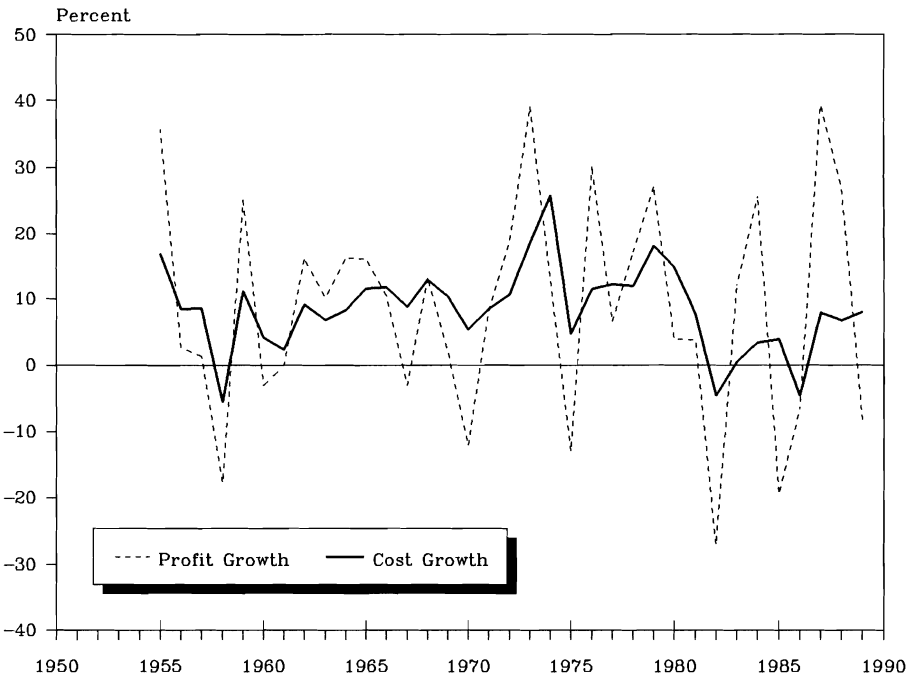


Figure 9-14a "Inflation" and the markup for the 'Others,' 1954-1969

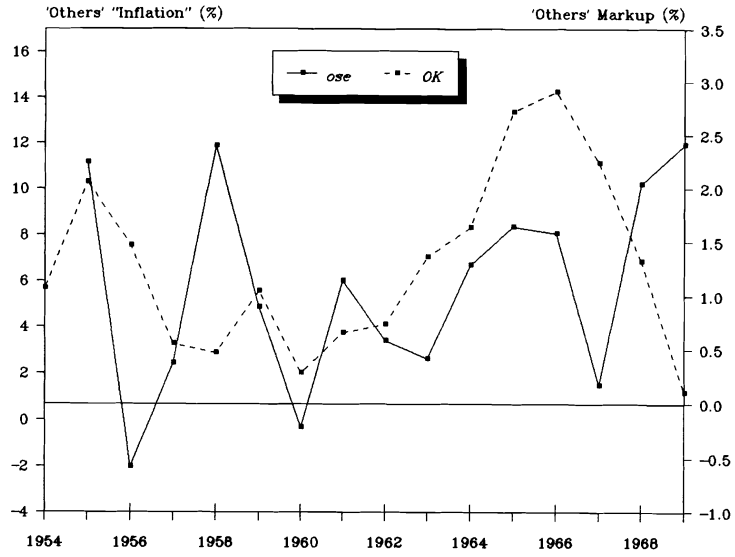


Figure 9-14b "Inflation" and the markup for the 'Others': a functional presentation 1955-1969

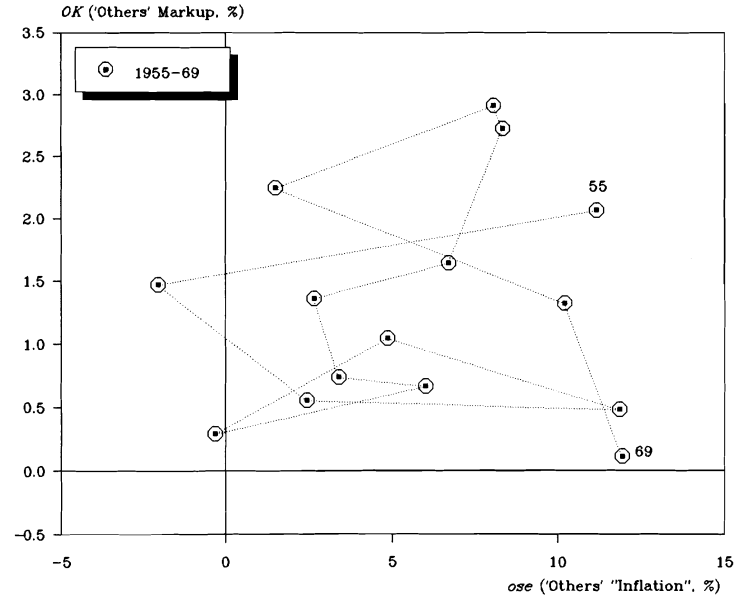


Figure 9-14c "Inflation" and the markup for the 'Others,' 1970-1986

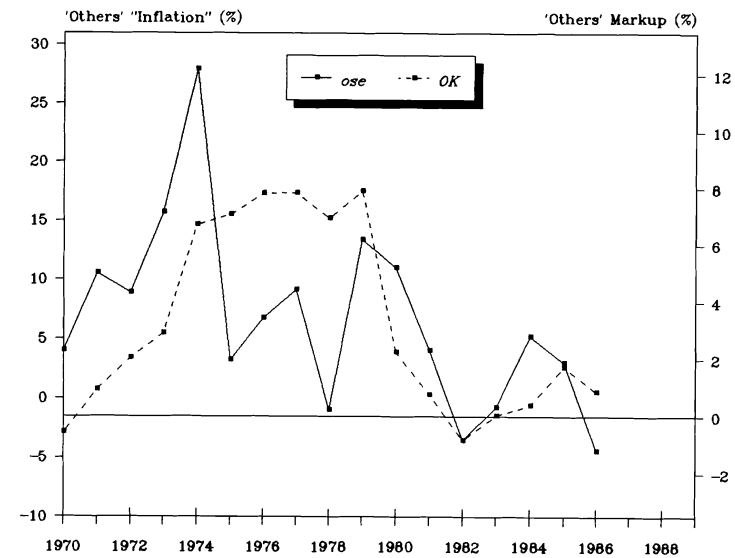
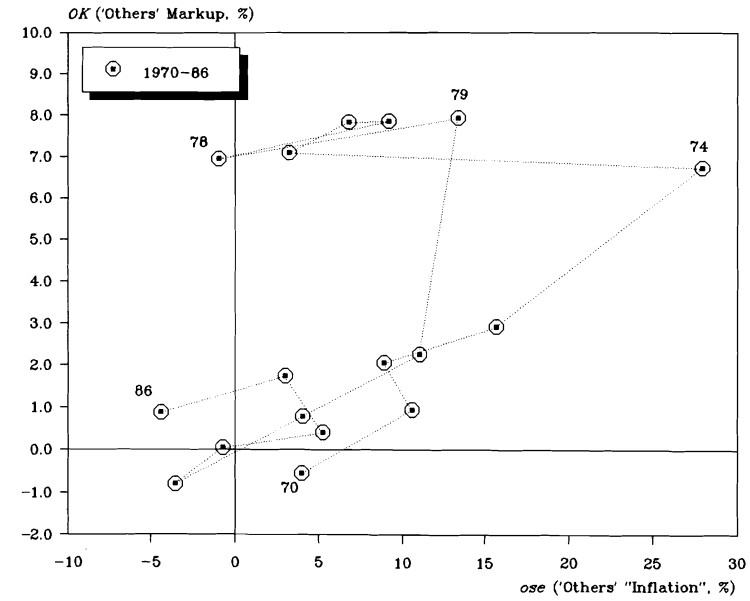


Figure 9-14d "Inflation" and the markup for the 'Others': a functional presentation, 1970-1986



between 1975 and 1979, a large shift in this relationship which could be at least partly attributed to the effect on many small mining firms of the surge in commodity prices. Of course, the positive association since the early 1970s between *ose* and *OK* does not mean that the 'Others' have acquired new inflation-making powers. Inflation still requires the effective rationalization of industrial activity and that could be done only by the large corporate coalitions. Thus, even when the smaller firms appear to benefit from the inflationary process, their gains are ***derived gains***, crucially dependent on the inflation consensus among the large firms.

The relationship between inflation and profit markups for different corporate-size categories could be examined from another perspective, using the quarterly markup data published by the Bureau of the Census in its *Quarterly Financial Reports for Manufacturing, Mining and Trade Corporations* (QFR). There are certain differences between this and our other data sources: (1) Unlike the IRS and *Fortune* data which include both manufacturing and mining, the QFR cover only manufacturing corporations (all sources include subsidiaries from other industries). (2) While the IRS and *Fortune* numbers reflect the consolidated performance of foreign as well as domestic subsidiaries (majority owned), the Bureau of the Census began, since the fourth quarter of 1973, to consolidate only domestic subsidiaries and include the profits of foreign subsidiaries on an equity or cost basis. (3) The IRS data are based on tax accounting, whereas the QFR and *Fortune* use the accounting conventions of financial reporting. (4) The QFR endeavour to eliminate the double counting arising from ownership ties, while the IRS and *Fortune* do not.[9] Fortunately, these differences tend to affect only the relative level of markups and not their pattern of change which is our primary concern here.

Consider then the charts of Figure 9-15, in which we relate the markup of net profit on sales for different size categories of manufacturing firms with the rate of inflation as measured by the quarterly percent change in the Producer Price Index for manufacturing commodities.[10] (Note that

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[9] See Bureau of the Census, *Quarterly Financial Reports for Manufacturing, Mining and Trade Corporations, 1988:3*, pp. IX-XV.

[10] Data for the Manufacturing Producer Price Index are from *Citibase* (1990), Series PWM, p. V-1-5, 1982=100. These data were originally published by the Bureau of Labor Statistics of the U.S. Department of Commerce, in *Producer Price Index*.

Figure 9-15a Inflation and the markup for manufacturing corporations: asset-class 1

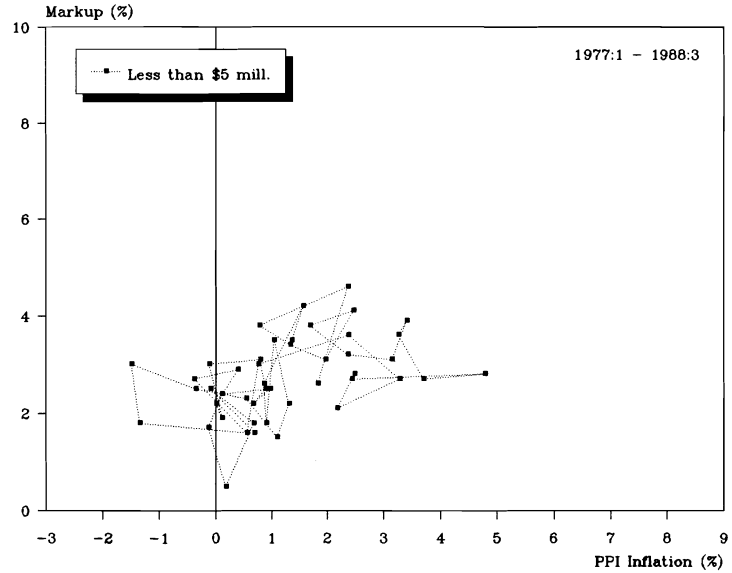


Figure 9-15b Inflation and the markup for manufacturing corporations: asset-class 2

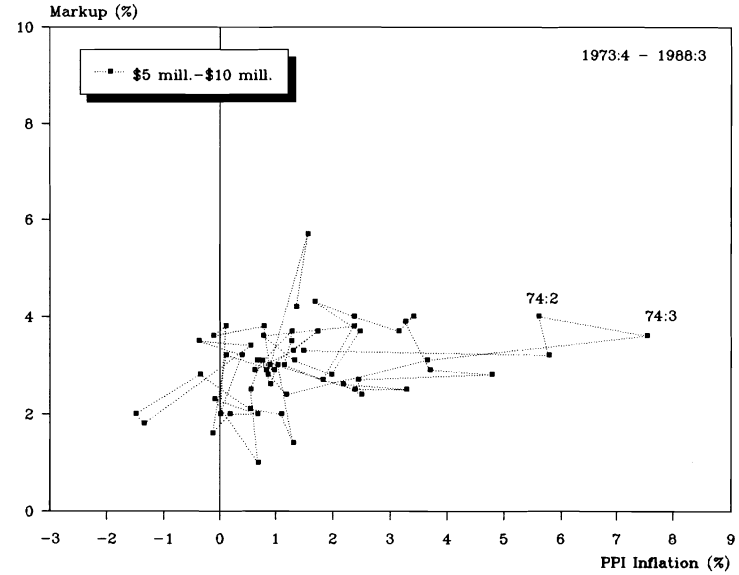


Figure 9-15c Inflation and the markup for manufacturing corporations: asset-class 3

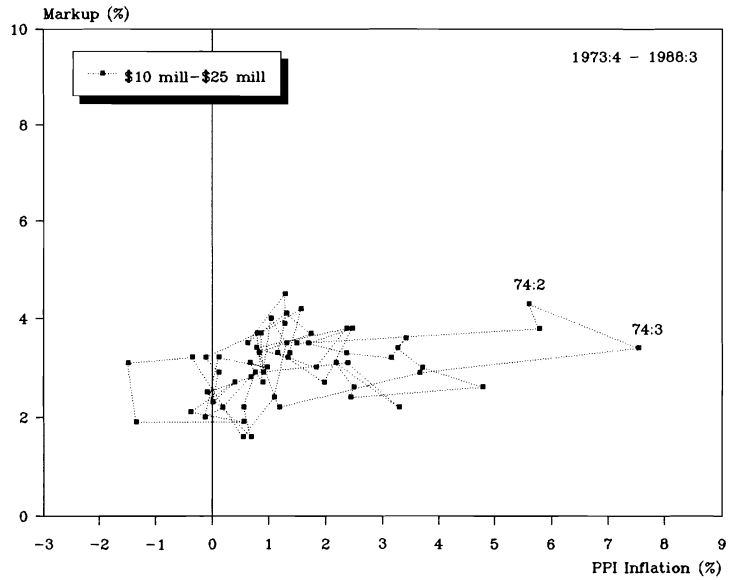


Figure 9-15d Inflation and the markup for manufacturing corporations: asset-class 4

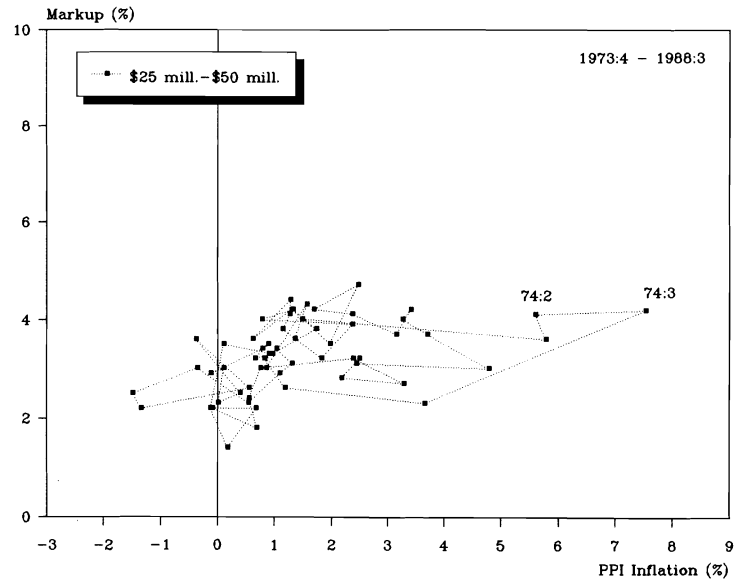


Figure 9-15e Inflation and the markup for manufacturing corporations: asset-class 5

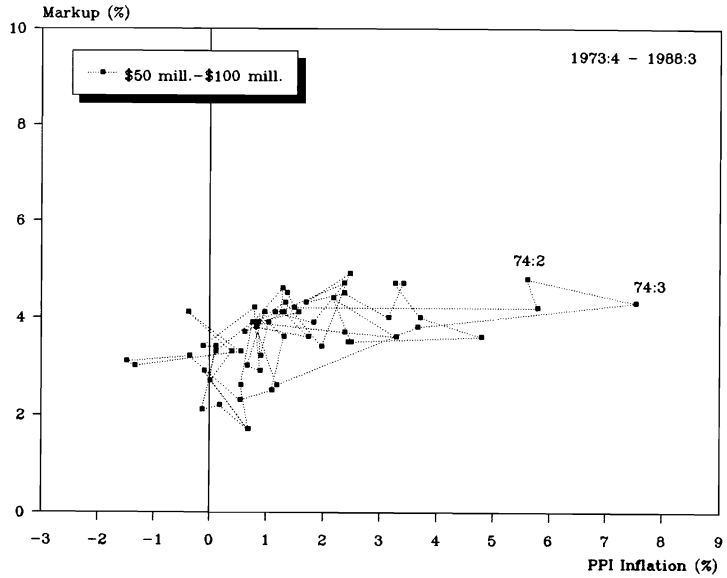


Figure 9-15f Inflation and the markup for manufacturing corporations: asset-class 6

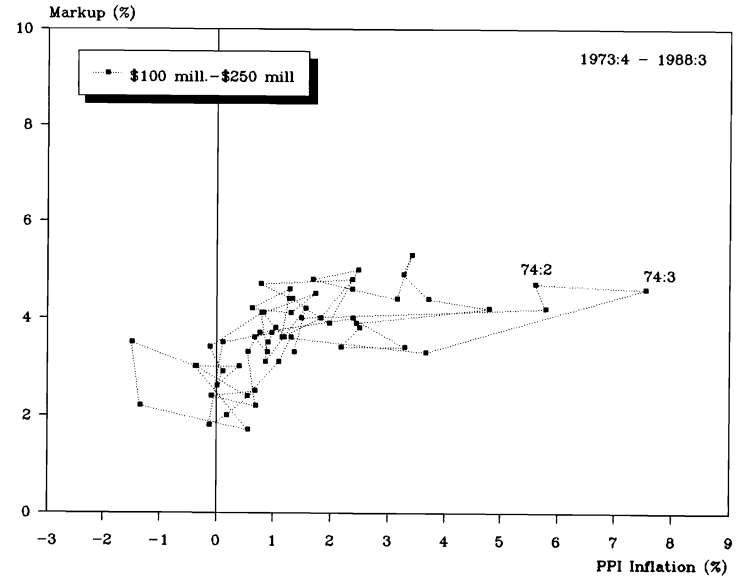


Figure 9-15g Inflation and the markup for manufacturing corporations: asset-class 7

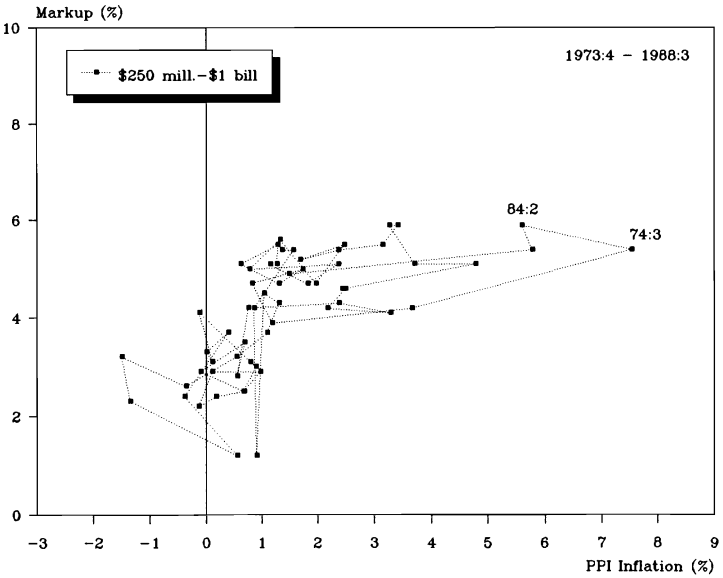
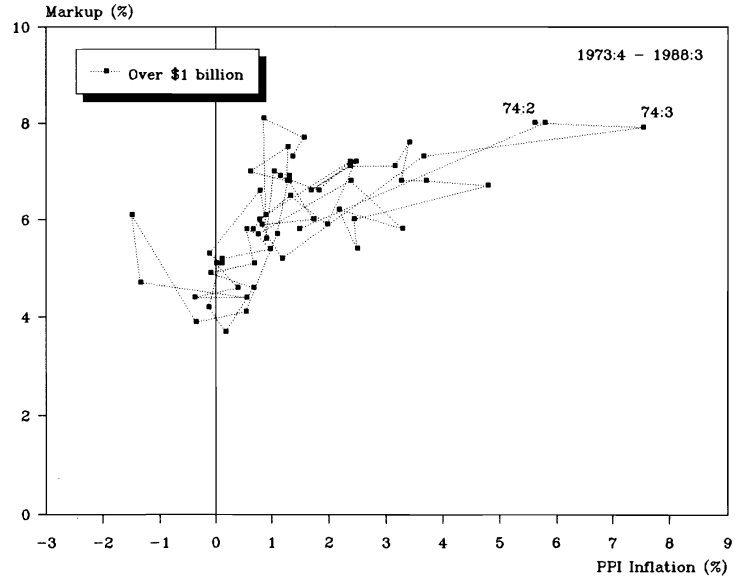


Figure 9-15h Inflation and the markup for manufacturing corporations: asset-class 8



unlike in Figures 9-12 and 9-14, here we contrast the markup for each group of firms not with the group's *own* rate of inflation, but with the *overall* rate of inflation in the manufacturing sector. This should present no difficulty, however, since, as we have shown in Chapter 8, the rate of change of the PPI was closely correlated with "Inflation" for both large and small firms, particularly after 1970.) The QFR's size breakdown is based on the value of total assets of the reporting firm and includes 8 categories with the following cuttoff levels: less than $5 million in assets, $5 to $10 million, $10 to $25 million, $25 to $50 million, $50 to $100 million, $100 to $250 million, $250 to $1 billion, and over $1 billion. For the smallest size category there are 47 quarterly observations (from the first quarter of 1977 to the third quarter of 1988, inclusive), while for each of the remaining 7 categories there are 60 quarterly observations (from the fourth quarter of 1973, until the third quarter of 1988, inclusive). In terms of our own breakdown for the M&M sector, one can consider the two highest categories -- those which include firms with over $250 million in total assets -- as corresponding roughly to the manufacturing subset of the Fortune 500, while the remaining categories correspond approximately to the manufacturing subset of the 'Others' group.[11]

The patterns which emerge from the various charts of Figure 9-15 are consistent with those recorded in Figures 9-12 and 9-14. Here, too, we can see that, during the 1970s and 1980s, the rate of inflation was positively related to the level of the markup for both large and small firms. The fact that this positive association between inflation and the share of profit holds not only for annual observations, but also for short-term quarterly changes makes this relationship all the more robust. Furthermore, the data also point to some meaningful differences between the various groups of firms. These differences are most apparent when we contrast the record of the largest firms (Figures 9-15g and 9-15h) with that of the smallest firms (Figures 9-15a and 9-15b). (To facilitate comparison, all the charts in Figure 9-15 are drawn with same vertical and horizontal dimensions.) We can clearly see that the relationship between inflation and the markup was much *tighter* for the largest firms than it was for the smaller ones,

[11] This rough association is established based on the number of firms in the larger categories. In 1975, there were 427 manufacturing firms with assets of over $250 million (276 with assets between $250 million and $1 billion and 151 with assets of over $1 billion). Thirteen years later, in 1988, there were 884 such firms (550 with assets between $250 million and $1 billion and 334 with assets of over $1 billion). See the *Statistical Abstract of the United States* for 1988, Table 898, p. 541, and for 1990, Table 858, p. 513.

particularly if we disregard the 'outlayers' of 1974.[12] So, although both the large and small firms experienced inflationary gains, the redistributional benefits for the former group were fairly systematic, whereas those for the latter were more irregular.

While our findings so far are consistent with an 'inflation-taking' behaviour for the smaller firms, they are still insufficient to substantiate our basic premise regarding the 'inflation-making' role of large corporations. Recall that, for these firms, the redistribution of sales revenues between cost and profit is merely a means of altering the distribution of profit among firms. Within that context, the principal purpose of inflation is to affect the rate of change of profit per employee and it is the relationship between these two variables which we now turn to.

For the Fortune 500, the rate of growth of net profit per employee $f\pi e$ is approximately equal to the sum of "Inflation" fse and the rate of change of the markup fk. As we demonstrated in the previous section, the direct contribution of fse to $f\pi e$ was rather limited, implying that if and when the Fortune-500 "Inflation" strategy was successful, it must have worked mainly through its impact on fk. In other words, to be effective, "Inflation" must affect not only the *level* of the markup, but also its *rate of change*. The significance of this latter relationship is depicted in the four charts of Figure 9-16. Beginning with Figure 9-16a, we can see that, during the 1950s and 1960s, Fortune-500 "Inflation" fse tended to be positively and tightly correlated with the rate of change of the markup fk. Given this association it is then not very surprising that there was also a similar correlation between "Inflation" and the rate of growth of profit per employee $f\pi e$, as depicted in Figure 9-16b. This neat relationship was upset to some extent from the early 1970s. We can see in Figure 9-16c that, during this latter period, the positive relationship between "Inflation" and markup growth was no longer very tight. That, in turn, affected the overall relationship between the Fortune-500 "Inflation" and the rate of growth of its profit per employee. As Figure 9-16d indicates, the overall effect on $f\pi e$ of fse was still positive, but there were several 'aberrations' -- years in which profit per employee were seemingly 'out of control.'

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[12] By treating the markup in each size category as a linear statistical function of a constant and PPI inflation, we found that both the estimated slope coefficient and as its associated significance level rose with corporate size. Unfortunately, such econometric techniques presume that there is some 'underlying' functional relationships between inflation and the markup, which makes the resulting evidence somewhat inadequate to the 'non-stationary' historical perspective adopted in this work.

Figure 9-16a "Inflation" and the rate of change of the markup for the Fortune 500, 1955-1970

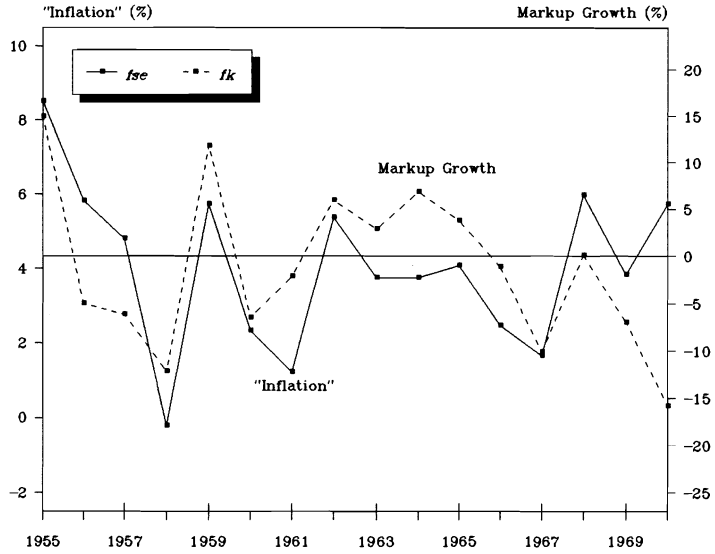


Figure 9-16b "Inflation" and the rate of change of profit per employee for the Fortune 500, 1955-1970

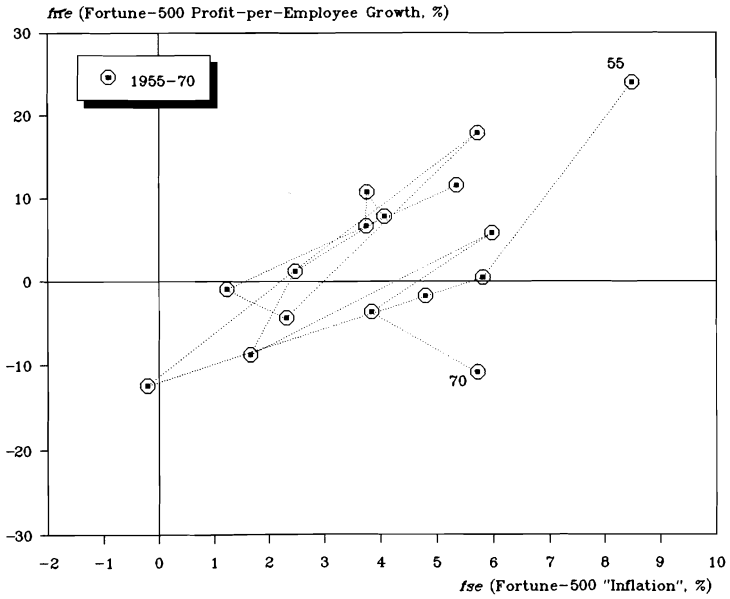


Figure 9-16c "Inflation" and the rate of change of the markup for the Fortune 500, 1970-1989

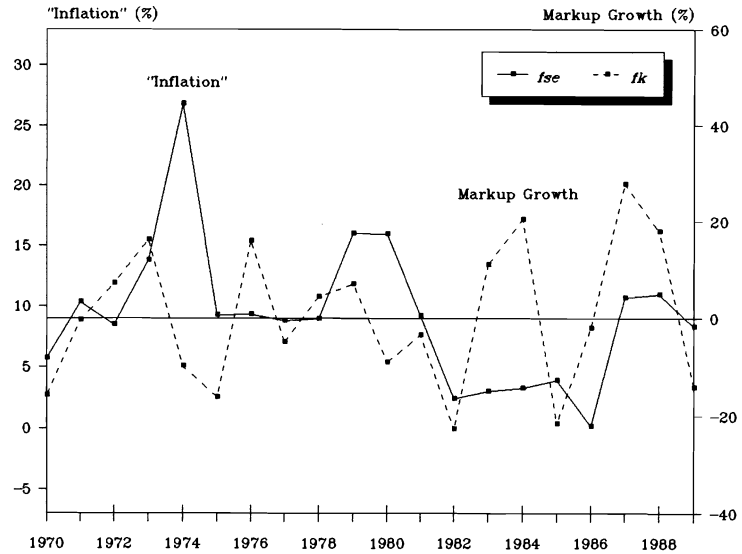
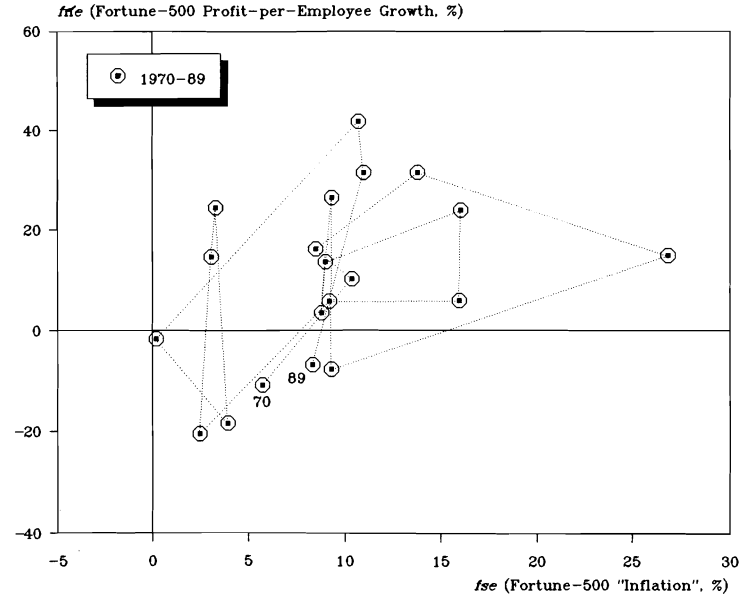


Figure 9-16d "Inflation" and the rate of change of profit per employee for the Fortune 500, 1970-1989



The difference between the experience in these two periods illustrates the fundamental dilemma facing the large core firms. Although increases in the rate of inflation may be used to boost profit margins, the rise is usually temporary, depending on the extent and speed of subsequent cost changes. So, while the immediate consequence of raising the rate of "Inflation" *fse* is a higher *fk* and hence a higher rate of growth for net profit per employee *fπe*, the eventual impact is far less certain. Unless the rate of "Inflation" continues to rise, *FK* is likely to drop and, with a negative value for *fk*, even a fairly high "Inflation" may prove insufficient to prevent *fπe* from becoming negative as well. The only way to prevent this latter outcome is to *continuously* raise the rate of "Inflation," but that may prove to be a self-defeating strategy since ongoing increases in core "Inflation" are likely to create an inflationary spiral with fluctuating distributional outcomes and indeterminate consequences for the core's differential rate of accumulation.

The inflation consensus among core firms is hence subject to two opposite forces. On the one hand, core firms know that raising their rate of "Inflation" is likely to augment their markup and increase their profit per employee. On the other hand, they also realize that the ensuing gains are short-lived; in order to maintain the higher rate of growth of profit per employee, they must continuously increase their rate of "Inflation" and that need not be beneficial. These conflicting pressures make core firms sensitive to negative as well as positive 'inflation stimuli.' Specifically, a failure to achieve a 'satisfactory' differential rate of accumulation generates a strong impetus toward a higher inflation consensus. Under these circumstances, the potential short-term gains are too strong to resist, making an inflationary spark all but inevitable. An 'adequate' differential rate of accumulation, on the other hand, is a negative inflation stimulus. In this latter case, long-term concerns become dominant and the inflation consensus remains low.

This analysis is of course conjectural to some extent. In our view, attempting to predict the inflationary inclinations of large firms as if they were a mathematical or statistical 'function' of some other variables would be quite misleading. Given the subjective underpinning of the differential rate of accumulation and the range of factors affecting this rate -- not the least of which is the possibility that

coalitions may choose a self-defeating strategy -- it is clear that any conclusion here must remain 'impressionistic' to a certain degree. It is only with these methodological limitations in mind, that we can finally turn now to interpret the inflationary experience of the Fortune-500 core and summarize its consequences for the manufacturing and mining sector as a whole.

9.10 Differential Pecuniary Accumulation and Inflationary Restructuring in the M&M sector: An Historical Interpretation

During the 1950s and 1960s, the large core firms enjoyed a very rapid differential rate of accumulation (Figure 9-1). Much of that growth originated from changes in the breadth of accumulation, particularly those brought by the conglomerate merger movement (Figure 9-5). With their ongoing acquisition of smaller periphery firms, core corporations were able to raise their employment per firm much faster than average (Figures 9-6 and 9-7). Given these gains, the large firms were less concerned with boosting their depth of accumulation and even allowed their net profit per employee to increase more slowly than the average (Figure 9-5). This relative decline was not altogether detrimental for it helped to maintain a stable growth for earnings and to keep the differential risk premium low (Figure 9-4).

So, until 1970, with their eye toward a stable expansion of profit, the large corporate coalitions were quite content to let their sales per employee grow more slowly than the M&M average (Figure 9-9). At the same time, the very fact that their inflation consensus was somewhat lower than the rate of M&M "Inflation" meant that these groups were highly sensitive toward any positive 'inflation impetus.' During the 1950s and 1960s, the most important of these inflation stimuli was probably the extent to which the Fortune 500 expanded their breadth of accumulation faster than the average. Indeed, as we showed in Figures 9-17a and 9-17b, until 1970, there was a rather tight inverse relationship between the differential growth of employment per firm and the rate of Fortune-500 "Inflation." With only few exceptions, a drop in (*fez* – *mez*) would trigger a contemporaneous rise in *fse*, while an increase in this differential would bring "Inflation" down. Judging on the basis of these data, it seems that, for the Fortune 500, direct business-to-business redistribution and indirect labour-to-business redistribution were indeed two alternative strategies.

Figure 9-17a **"Inflation" and the differential breadth of accumulation for Fortune-500 firms, 1955-1989**

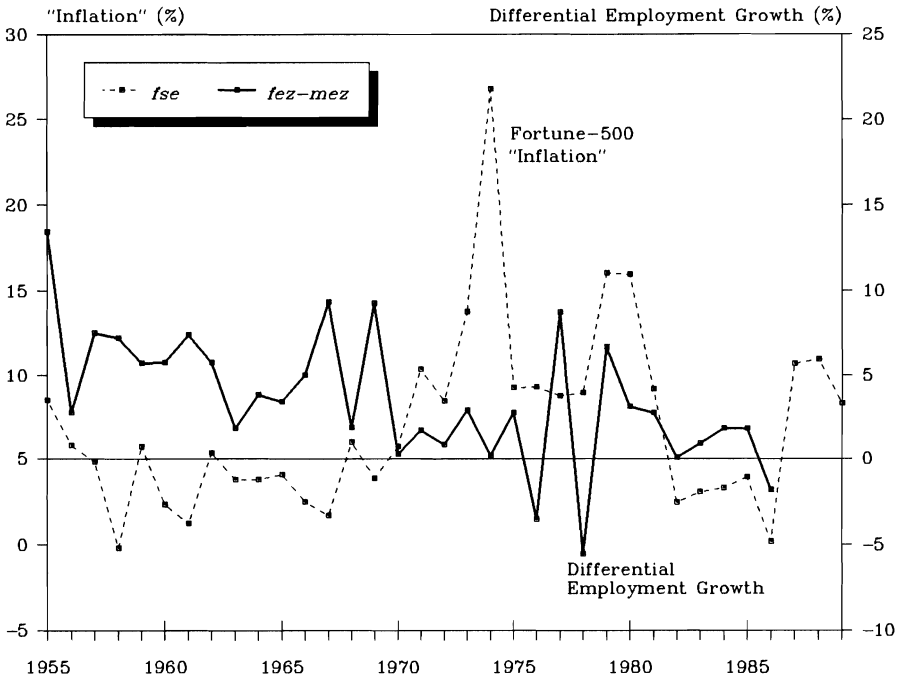
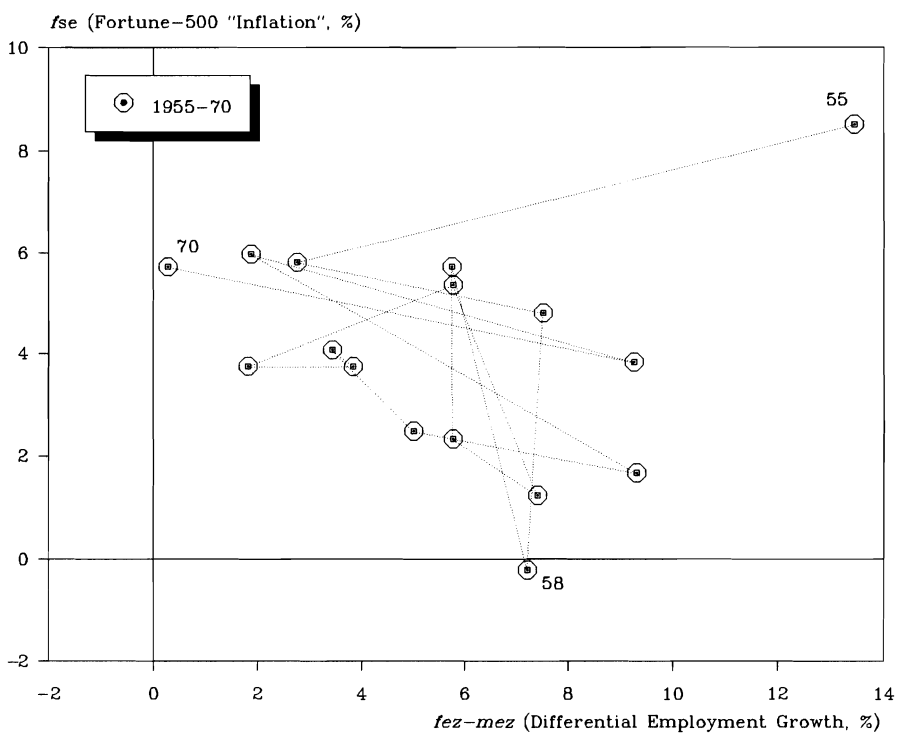


Figure 9-17b **"Inflation" and the differential breadth of accumulation for Fortune-500 firms: a functional presentation, 1955-1970**



In fact, this very ability to switch back and forth between the breadth and depth of accumulation helps explain the redistributive efficacy of Fortune-500 "Inflation" until 1970 (Figures 9-12 and 9-16). When the value of (*fez* – *mez*) dropped, the decrease was usually temporary. Eventually, there would be a rebound, permitting the large firms to downscale their inflation consensus. What made their inflation strategy so effective was precisely its *transient* nature. It was mainly by keeping their rate of "Inflation" from continuously growing, that the Fortune 500 were able to use occasional inflationary sparks to counteract temporary aberrations in the merger movement.

Thus, in a somewhat paradoxical way, the low inflation of the 1950s and 1960s owed much to the underlying consolidation of corporate coalitions. During that period, the Fortune-500 giants were busy expanding their breadth of accumulation and reinforcing their relative business position. Their acquisitions of smaller firms rapidly raised the overall concentration of the M&M sector: despite the ongoing increase in the number of 'other' firms, the aggregate concentration ratios for employment and sales climbed from less than 50 percent in the early 1950s, to about 65 percent in the late 1960s (Chapter 8).

By 1970, however, this massive realignment was completed. As we can see in Figure 9-17a, the differential expansion in the breadth of accumulation was now reduced to a mere trickle and, with no other way to exceed the average rate of accumulation, the Fortune 500 were becoming increasingly receptive toward inflationary increases in their depth of accumulation. Indeed, it was precisely at this point in time that the long-term decline in the Sales-per-Employee Ratio abruptly ended (Figure 9-9). The rate of Fortune-500 "Inflation" which was characteristically lower than the M&M average throughout much of the 1950s and 1960s, now began to rise as rapidly as the average and, subsequently, from 1975 onward, became persistently higher that the average.

The crucial role of large firms in instigating the inflationary spiral of the early 1970s was blurred by the parallel commodity-price explosion. Rapid increases in the prices of raw materials had a disproportionate effect on the profits of smaller mining firms and thus undermined, at least temporarily,

the relative profit position of the large companies (Figure 9-8). Since this was usually interpreted as evidence of oligopolistic sluggishness, the notion that inflation in fact stemmed from the big economy seemed far-fetched. Instead, many economists traced the rise of inflation during that period to heightened instability in the global financial system and the consequent resort to commodity speculations (see Section 4-4). These interpretations, however, are not inconsistent with our framework. To the extent that the rapid rise of raw material prices was indeed the outcome of inflation-hedging (as suggested in the 'pull-push' theories of Sylos Labini and Kaldor, for example), it brings us right back to the large Fortune-500 firms, for they were by far the biggest buyers of raw materials! In the final analysis, it was the higher inflation consensus among these firms which allowed commodity-price inflation to develop in the first place.

Toward the end of the 1960s, with declining investment opportunities in non-core industries, the large corporations were embracing higher inflation. Initially, their 'inflation sparking' may have been conceived as a standard short-term answer to declining mergers and acquisitions but, this time, the merger wave failed to resume. Driven by the quest for differential pecuniary accumulation but paralysed by the lack of takeover candidates, the large firms failed to downscale their inflation consensus and, with every passing day, their initial spark was spreading into an all-embracing inflationary spiral. With rising commodity prices and increasing wage cost, inflation soon seemed to have swirled 'out of control.' Yet at least in one fundamental respect the 'chaos' was more apparent than real. As we have seen (Figure 9-12 to 9-16), changes in the rate of inflation were almost invariably associated with parallel changes in the markup for the core firms, suggesting that even after 1970 inflation was never quite independent of the Fortune-500 consensus.

Of course, the ultimate consequences of inflation for the core's differential rate of accumulation were not necessarily beneficial. Because of the rapid commodity-price inflation during the early 1970s, profit-per-employee for the large corporations were initially rising more slowly than the average. Only later, from 1975 onward, did the inflation strategy of these firms start to bear fruit, leading to a differential increase in their depth of accumulation. To their dismay, however, the ensued instability increased the risk premium on their earnings, which in turned served to undermine their overall differential rate of accumulation.

The predicament for the Fortune 500 was intensified by another development which we have not elaborated upon so far. As we can see in Figure 9-17a, the fluctuations of (*fez – mez*) which explained much of the ups and downs of Fortune-500 "Inflation" until 1970, were no longer very helpful in accounting for its variations thereafter. This raises the important question of what affected the core consensus after 1970? Certainly, the long-term decline of *fse* since 1975 was partly due to its growing redistributional effectiveness, but was this the only reason? Furthermore, what prompted the inflationary surges of the late 1970s and late 1980s? The answer to these questions, we believe, is related to a new intra-core realignment which began during the late 1960s and started to have an effect roughly around 1975.

The essence of this transformation is suggested by the data in Figures 9-18a and 9-18b, where we contrast Fortune-500 "Inflation" with the ratio of merchandise imports to Fortune-500 sales.[13] During the 1950s and 1960s, the United States was a relatively closed economy. Exports of foreign firms into the country amounted to less than 10 percent of total Fortune-500 sales and less than 5 percent of overall M&M sales. In contrast, the domestically-based core coalitions controlled over one half of all M&M sales which made them the undisputed inflation-makers. This started to change toward the end of the 1960s, with the increasing significance of imports. Within the short period between 1970 and 1974, the ratio of merchandise imports to Fortune-500 sales rose from 9 to 13 percent. It then continued to increase, reaching 15 percent in 1980, 19 percent in 1985 and almost 23 percent by 1989. Since most of these incoming imports originated from *large* European and particularly Japanese corporations, it is clear that this intrusion must have influenced the inflation-making role of the U.S.-based giants.

While it is hard to identify a precise 'turning point,' we could reasonably argue that, sometime during the second half of the 1970s, the large foreign giants became sufficiently significant to start affecting the inflation consensus of the Fortune 500. The overall impact of this import penetration was to reduce the rate of Fortune-500 "Inflation." The cause of that decline, however, had very little to do with 'import competition' per se. As we see it, there is no a priori reason, particularly at the end of the

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[13] Figures on merchandise imports are from *Citibase* (1990), series GIMM, p. XIV-1-7. These data were published originally by the Bureau of Economic Analysis of the U.S. Department of Commerce in its monthly *Survey of Current Business*.

Figure 9-18a Fortune-500 "Inflation" and import penetration, 1955-1989

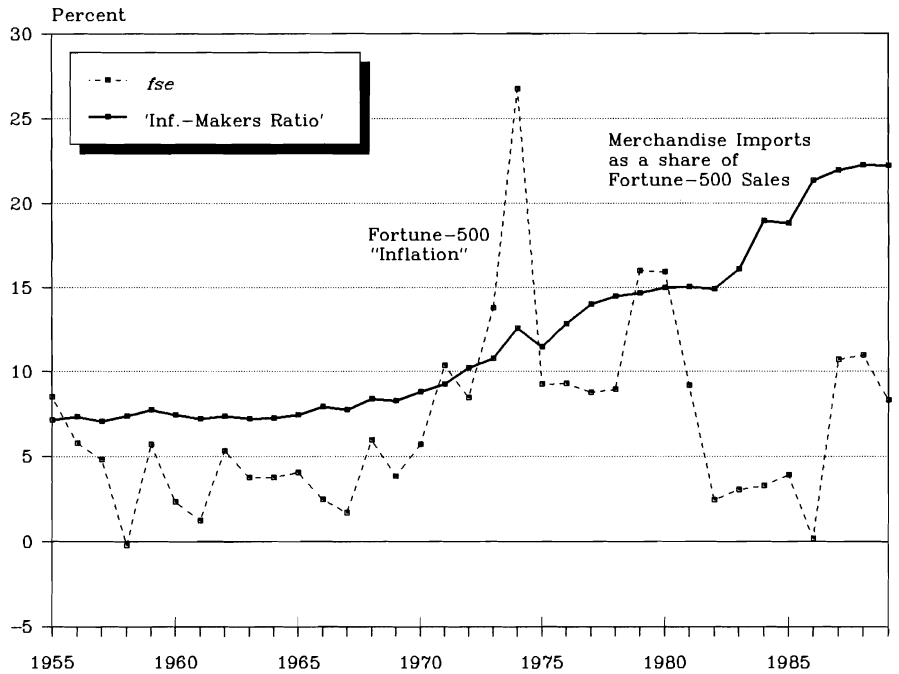
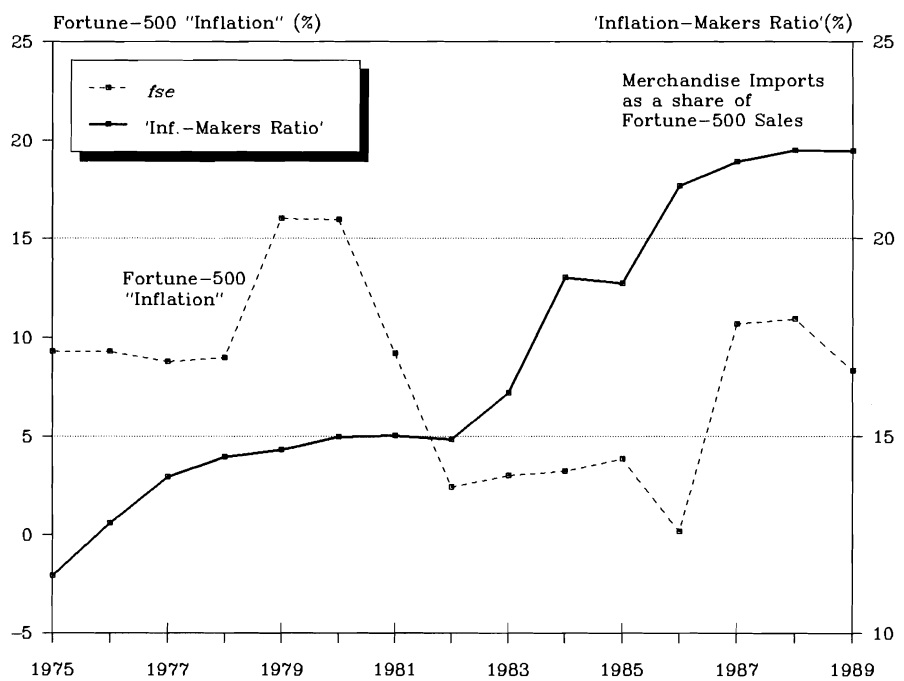


Figure 9-18b Fortune-500 "Inflation" and the 'Inflation-Makers Ratio,' 1975-1989



20th century, why business competition and cooperation should depend on the country of incorporation. If RJR Nabisco could cooperate with Philip Morris, why should it not be able to cooperate with Swiss-based Nëstle? Is there any intrinsic reason why General Electric could cooperate with Westinghouse but not with German-based Siemens, or Japanese-based Mitsui and Sumitomo? The 'opening up' of the U.S. economy induced the Fortune 500 to reduce their "Inflation" not because these domestically-based firms have some natural tendency to invoke price competition against foreign intruders, but rather because, for the most part, the large foreign corporations simply refused to cooperate on the inflation front.

Underlying this animosity was a fundamental global realignment among the large multinational corporations. In the United States, this restructuring meant that the locally-based giants were losing market share to the rising Japanese and European firms, and it was the particular course of this adjustment which now become a significant determinant of inflation. Variations in the rate of inflation still depended on the consensus among the large core firms, but the boundaries of the core were now expanding to include some of the larger foreign-based corporations. With these latter firms seeking to improve their own core position, intra-core cooperation was put in a permanent flux and the inflation consensus became harder to maintain. Whereas earlier changes in the rate of inflation may have hinged on the differential performance of the Fortune-500 *as a group*, the growing cleavage within the enlarged core meant that, from now on, these variations were increasingly dependent on the relative expansion of a small but 'militant' *sub-group* of foreign-based entrants.

Given these considerations, we can treat the ratio of merchandise imports to Fortune-500 sales as an 'Inflation-Makers Ratio.' The long-term increase in this ratio, evident in Figure 9-18a, indicates the growing significance of foreign giants relative to the Fortune-500. As long as these foreign companies were expanding their breadth of accumulation on account of their domestic counterparts, they had very little reason to support a higher inflation consensus and, without a commonly accepted inflation outlook, the Fortune-500 firms had to adjust their rates downwards. The long-term decline in Fortune-500 "Inflation" since the early 1970s was not uniform, however, and that, too, could be partly explained by the intra-core realignment. In Figure 9-18b, we concentrate only on the period from 1975 to 1989. We

can see how, between 1975 and 1978, with the 'Inflation-Makers Ratio' rising from 12 to 15 percent, the rate of Fortune-500 "Inflation" was relatively stable. In 1979-80, however, with the 'Inflation-Makers Ratio' approaching a new plateau, the intra-core cleavage was temporarily bridged. Unable to expand their own breadth of accumulation, the foreign firms became susceptible to a labour-to-business redistribution and the inflation consensus was scaled upward. This same pattern reoccurred in 1987-88. After rising vigorously for several years, the 'Inflation-Makers Ratio' was again starting to stagnate and with it came a new consensus toward a higher "Inflation."

While these data on the interaction between inflation and the process of intra-core realignment are merely suggestive, they are probably not coincidental. For example, during the early 1980s, when Japan agreed to impose 'voluntary quotas' on its automobile imports into the United States, the automakers in both countries used the arrangement to further boost their prices. A similar inflation consensus was established again in the late 1980s when, with stagnating exports, the Japanese auto companies raised their prices and were swiftly followed by the General Motors, Ford and Chrysler. Finally, in 1992, when the redistributional struggle in the car market was reaching its third stalemate, a new inflationary round got under way: despite the lingering of the deepest recession since the 1930s, and although it was hardly a month after the usual mid-season price hikes, the new inflation consensus was easily established, with all the major companies announcing their price increases in the same day.[14]

The penetration of foreign giants into the U.S. market was probably one of the most important factors behind the renewed merger thrust since the early 1980s. Increasing imports and attempts to combat them with improved productivity intensified the spectre of excess capacity in domestic markets. To counteract this threat, the Fortune 500 once again resorted to business amalgamation which proceeded throughout much of the 1980s and succeeded in cutting their own employment from 16 million in 1980, to just above 12 million by the end of the decade (Chapter 8). This particular period offers a classic Veblenian case of stagflationary restructuring. On the one hand, there were massive mergers accompanied by a speculative boom in the various financial markets, while on the other, there

[14] See for example Armstrong, Edid and France (1985), Treece (1992), Lowry Miller and Gross (1992) and Armstrong and Lowry Miller (1992).

was a stagflationary combination of intense 'industrial sabotage,' coupled with an inflationary growth of sales. For the large coalitions, this stagflation helped maintain and even increase profits in a shrinking market, thus justifying the progressive recapitalization of their tighter cooperation.

To a certain extent, the growing stagnation since 1970 was rooted in the inflationary process itself, particularly in its consequences for the distribution of income between capital and labour. While a fuller analysis of this issue goes beyond the limits of this work, it is still essential to accentuate its fundamental significance. In Figure 9-19a we plot annual data on the share of net profit and interest in the overall value of M&M sales.[15] Our purpose here is not to examine short-term changes, but rather to identify some broad tendencies in distributive shares. We can see that the share of net profit in sales tended to rise during the inflationary 1970s and then fell with the decline in inflation during the 1980s. If we add interest to net profits, however, their combined share exhibit a clear upward trend since 1970. (Although we have no disaggregated interest data for the Fortune 500 and the 'Others,' it seems safe to assume that the rising share of interest was coming mainly from the big economy.[16])

The other side of this process is illustrated in Figure 9-19b, where we depict the corresponding distributive shares of wages and salaries and of total employee compensation.[17] In the upper part of this chart, these aggregates are expressed as a share of M&M value added, while in the bottom, they are given as a share of M&M sales.[18] The overall impression is that 1970 was indeed a watershed for

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[15] Figures on the interest payments of M&M corporations are from the Internal Revenue Service, *Statistics of Income, Corporations Income Tax Returns*, various years.

[16] According to data published by the Bureau of the Census in its *Quarterly Financial Reports for Manufacturing, Mining and Trade Corporations, 1974:4* and *1989:4*, the share of total manufacturing debt accounted for by large firms (with more than $1 billion in assets) rose from 55 percent in 1974, to 77 percent by 1989. It is reasonable to conjecture that this has in turn raised the share of interest payments originated from the big corporations.

[17] These are gross-income data. Unfortunately, there are no adequate net-income figures for manufacturing and mining employees.

[18] Except for M&M sales which are based on IRS data, all series are from *Citibase* (1990). Wages and salaries are computed as the sum of series GAWSMI (mining) and GAWSM (manufacturing), while total employee compensations are the sum of GAPMI (mining) and GAPM (manufacturing), p. X-6-3. M&M value added is computed as the sum of GAG14 (mining) and GAGM (manufacturing), p. X-6-3. Note that these data on labour income and value added cover the standard industrial classifications for manufacturing and mining and hence differ from our enterprise-based categories for sales, net profit and interest.

Figure 9-19a Distributive income shares: capital

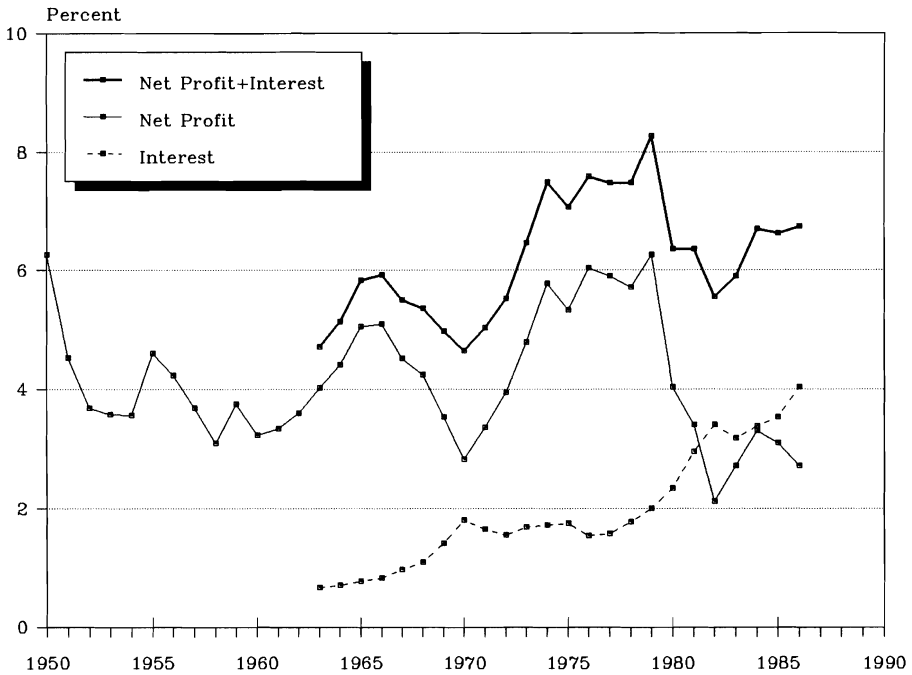
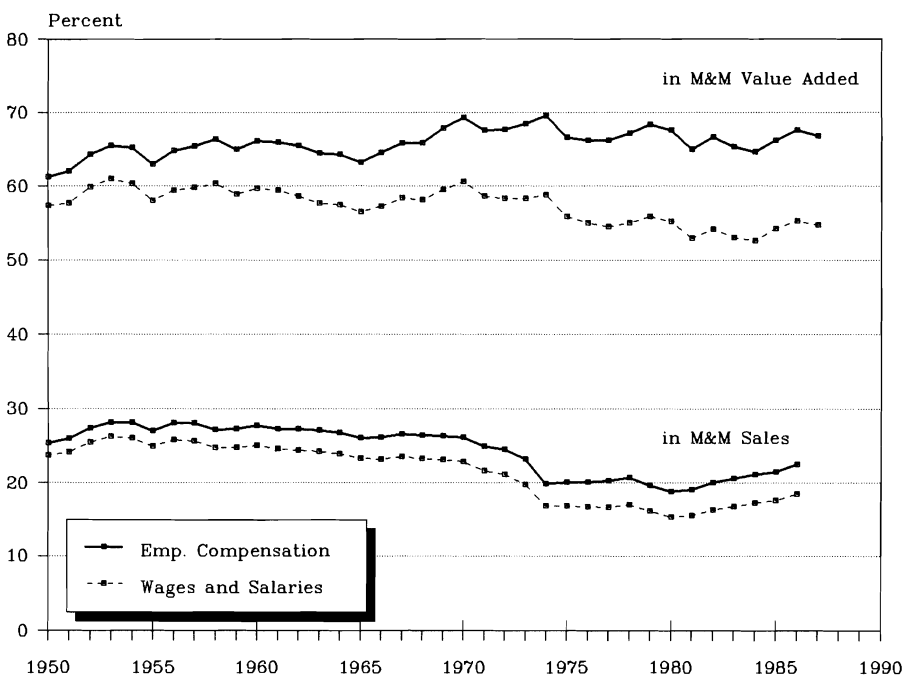


Figure 9-19b Distributive income shares: labour



M&M employees. With a relatively low inflation during the 1950s and 1960s, their share in value added was either rising (in the case of total compensation) or stable (for wages and salaries). The share of labour income in M&M sales was falling during that period, but the drop was relatively moderate by subsequent standards. After 1970, however, with rapidly rising inflation, the distributive share of labour income started to suffer. The combination of rising capital incomes and soaring raw material prices exerted such a colossal squeeze on the share of labour income in M&M sales that it lost almost one quarter of its value in only 4 years! A similar though quantitatively smaller decline is evident for the share of wages and salaries in value added, and even the share of total employee compensation in value added reverted to stagnation during that period.

These data may serve to suggest why the rise of inflation since 1970 tended to appear as 'stagflation.' As long as the core firms succeeded in their direct business-to-business redistribution through the breadth of accumulation, inflation was low and the effect on the relative share of labour income was minimal. This helped maintain mass consumption and contributed toward the overall expansion of the M&M sector. When the core coalitions reverted to inflation, however, the effect was an indirect labour-to-business redistribution, declines in the share of workers and substantial drops in mass consumption.

These consequences of differential pecuniary accumulation are particularly significant since they are not easily reversible. With a growing aggregate concentration, the ability of the large coalitions to achieve *further* distributional gains *via* mergers and acquisitions tends to diminish. Considered from a long-term perspective, this limitation implies that the large firms would be increasingly inclined to use inflation as their chief redistributional strategy. As a result, the share of labour income will most likely continue to be squeezed and inflation will continue to appear as stagflation.

CHAPTER 10

SUMMARY AND CONCLUSIONS

Inflation is one of the most perplexing economic phenomena. On the one hand, all inflations have the same monetary appearance, that is, they all involve an expansion in the amount of money relative to the quantity of commodities and an increase in the money prices of goods and services. From this perspective, there seems to be no fundamental difference between the European inflation of the 16th century, the German inflation of the 1920s, and the U.S inflation of the 1970s and early 1980s. On the other hand, every one of these inflations was part of a unique historical context. In the 16th century, inflation emerged with the first steps of European capitalism, creating a unprecedented income redistribution from wages to profits; in the German episode of the 1920s, inflation arose from the aftermath of a world war, eliminating the national debt and leading to a massive redistribution of wealth; finally, in the recent U.S. case, inflation developed amidst a major restructuring of corporate power and a far-reaching realignment of international economic institutions. It is hence clear that, while inflation is always and everywhere a monetary phenomenon, its institutional and structural essence is never the same.

In a way, we are faced here with a basic question which has bothered philosophers since Aristotle and Plato: the fundamental duality of *form* and *content*. For the economist, the problem arises because the formal definition of inflation is always the same, while its institutional and structural context is forever changing. Against the *static monetary form* of inflation stands its *dynamic social content*; below the *universal appearance* lies a *concrete historical essence*.

The standard way of dealing with this central duality is to ignore it. Most theories begin by assuming that the monetary process of changing prices is also the essence of inflation, that is, by seeing the form of inflation as its very content. From this perspective, the structural and institutional context is merely an exogenous variable, something which could help us explain the inflationary process but is

not an integral part of that process.

Our own approach in this work was to treat inflation as a process of restructuring. Instead of separating form and content, we sought to define the form of inflation in terms of its own content. Contrary to the macroeconomic and structural literature which start from the process of changing prices and then try to explain it through functional relationships with other variables, we proposed to begin by defining inflation as a dynamic interaction between business and industry. For us, the rate of change of prices was largely a corollary of the more fundamental social process in which industrial development is subjugated to business ends. In this framework, inflation is seen as a double-sided process in which the expansion of monetary values in the business sphere hinges on the strategic limitation of production in the industrial sphere, while the control of industry depends on the dynamic restructuring of business institutions. The temporal interaction between these spheres of socio-economic activity is not the 'cause' of inflation, but rather its very essence. In other words, *inflation is always and everywhere a process of dynamic restructuring*. From this viewpoint, the historical evolution of social structures and institutions is not only the explanation of inflation, but also its own description.

As we demonstrate in the first part of our thesis, the basis and implications of this new analytical framework are contrary to some of the fundamental methodological tenets of existing inflation theories. In the macroeconomic literature examined in Chapter 2, the emphasis is on forced deviations from a natural state of full employment and price stability. Since the late 1950s, modern macroeconomics evolved as a love-hate affair with the Phillips Curve. While most writers attacked Phillips' original construct, their criticisms sought to repair rather than impair. The common thread going thorough much of this literature is the desire to 'augment' the basic equilibrium framework with a set of disequilibrating 'imperfections' which temporarily throw the economy off its normal state of stability and desirability. This notion of separating the ideal world of supply and demand from real-life 'distortions' was already evident in Phillips' own article and in the subsequent elaborations by Lipsey and by Samuelson and Solow. Since then, the method of 'forced deviations' has reappeared in various forms, such as the aggregate view of market imperfections proposed by Perry, the informational imperfections stressed by Friedman and Phelps, the random-error school of rational expectations led by Muth, Lucas, Sargent and

Taylor, the institutional imperfections and cultural inertia underscored by Friedman, and the destabilizing menace of exogenous forces accentuated by Blinder and by Bruno and Sachs. The fundamental weakness of these explanations stems not from their lack of 'realism' but rather from perceiving real structures and institutions as extra-economic distortions.

In contrast to the macroeconomic literature, the market-structure approach to inflation examined in chapters 3 and 4, takes the realistic features of modern capitalism not as an 'imperfection,' but as its basic point of departure. While mainstream macroeconomists focus mainly on growth inflation and blame it on various externalities, the structural theorists concentrate on stagflation which they trace to the dual-market organization of modern capitalism. Starting from a basic distinction between market prices and markup pricing developed in the 1930s, structural theories tend to perceive inflation as a dynamic transmission of demand, cost or profit signals. Galbraith, for example, suggested that because of their sluggish reaction to growing demand, giant firms introduced a moderate but persisting inflationary bias which tended to continue throughout the entire cycle. The 'normal-price hypothesis' as developed by Coutts, Nordhaus, Godley and Moreno-Brid, on the other hand, argued that modern firms were impartial to demand signals, and that their prices were set as a fixed markup over 'normalized' cost. Taking the normal-price hypothesis a step further, writers such as Encaoua and Geroski tried to demonstrate that the extent of price smoothing depended on the degree of competition in the underlying industries. Another view on the relationship between market structure and inflation was proposed by Ackley, Kaldor and Sylos-Labini, whose separate analyses accentuated the role of 'pull-push' spirals. In their opinion, the inherent imbalance between competitive markets for raw materials and concentrated markets for finished products, together with the post-1970 destabilization of global financial markets, created an inherent tendency for a ratchet-like interaction between demand-pull and cost-push inflations. Another branch of this literature looked for the primal ignition spark behind the inflation spiral. According to authors such as Weintraub or Wiles, the inflation stimuli originated mostly from wage demands, while others, like Blair, emphasized the primary role of fixed short-term targets for profits. Finally, there were also those, such as Eichner and Kotz, who accentuated the inflationary impact of rising profit targets.

The market-structure literature offers valuable insights into the inflationary process but it also suffers from certain fundamental shortcomings. Much like mainstream macroeconomics, it, too, takes the structure of society as exogenously given and focuses on price and inflation as the main variables of interest. Given this emphasis, it is then hardly surprising that authors of the market-structure literature find it necessary to assume that there are fixed rules of conduct and stable equilibrium relationships which translate changes in exogenous conditions into predictable price movements. Unfortunately, this presumption serves to remove the very possibility that inflation and structural change are two sides of the same process. The common insistence on fixed profit markups negates the primacy of income redistribution as a fundamental process of inflationary restructuring. Even those who emphasize the inflationary role of changing profit targets, tend to anchor their theories in arbitrary rules of conduct and fail to integrate them into a broad framework of structural change.

The structurally-static nature of existing inflation theories stems, to a large extent, from their common utilitarian categories. All existing schools view inflation as a process of changing commodity prices and, although some of them argue that the world of commodities is also a reflection of social relations, they all tend to *measure* those prices as if they were rooted only in the material world of production and consumption. The main problem of measurement is to convert the qualitative diversity of commodities into universal quantitative units and, as we demonstrated in Chapter 5, this could be done only under rigid neoclassical assumptions. Indeed, the main works in this area (such as those written by Court, Dhrymes, Fisher and Shell, Griliches, Hofsten, Lancaster, Stone, Triplett, and Ulmer, as well as the recommendations of the U.S. Price Statistics Review Committee and the United Nations) all indicate that the existing indices are inadequate under alternative, non-neoclassical conditions. Unless we have an atomistic society of rational, utility-maximizing economic agents, unless these agents are organized in perfectly competitive markets and unless they interact in a constant state of equilibrium, the price and quantity indices tend to break down.

But if these indices require the *a*-historic harmony of a static world, how useful are they for the dynamic context of a power-oriented capitalist society? How meaningful are the Consumer Price Index, the Investment Price Deflator, or the GNP measured in 'constant' prices within the antagonistic setting

of collective action, where corporate coalitions, labour unions and politicians are interlocked in a hostile distributional struggle? How relevant are these indices when we substitute tacit coercion and open persuasion for autonomously determined human needs? Can we still use such indices when, instead of equilibrium and stability, there is constant flux and structural change? If the answer is negative, we have no choice but to look for another framework for inflation, one which will integrate the historical content of inflation into its very definition.

The second part of our thesis was an attempt to develop such a new framework. Whereas the common approaches emphasize static structures, we accentuated continuous structural change; against the distinction between monopoly and competition, we proposed a duality of cooperation and conflict; instead of separating the 'real' from the 'nominal,' we linked the world of industry with the institutions of business; in lieu of the atomistic actor and individual action, we started from the group and collective action; in place of passive reaction in a given structure, we looked for deliberate initiative to restructure.

Our analysis of inflation *as* restructuring began from the writings of Thorstein Veblen and Mancur Olson, who, each in his own separate way, stressed the significance of structural change for economic analysis. Writing during the emergence of large-scale business enterprise, Veblen offered a new interpretation for the concept of capital. Contrary to the neoclassicists and Marxists who sought to deduce the pecuniary value of capital from its *productive* essence, he insisted that capital was a purely business magnitude whose value depended on its *negative* industrial impact. The value of capital was a capitalization of earning capacity and, according to Veblen, business earnings depended on distributional, not productive powers. For the businessman, the capacity to appropriate earnings hinged on his strategic control of industrial activity, so the value of capital was in fact a capitalization of 'industrial sabotage.' In the context of rapid technological progress and limited population growth, the power to restrict industrial activity below its full capacity depended on the constant restructuring of political and economic powers, or on what Olson called the 'accumulation of distributional coalitions.'

Taking this as our tentative point of departure, we argued that, under the new order of large-scale business enterprise, the process of capital accumulation manifested itself in two main ways.

On the structural level, there is a constant formation and reformation of business arrangements, mainly through the ongoing process of mergers and acquisitions, which leads to increasing corporate diversification and rising aggregate concentration. The consequences of this restructuring are revealed on the macroeconomic level in the form of lingering stagnation and ongoing inflation. The extent to which business restructuring raises the profits of the large coalitions depends on the ability of these coalitions to limit the overall growth of industrial capacity below that of the market, while their success in doing so is capitalized in the form inflated asset values. In other words, under mature capitalism, the process of capital accumulation tends to appear on the one hand in the form of growing aggregate concentration and a progressive consolidation of corporate coalitions, and on the other hand in the form of persisting stagflation.

From this perspective, it is clear that inflation involves much more that changing prices. If we define the overall price level as a ratio between the total money values in the business sphere and the aggregate congeries of commodities in the industrial sphere, it turns out that the rate of inflation is in fact a universal imprint of a concrete historical process, in which the changing institutions of business enterprise interact with the varying conditions of industrial production. What is needed, then, is a new definition, one which describes the form of inflation in terms of its own historical content. In Chapter 7, we proposed to do that by replacing the standard 'multiprice' definition with an alternative, double-variable index reflecting the 'value-quantity' aspect of inflation. In this new index, the rate of inflation is given by the difference between the rate of change of a business-sphere variable, such nominal GNP or corporate sales, and the rate of change of an industry-sphere variable, like output or employment. The 'multiprice' and 'value-quantity' representations reflect the same inflationary process, but while the former focuses only on the price outcome, the latter also enables us to examine the underlying 'business-industry' origin. Indeed, using these new spectacles, it appears that stagflation is not a new phenomenon at all. By decomposing U.S. inflation into its 'business' and 'industry' components, we showed that, since the late 1940s (and most probably, since the beginning of the 20th century), the ongoing pecuniary expansion in the business sphere was accompanied by a persistent stagnation in the industrial sphere. In other words, contrary to the common wisdom and in line with our own hypothesis, it seems that the combination of inflation and stagnation is not an anomaly, but rather an integral part

of modern capitalist development.

Underneath this stagflation lies the dynamic process of corporate restructuring to which we turned in Chapter 8. According to our general framework, the inflationary interaction between business and industry appears together with the ongoing structural transformation of business arrangements, which is in turn reflected through the process of aggregate concentration. In operational terms, we started from the basic dichotomy between the 'core' and 'periphery' of a given corporate universe. Based on this distinction, we defined the rates of aggregate concentration and dispersion for any given variable as the respective distributive shares of the core and periphery in the overall value of that variable. Focusing specifically on sales and employment, we demonstrated that, for each group of firms, the rates of growth of sales and employment affected both their own rates of inflation, as well as the underlying rates of aggregate concentration and dispersion.

Using this analytical framework for inflationary restructuring, we then turned to examine the post-war experience of the U.S.-based manufacturing and mining sector. Our empirical analysis revealed two basic inflationary regime. It showed that, during the 1950s and 1960s, the combination of low price inflation and limited industrial stagnation was affected by a growing aggregate concentration for sales and an even faster increase for employment. The severe stagflation of the 1970s and 1980s, on the other hand, involved a different pattern of restructuring, with relatively little change in the aggregate concentration for sales and declining aggregate concentration for employment. These structural transformations also brought changes in the relative inflationary contributions of the two groups, with the role of the large firms rising very rapidly since the early 1970s.

To understand the reasons behind these historical developments, we tried in Chapter 9 to anchor them in the process of capital accumulation. After we decomposed inflation into a dynamic interaction of business and industry, and after we took this interaction further by identifying the distinct components of the core and periphery, our last step was to examine characteristic developments for a 'typical' large and small firm. We argued that large firms were preoccupied with *differential pecuniary accumulation*, that is, with increasing the nominal value of their assets faster than the average for their

corporate universe. To do that, the large firms must either broaden their differential 'breadth' of accumulation by raising their employment faster than the average, and/or increase their 'depth' of accumulation by raising their profit per employee faster than the average. The choice between these alternative strategies bears on the inflation process, with differential expansions in the breadth of accumulation leading to low inflation and relatively moderate stagnation, and attempts to raise the differential depth of accumulation creating a strong stimulus for stagflation.

For the large firms of the manufacturing and mining sector, we found that, during the 1950s and 1960s, differential pecuniary accumulation was affected mainly by the rapid process of mergers and acquisitions. By taking over periphery firms, the core corporations were able to achieve a brisk differential expansion in their breadth of accumulation, thus limiting their need for inflationary increases in their depth of accumulation. Indeed, for those firms, following fixed-markup formulas during that period helped minimize risk, which increased their differential rate of accumulation even further. Over time, the rates of aggregate concentration for sales tended to rise, but since the increase in the aggregate concentration for employment was even faster, the rate of inflation in the core was kept below that of the manufacturing and mining sector as a whole. When the merger wave receded in the early 1970s, however, the core firms felt compelled to boost their differential depth of accumulation, thus leading to the onset of a growing inflationary spiral and a rapid redistribution of income from labour to business. The consequence was a severe decline in aggregate demand which, together the progressive penetration of imports, forced the core firms to drastically cut their industrial base and accept lower rates of aggregate concentration for employment. On the macroeconomic level, the result was a transformation to a much more unstable regime, characterized by a combination of higher rates of inflation and unemployment.

* * *

Our basic claim that inflation is always and everywhere a phenomenon of structural change is not a specific hypothesis but a general framework for analysis. Our own emphasis in this work was only on the process of capital accumulation, as it manifested itself through the dynamic interaction between

business and industry, and through the formation and reformation of business coalitions. Furthermore, we focused on a particular sector within a single country, during a relatively short period of time. Given these limitations, it is clear that our work could be viewed only as an initial step. From a historical perspective, one could extend this framework to look backwards into the structural transformation of early capitalism, or to speculate on its future development into the 21st century. In a geographical context, it could be broadened to examine the experiences of other countries, or be expanded to study the global aspects of inflationary restructuring. And finally, if we are to gain a better understanding of inflation, we may also wish to include in our framework other structural processes, such the evolution of the modern state and the role of government policies.

APPENDIX A

DATA DEFINITIONS AND SOURCES FOR CHAPTER 7

Corporate Sales:
Gross operating receipts of corporations reduced by the cost of returned goods and allowances. Source: U.S. Department of the Treasury, Internal Revenue Service, *Statistics of Income, Corporations Income Tax Returns*.

Employment:
Number of workers on non-agricultural payrolls (annual average). Source: *Citibase* (1986), series LPANG, p. IX-2-1. Originally published as a monthly series by the U.S. Department of Labor, Bureau of Labor Statistics, *The Employment Situation -- Establishment Survey Employment and Earnings*.

Idle Capacity:
Unused capacity as a percentage of manufacturing capacity. [Computed as 100 - Rate of Capacity Utilization (Manufacturing).]

Idle-Capacity Index:
A modified index for manufacturing idle capacity between 1948 and 1985. (Computed as Idle Capacity / 3.3.)

Implicit GDP Deflator:
The ratio of Gross Domestic Product in current dollars (Nominal GDP) to Gross Domestic Product in constant dollars (Real GDP). 1982=1.00.

Nominal GDP:
Gross Domestic Product in current dollars. Source: *Citibase* (1986), series GAND, p. X-6-1.

Producer Price Index:
Producer Price Index for all commodities. 1967=100. Source: *Citibase* (1986), series PW, p. V-1-3. Originally published as a monthly series by the U.S. Department of Labor, Bureau of Labor Statistics, *Producer Price Indexes (News Release)*.

Private Employment:
Number of private-sector workers on non-agricultural payrolls (annual average). Source: *Citibase* (1986), series LP, p. IX-2-1. Originally published as a monthly series by the U.S. Department of Labor, Bureau of Labor Statistics, *The Employment Situation -- Establishment Survey Employment and Earnings*.

Rate of Capacity Utilization (Manufacturing):
Output as percentage of capacity (annual average). Source: *Citibase* (1986), series IPXMCA, p. VII-1-2. Originally published as a monthly series by the Board of Governors of the Federal Reserve System, *Capacity Utilization: Manufacturing, Mining, Utilities and Industrial Materials -- Statistical Release G.3 (402)*.

Rate of Unemployment:
Unemployment as a percentage of civilian labour force (annual average). Source: *Citibase* (1986), series LHUR, p. IX-1-6. Originally published as a monthly series by the U.S. Department of Labor, Bureau of Labor Statistics, *The Employment Situation -- Household Survey*.

Real GDP:

Gross Domestic Product in constant dollars, 1982=1.00. Source: *Citibase* (1986), series GAND82, p. X-6-1.

Real Private GDP:

Gross Domestic Product of private industries in constant dollars, 1982=1.00. Source: *Citibase* (1986), series GA8GWP, p. X-6-1.

Unemployment:

Number of unemployed persons, non-institutional population, 16 years and over (annual average). Source: *Citibase* (1986), series LHUEM, p. IX-1-2. Originally published as a monthly series by the U.S. Department of Labor, Bureau of Labor Statistics, *The Employment Situation -- Household Survey*.

APPENDIX B

IMPUTATION OF FOREIGN EMPLOYMENT OF M&M CORPORATIONS

Annual data on the foreign employment of U.S.-based multinational corporations are available from 'U.S. Multinational Companies' published by the U.S. Bureau of Economic Analysis (BEA) in the *Survey of Current Business*. Such estimates could have been used to compute the foreign component of M&M employment but, unfortunately, they have become available only since 1982. The BEA data are nevertheless useful as a basis for an indirect estimation which we now turn to describe.

The estimates in this appendix use data pertaining to two groups of corporations: the Fortune 500 and U.S.-based multinational firms for which the largest single line of activity is in either manufacturing or petroleum. This latter group roughly constitutes the multinational subset of our M&M sector and we label it here as MNC (for multinational corporations). Table B-1 lists the different variables used in our estimations. Data sources for these variables are given at the end of this appendix.

Table B-1 Variable definitions and names

		M&M Multinational Corporations (MNC)	
	Fortune 500	Worldwide	Foreign Affiliates
Assets	*FA*	*MNCA*	$MNCA_{foreign}$
Employment	*FE*	*MNCE*	$MNCE_{foreign}$
Assets per Employee (Assets/Employment)	*FAE*	*MNCAE*	$MNCAE_{foreign}$

In order to impute the foreign component of M&M employment ($MNCE_{foreign}$), consider the value of assets per employee for the group of M&M multinational corporations. Given the diverse activities of this group, both in the United States and abroad, it seems reasonable to suppose that there

exist a fairly stable linear relationship between the value of its assets per employee in foreign operations ($MNCAE_{foreign}$) and the corresponding ratio for its worldwide operations ($MNCAE$), such that

$$(1) \qquad MNCAE_{foreign} = \alpha \; MNCAE \; ,$$

where α is a relatively stable time variable. During the period between 1982 and 1988 for which data are available, the average value for α was 0.73, fluctuating randomly between a low of 0.68 and high of 0.78, with a standard deviation of 0.035.

The most significant subset of the M&M multinational group is the Fortune-500 cluster of corporations. In the 7 years between 1982 and 1988 for which comparable data are available, the Fortune 500 accounted for about 85 percent of all employment by M&M multinational corporations and for over 65 percent of its total assets. (These distributive shares are given by the ratios of $FE/MNCE$ and $FA/MNCA$, respectively.) The Fortune-500 corporations probably account for an even larger share of the *foreign* employment and assets of these multinational firms. Given this pivotal role of the Fortune 500, and provided that there is indeed a stable linear relationship between the value of assets per employee in the foreign and worldwide activities of M&M multinational corporations, we can conjecture that

$$(2) \qquad MNCAE_{foreign} = \beta \; FAE \; ,$$

where β is a relatively stable time variable. The validity of this proposition can be assessed for the period between 1982 and 1988, by using comparable data for the Fortune 500 and the M&M multinational corporations. Based on Equation (2), we can express β as

$$(3) \qquad \beta = MNCAE_{foreign} \; / \; FAE$$
$$= (MNCA_{foreign} \div MNCE_{foreign}) \; / \; (FA \div FE) \; .$$

Over the 1982-88 period, the values of β computed on the basis of Equation (3) were indeed relatively stable, fluctuating around an average of 0.92, with a low of 0.83, a high of 1.02 and a standard deviation of 0.06.

Based on these arguments, we could have tried to impute the foreign employment of M&M multinational corporations ($MNCE_{foreign}$) by rewriting Equation (3), such that

(4) $$MNCE_{foreign} = (1/\beta)\, MNCA_{foreign}\, (FE/FA)$$

and then substituting the estimated average of 0.92 for β. Unfortunately, data for $MNCA_{foreign}$ are also available only from 1982 onward. This is not an unsurmountable obstacle, however. We can plausibly assume that the foreign assets of M&M multinational corporations account for a more or less fixed proportion of all U.S. private assets abroad ($USPAA$), such that:

(5) $$MNCA_{foreign} = \gamma\ USPAA\ .$$

Indeed, for the 1982-88 period, the estimated value for γ fluctuated only moderately around an average of 0.59, with a low of 0.57, a high of 0.64 and a standard deviation of only 0.025. Thus, by substituting Equation (5) back into Equation (4), we obtain

(6) $$MNCE_{foreign} = \delta\ USPAA\ (FE/FA),$$

where $\delta = \gamma/\beta$. For the period of 1982-1988, the average value of δ was 0.65 (fluctuating between a low of 0.59 and a high of 0.7 with a standard deviation of 0.041). Since we have no reason to assume that either β or γ exhibit any pronounced time trend, we can also assume that their ratio, δ, is a fairly stable variable. We hence substitute 0.65 as a reasonable estimate for δ and use Equation (6) to impute $MNCE_{foreign}$ as an approximation for the foreign employment of M&M corporations over the entire 1954-88 period.

During the 1982-88 period, the values of the imputed $MNCE_{foreign}$ series were remarkably close to the actual numbers published by the BEA and that lends some support to our estimation procedure. According to BEA figures reported in a *Special Survey of U.S. Multinational Companies, 1970* (see, *Statistical Abstract of the United States*, 1977, Table 920, p. 564), the actual value for $MNCE_{foreign}$ in 1970 was 2.5 million, which is only marginally lower than our own imputation of 2.64 million. While it may be difficult to assess the accuracy of our imputations for earlier periods, it should be noted that the effect of any potential inaccuracies on the *overall* figures for M&M employment during such periods could not have been very great: M&M firms have increased their foreign operations more or less continuously since the early part of this century, but it was only since the 1970s that these operations started to account for a *considerable* share of their overall activity.

Definitions and Sources for Variables used in Appendix B

U.S.-based Multinational Corporations:

MNCA: Total assets of U.S.-based multinational corporations whose major activity is in either manufacturing or petroleum ($ billions).

$MNCA_{foreign}$: Total foreign assets (affiliates' assets) of U.S.-based multinational corporations whose major activity is in either manufacturing or petroleum ($ billions).

MNCE: Total employment of U.S.-based multinational corporations whose major activity is in either manufacturing or petroleum (millions).

$MNCE_{foreign}$: Total foreign employment (affiliates' employment) of U.S.-based multinational corporations whose major activity is in either manufacturing or petroleum (millions).

SOURCE: U.S. Bureau of Economic Analysis, 'U.S. Multinational Companies,' in the *Survey of Current Business*, 1983 through 1989.

Fortune-500 Corporations

FA: Total assets of Fortune-500 firms ($ billions)

FE: Total employment of Fortune-500 firms (millions)

SOURCE: 'Fortune 500,' *Fortune*, 1955 through 1990.

Other Data

USPAA: Total U.S. private assets abroad ($ billion)

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Historical Statistics of the United States. Colonial Times To 1970*, Part 2, series U27, pp. 868-9 and *Statistical Abstract of the United States*, 1984 through 1990.

APPENDIX C

SOURCES OF EMPLOYMENT GROWTH IN THE M&M UNIVERSE OF FIRMS

The purpose of this appendix is to estimate the various components which contribute to changes in the average number of employees per firms -- both for the M&M universe as a whole, as well as for the Fortune-500 and 'Others' groups. Employment per firm in each category could be decomposed into *domestic* and *foreign* components, as listed in the upper part of Table C-1. The variables denoting the sources of change in these components are given in the lower part of the table. At a general level, we could hence separate for each category of firms its domestic from foreign growth. At a more detailed level, we are interested in distinguishing between *domestic internal growth* which involves the net creation of new jobs, *domestic external growth* which arises from the 'reallocation' of employees between different groups as a result of mergers and acquisitions, and *domestic compositional growth* which arises when the number of small firms and the number of large firms change at different rates.

Table C-1 Variable definitions and names

	Variable Name		
Variable Definition	All M&M Firms	Fortune 500	"Others"
Employment per Firm			
Total	*MEZ*	*FEZ*	*OEZ*
Domestic	*MEZ.D*	*FEZ.D*	*OEZ.D*
Foreign	*MEZ.F*	*FEZ.F*	*OEZ.F*
Changes in Employment per Firm			
All Sources	ΔMEZ	ΔFEZ	ΔOEZ
Domestic	$\Delta MEZ.D$	$\Delta FEZ.D$	$\Delta OEZ.D$
Internal	$\Delta MEZ.DI$	$\Delta FEZ.DI$	$\Delta OEZ.I$
External	---	$\Delta FEZ.DE$	$\Delta OEZ.E$
Compositional	$\Delta MEZ.DC$	---	---
Foreign	$\Delta MEZ.F$	$\Delta FEZ.F$	---

Consider the 'Others' group of the M&M sector. In any year *t*, the overall number of employees in this group is given by

(1) $OE_t = OEZ_t \cdot ONUM_t$,

where OEZ_t is the average number of employees per firm and $ONUM_t$ is the number of 'Other' firms. The overall annual change in the number of employees is hence:

(2) $\Delta OE_t = OEZ_{t-1} \cdot \Delta ONUM_t + \Delta OEZ_t \cdot ONUM_{t-1} + \Delta OEZ_t \cdot \Delta ONUM_t$,

where Δ denotes first difference from the preceding year. Provided that $\Delta OEZ_t \cdot \Delta ONUM_t$ is sufficiently small, we could write ΔOE_t, such that

(3) $\Delta OE_t \approx OEZ_{t-1} \cdot \Delta ONUM_t + \Delta OEZ_t \cdot ONUM_{t-1}$,

where $OEZ_{t-1} \cdot \Delta ONUM_t$ is the 'number effect,' denoting the change in overall employment arising from changes in the total number of 'other' firms, and $\Delta OEZ_t \cdot ONUM_{t-1}$ is the 'size effect,' designating the increase or decrease attributed to changes in the average employment size of such firms. Consider now Figures C-1a and C-1b. In the first of these figures, we chart the historical evolution of *OEZ* and *ONUM*. In the second diagram, we have the annual levels of *OE* and below them the annual values for the 'size' and 'number' effects. The data point out that, until 1970, the decline in overall employment for the 'Others' was dominated by the generally negative 'size effect' which more than outweighed the mostly positive 'number effect.' After 1970, there was a change in relative influence. The 'size effect' became more or less neutral and, with a generally positive 'number effect,' overall employment for the 'Others' followed an upward trend.

In order to look further into the possible causes affecting the level of *OE*, it is convenient to decompose the 'Others' group into two distinct categories: one containing the small firms which typically employ no more than a few dozen workers, and another with the larger corporations which could have

Figure C-1a Trends in employment per firm and the number of 'Other' firms

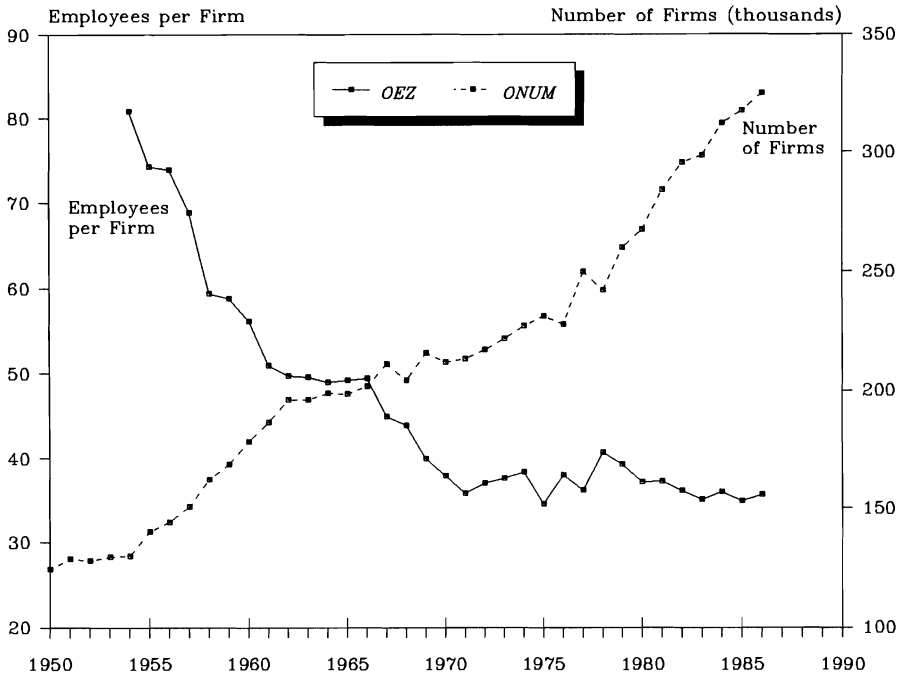
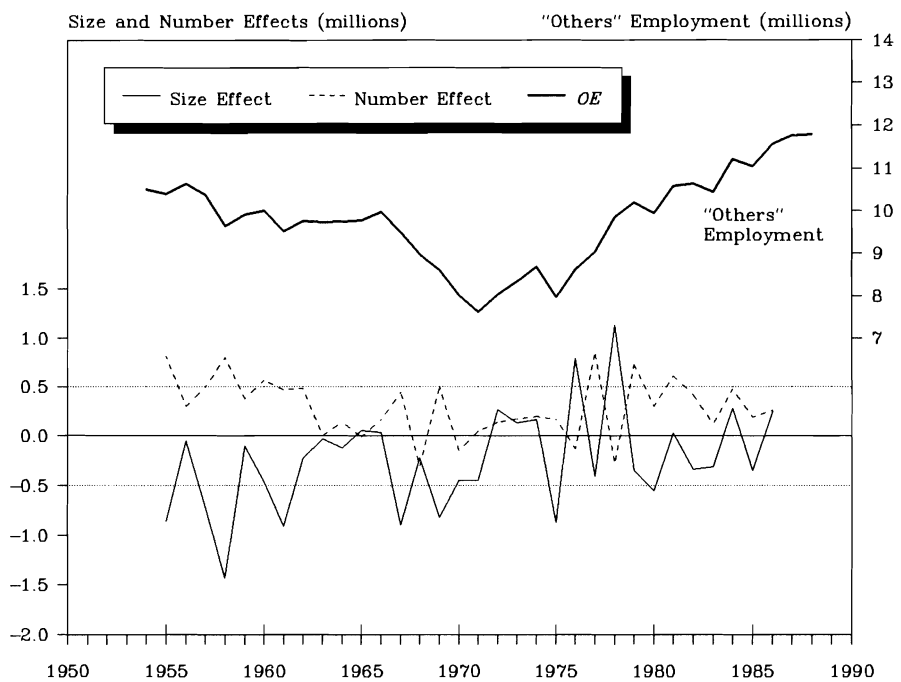


Figure C-1b The Size and Number Effect on 'Others' employment



up to a few hundred employees, but which are still insufficiently large to be included in the Fortune-500 listing. Each of these categories affect *OE* in a somewhat different way. The first category of firms is responsible for much of the change in *ONUM*: macroeconomic growth tends to have the effect of swelling the number of such small firms, while recession usually brings those numbers down. The second category has a relatively negligible effect on the number of 'other' firms, but a disproportionate impact on their average employment size *OEZ*. The reason is that, while both the small and larger firms experience internal changes in employment, it is mostly the latter which are involved in external expansion or contraction. When Fortune-500 corporations take over 'other' companies, they tend to acquire the relatively large firms in that group; similarly, when one Fortune-500 firm is absorbed by another, its place is filled with a large 'other' firm which previously occupied the 501st position in the M&M universe; or, when a Fortune-500 firm sells one of its divisions to one of the 'other' firms, the acquirer is commonly a large firm in its own right. Now, since the average size of the large 'other' firms far exceeds *OEZ*, the effect of such inter-group 'redistributions' of employees is to lower *OEZ* when workers are moved out of the 'Others' group, and to raise it when they are added to that group.

These considerations serve to explain how *ONUM* and *OEZ* could move in opposite directions. A sustained increase in the demand for industrial commodities leads to internal growth -- both through the establishment of new firms which raises *ONUM*, as well as through an increase in employment of existing firms which increases *OEZ*. It is indeed highly unlikely for there to be an ongoing long-term increase in the number of 'other' firms when such firms continuously lay off workers. The most conceivable explanation for how *OEZ* could fall rapidly when *ONUM* is rising, is that the decrease in *OEZ* stems from *external* contraction; that is, from the taking-over of large 'other' firms by Fortune-500 corporations (or non-M&M companies) and the consequent exclusion of their employees from the 'Others' group.[1] This 'redistribution' of employees between the 'Others' and the Fortune-500 group is

[1] An opposite movement for *OEZ* and *ONUM* could occur also without an external 'redistribuion' of employees. In principle, an increase in *ONUM* which raises the number of smaller firms faster the number of larger firms in the 'Others' group, will cause *OEZ* to fall even without there being any change in the actual size of such firms. However, the extent of such compositional shifts is not likely to be very large. Whereas the number of very small firms increases through incorporation, the number of larger firms in the 'Others' group tends to rise as medium-size companies hire more workers. For example, according to data published by the U.S. Bureau of the Census in its *County Business Patterns*, between 1974 and 1982, the number of establishments employing less than 20 workers rose by 11 percent, while the comparable rate of increase for establishments employing between 250 and 499 workers was 10 percent (U.S. Bureau of the Census, *Statistical Abstract of the United States, 1985*, Table 874, p. 518).

especially significant and, although there are no available statistics on it, the data could be imputed with some reasonable confidence.

Let us begin by classifying the sources of employment growth for the Fortune 500 and the 'Others.' In terms of employment *levels*, we have for the Fortune 500:

$$(4) \qquad FE_t = FE.D_t + FE.F_t ,$$

where FE_t is overall Fortune-500 employment, $FE.D_t$ is Fortune-500 employment in *domestic* operations within the United States, and $FE.F_t$ is the number of people employed by Fortune-500 subsidiaries abroad. The 'Others' have only negligible foreign operations, so for practical purposes, we could assume that

$$(5) \qquad OE_t = OE.D_t ,$$

where overall employment for the 'Others' is equivalent to their domestic employment $OE.D_t$.

Moving to *changes* in employment, we have for the Fortune 500:

$$(6) \qquad \Delta FE_t = \Delta FE.D_t + \Delta FE.F_t ,$$
$$= (\Delta FE.DI_t + \Delta FE.DE_t) + \Delta FE.F_t ,$$

where $\Delta FE.DI_t$ is domestic internal growth stemming from the creation of new employment or the elimination of existing jobs by the Fortune 500 within the United States, $\Delta FE.DE_t$ is the domestic external growth attributed to the transfer of employees to and from the Fortune-500 group, and $\Delta FE.F_t$ is foreign growth which combines the internal and external employment expansion of Fortune-500 subsidiaries abroad. For the 'Others,' assuming that the change in employment occurs only domestically,

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Since most 'other' firms have only a single establishment, we could expect the compositional shifts between those firms to be equally negligible.

we have

(7) $\Delta OE_t = \Delta OE.I_t + \Delta OE.E_t$,

where $\Delta OE.I_t$ and $\Delta OE.E_t$ are respectively the internal and external growth of 'Others' employment within the United States.

Within the domestic arena, external employment growth could occur in two different ways: (1) through intra-M&M acquisitions/divestitures which 'redistribute' employees between the Fortune-500 group and the 'Others,' and (2) *via* inter-sectoral transaction -- either when Fortune-500 or 'other' firms acquire non-M&M companies, or when firms from outside the M&M universe take-over M&M corporations. If this latter inter-sectoral part is sufficiently small, we could assume that for practical purposes,

(8) $\Delta FE.DE_t = -\Delta OE.E_t$.

Let us now turn to impute this 'reallocation' flow.

Consider the following definitions for *domestic* employment per firm. For the Fortune 500, we have

(9) $FEZ.D_t = FE.D_t/500$,

while for the 'Others,' which operate only domestically, the definition is

(10) $OEZ_t = OE_t/ONUM_t$.

The rates of growth of domestic employment per firm are hence given by the following equations. For the Fortune 500, we have

$$(11) \quad fez.d_t = \Delta FE.D_t/FE.D_{t-1}$$
$$= \Delta FE.DI_t/FE.D_{t-1} + \Delta FE.DE_t/FE.D_{t-1}$$
$$= fez.di_t + fez.de_t ,$$

where $fez.di_t$ is the rate of increase in domestic employment per firm due to internal growth and $fez.de_t$ is the corresponding rate attributed to external growth.

For the 'Others,' the rate of growth of domestic employment per firm is given by

$$(12) \quad oez_t \approx \Delta OE_t/OE_{t-1} - \Delta ONUM_t/ONUM_{t-1} .$$

Decomposing further, we could write

$$(13) \quad oez_t \approx (\Delta OE.I_t + \Delta OE.E_t) / OE_{t-1} - (\Delta ONUM.I_t + \Delta ONUM.E_t) / ONUM_{t-1} ,$$

where $\Delta OE.I_t$ and $\Delta OE.E_t$ denote the overall change in 'Others' employment due to internal and external growth, respectively, $\Delta ONUM.I_t$ is the change in the number of firms associated with internal growth (i.e., the incorporation of new firms which create new capacity and hire new workers, net of shut-downs) and $\Delta ONUM.E_t$ is the change in the number of 'other' firms due to external growth (mergers and acquisitions). This could be rearranged to get

$$(14) \quad oez_t \approx (\Delta OE.I_t/OE_{t-1} - \Delta ONUM.I_t/ONUM_{t-1}) + (\Delta OE.E_t/OE_{t-1} - \Delta ONUM.E_t/ONUM_{t-1})$$
$$\approx oez.i_t + oez.e_t,$$

where $oez.i_t$ and $oez.e_t$, are the portions of oez_t arising from internal and external growth, respectively. Narrowing our focus just to external growth, we have

$$(15) \quad oez.e_t = (\Delta OE.E_t/OE_{t-1} - \Delta ONUM.E_t/ONUM_{t-1}).$$

Since the value of $\Delta ONUM.E_t/ONUM_{t-1}$ is liable to be very small, let us ignore it and assume that, for practical purposes

(16) $\quad oez.e_t \approx \Delta OE.E_t/OE_{t-1}$

Rearranging terms, we get:

(17) $\quad \Delta OE.E_t \approx OE_{t-1} \cdot oez.e_t$.

Based on Equation (14), this could be written as

(18) $\quad \Delta OE.E_t \approx OE_{t-1} \cdot (oez_t - oez.i_t)$.

Now, because Fortune-500 and 'other' firms operate under the same domestic macroeconomic conditions, we may reasonably expect the internal rates of growth of their domestic employment per firm to be similar. Provided that internal growth generates no significant compositional shifts in the size-structure of 'other' firms, this means that

(19) $\quad oez.i_t \approx fez.di_t$,

and based on equations (6), (8) and (11), this gives

(20) $\quad oez.i_t \approx \Delta FE.DI_t/FE.D_{t-1}$

$$\approx (\Delta FE.DI_t - \Delta FE.DE_t - \Delta FE.F_t) \,/\, FE.D_{t-1}$$

$$\approx (\Delta FE.DI_t + \Delta OE.E_t - \Delta FE.F_t) \,/\, FE.D_{t-1} \ .$$

Substituting back to Equation (18), we get

(21) $\Delta OE.E_t \approx OE_{t-1} \cdot [oez_t - (\Delta FE.DI_t + \Delta OE.E_t - \Delta FE.F_t) / FE.D_{t-1}]$.

Solving for $OE.E_t$ yields:

(22) $\Delta OE.E_t \approx OE_{t-1} \cdot (FE.D_{t-1} \cdot oez_t - \Delta FE_t + \Delta FE.F_t) / (FE.D_{t-1} + OE_{t-1})$,

Since we assumed that $\Delta OE.E_t = -\Delta FE.DE_t$, Equation (22) gives us a reasonable approximation for the overall annual movement of employees between the Fortune-500 group and the 'Others.' This imputation is necessarily inaccurate to some extent, firstly because the internal rate of growth of employees per firm in these two groups need not be exactly the same; secondly, because employment per firm for the 'Others' may be subject to some compositional shifts, whereas in the Fortune-500 group the fixed number of firms excludes that possibility; and, lastly, because we have ignored the potential disparity between the inter-sectoral employment movements for the two groups. However, given that we are concerned only with the *overall* magnitudes of the different flows, these possible inaccuracies should not be a matter for concern.

With these qualifications in mind, the sources of change in employment per firm in each category could be computed with available data. The basic variables used in these computations are employment (*FE*, *OE* and *ME*, as described in Section 9.4), employment in the foreign subsidiaries of M&M firms (*ME.F*, computed as $MNCE_{foreign}$ in Appendix B), the number of firms in each category (500, *ONUM* and *MNUM*, described in Section 9.4) and, finally, the number of reallocated employees between the Fortune 500 and the 'Others' ($\Delta FE.DE$ and $\Delta OE.E$, as estimated by Equation [22] above). The computations for sources of employment growth listed in Table C-1 are given below.

Fortune 500

(23) $\Delta FEZ_t = FEZ_t - FEZ_{t-1} = FE_t/500 - FE_{t-1}/500$

(24) $\Delta FEZ.D_t = \Delta FEZ_t - \Delta FEZ.F_t$

(25) $\Delta FEZ.DI_t = \Delta FEZ.D_t - \Delta FEZ.DE_t$

(26) $\Delta FEZ.DE_t = \Delta FE.DE_t/500$

(27) $\Delta FEZ.F_t = \Delta ME.F_t/500$

'Others'

(28) $\Delta OEZ_t = OEZ_t - OEZ_{t-1} = OE_t/ONUM_t - OE_{t-1}/ONUM_{t-1}$

(29) $\Delta OEZ.I_t = \Delta OEZ_t - \Delta OEZ.E_t$

(30) $\Delta OEZ.E_t = \Delta OEZ_{t-1} \cdot oez.e_t = \Delta OEZ_{t-1} \cdot (\Delta OE.E_t/OE_{t-1})$

(31) $\Delta OEZ.D_t = \Delta OEZ.I_t + \Delta OEZ.E_t$

M&M

(32) $\Delta MEZ_t = MEZ_t - MEZ_{t-1} = ME_t/MNUM_t - FE_{t-1}/MNUM_{t-1}$

(33) $\Delta MEZ.D_t = \Delta MEZ_t - \Delta MEZ.F_t$

(34) $\Delta MEZ.DI_t = (OEZ.I_t \cdot ONUM_{t-1} + \Delta FEZ.DI_t \cdot 500)/MNUM_{t-1}$

(35) $\Delta MEZ.DC_t = \Delta MEZ.D_t - \Delta MEZ.DI_t$

(36) $\Delta MEZ.F_t = \Delta MEZ.F_t - \Delta MEZ.F_{t-1} = ME.F_t/MNUM_t - ME.F_{t-1}/MNUM_{t-1}$

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