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by

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Contents

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Abstract

The modern manufacturing firm competes with product quality improvements rather than cost efficient production of simpler products. R&D spending, marketing, availability of spare parts and service facilities, customs designs, etc. embody the product quality enhancing process, requiring considerable knowledge transfer and making information processing in a broad sense a major manufacturing activity. We can talk of a shift from a base in cost efficient processing to a product technology base, in which producers grow closer to their customers through internalizing part of the market process previously handled by independent traders. The important competition parameters are product innovations, which account for the bulk of measured R&D spending and marketing. In European firms, and in European firms based in small but advanced industrial countries in particular, the latter make up the bulk of foreign activities. Foreign activities are sizeable compared to the entire domestic manufacturing sector in countries like the Netherlands, Sweden and Switzerland. Marketing through foreign establishment is a product quality raising factor, but also a means of climbing trade barriers.

This paper argues three points. The international firms that dominate world trade to an increasing extent have their competitive base in acquired knowledge capital uniquely related to the firm, rather than in a country specific resource base. This means that first the basis for comparative advantages are shifting from a national raw material resource endowment to a more mobile, firm specific knowledge base. Comparative advantages are becoming endogenously determined in the ongoing economic process and hence rather shifty. Second - due to the product orientation of industrial knowledge - the distinctions between "nations", "firms" and "markets" are becoming blurred. Third, as a consequence, the traditional welfare conclusions used in trade and anti-trust policies no longer appear to hold.

The concern of industrial organization has traditionally been the economics of competition, notably the theory of anti-trust policy and regulation, forgetting about the economics of supply. Industrial economics, on the other hand, embodies the theory of the firm, mergers, the exit and entry processes and technological change. This is part of the broader field of the economics of institutions and markets, covering also the entire supply process. The conclusion of this paper is that the two fields have to be conceptually merged if the question raised in one of the fields are to be satisfactorily answered. What is needed, it is argued, is a general equilibrium theory enriched by a market process (dynamics) and explicit institutional change.

The outcome will eventually have to be a general theory of monopolistic competition called for already by Arrow (1959). A general theory of monopolistic competition will have to be explicit about the creation of knowledge in institutions, and their use of information in the market process. This paper also presents evidence supporting the need for such theory, and indicates some possible approaches to take.

1. The problem[1]

The international opportunity set

Extensive foreign trade in manufacturing products is charactertistic of the European industrial nations. One consequence of a foreign industrial sector that grows faster than the national economy is that the national economies become more firmly knitted together, not only through trade flows but also through a production and distribution organization, and in finance. From an analytical point of view the national boundaries soon cease to be of interest, except as a statistical observation post and a source of trouble. It is global firm and market behavior that matters. However, the set of nationally unrestricted international firms have a wider business opportunity set than the domestic firms and their resource dispositions tend to frustrate national authorities in their effort to control the domestic economy through policies.

This last observation is no minor thing. In some of the more advanced, small European countries the foreign part of industrial firms employ more than a quarter of the industrial labor force. The 10 largest Swedish firms that directly and indirectly employ some 30 percent of the domestic manufacturing labor force employ even more people abroad and dominate Swedish exports.

When an undisciplined, post oil-crisis economic policy in Sweden released extreme wage overshooting in Swedish manufacturing industries in the mid-70s a worried discussion followed about losses of market shares and the nose dive in machinery and equipment spending that occurred. It is interesting to observe how the picture changes with the definition of market shares. According to

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[1] I am grateful for a number of constructive suggestions for improvement and critical comments from Magnus Blomström, Lars Jagrén, Ken Hanson and Thomas Lindberg.

Jagrén (1985) the international Swedish firms as a group did not lose market shares. In both measures OECD production plus net imports minus net exports by sectors are used as denominator. Deliveries from Sweden slowed relative to foreign market growth, but actual global sales of the multinationals outside Sweden kept up with market growth. While hardware investment may have dropped, R&D investment and investment in marketing - mostly abroad - increased. It appears as if Swedish multinationals kept up their foreign maket shares by adding value through more service production abroad than through production for direct exports out of Sweden.

We also know that Swedish multinationals concentrated production significantly in response to the domestic, so-called cost crisis, abandoning loss or low profit activities. This often meant a lower growth in the total volume of output and exports. Using the definitions of markets that firms themselves use to assess their market power, this meant gains of market shares in their main markets, but often losses of shares if we use the broader market definitions used to assess the international market position of an exporting country. Whatever definition is used expansion of exports from factories at home as well as expansion of deliveries from foreign subsidiaries were made possible by a parallel expansion of foreign establishments (Eliasson-Bergholm-Jagrén-Horwitz, 1985).

At least 75 % of all foreign employees in Swedish multinationals are engaged in operating the global market network of the business organization and close to the market, customized production. This activity appears to be critical for the profitability of domestic activities, especially factory production.

For most of Europe, hence, we have to make a distinction between the firm, the manufacturing sector and the nation when discussing competitiveness.

As a consequence, endogenous organizational change among the institutions called firms (entry, reconfiguration and exit) and

endogenous change of the rules of the market game become a part of industrial economics - and a necessary part if one wants to understand the macroeconomic growth process that underlies the national competitive problem. The Swedish micro-to-macro model partially responds to Arrow's (1959) querie about the need for a theory of general monopolistic competition. It is still, however, very crude in its representation of how temporary knowledge-based rents are generated, and how institutions use information in the market process. The economic systems properties (market process and interdependency) are, however, there. When discussing the firm as the institution that generates productivity change in a "technical" sense, as distinct from the market process, the only major thing that we miss completely appears to be endogenous institutional change occurring in response to the market process.

Differing objectives matter

The special feature of European firms in the context of the market allocation process is that many of them, and the large ones in particular, operate across national boundaries in the trade, production and/or finance dimensions. The objectives of firms and of nations differ. Business firms are solely concerned with their long-term profit objectives, even though their policy manuals may suggest otherwise. The objectives of Governments and Nations are oriented towards the welfare of their citizens and towards the pursuit of a domestic and international power game. It has been a well-nursed notion in economics since Adam Smith that all these ambitions fit together nicely within a well-organized market economy. How that is accomplished, or not accomplished, is part of the dynamic market story. But it is obvious that the ambitions of governments to pursue welfare ambitions through extensive interference in the market processes explain the various degrees of success in economic performance between the industrial nations (Eliasson, 1984b). It also helps to explain the fact that national economies can be in bad shape, while the industry sector at large carries on well in an international comparison.

A particular instance of the conflict between the micro objectives of agents in the market, and the macro objectives of governments are the difficulties of democratically organized nations to pursue a consistent long-term policy in times of distress. The discount rate in policy making at various levels of aggregation figures importantly in any understanding of dynamic markets, and the economic competitiveness of nations. With the business unit defined as a financial decision unit the trade-off between the long term and the short term occurs in the capital market. In the capital market process any conflict in that respect between micro agents and policy bodies is sorted out. The new feature of international trade, investment and finance is that the discount rate in domestic (investment) decisions in European countries in particular nowadays is largely determined in the international markets for finance.

The origin of productivity growth and comparative advantages

In the modern, market based firm productivity growth occurs through institutional reconfiguration rather than through the transmission of technical innovations in the production process. Economies of scale appear to be increasing in the development and global marketing of specialized products, while they are decreasing in the production of standard products. Institutional change is the vehicle for exploiting such new technologies associated with the organization of overall production, marketing and distribution of constantly changing specialized products. The result appears as productivity increases at the level of the firm as a financial organization.

The emergence of the "modern", international firms, the competitive edge of which is generated through an ongoing investment process in learning and knowledge accumulation, is making the comparative advantages of a nation indeterminate and blurring the economist standard notion of "a market". It is argued in this paper that the modern firm, its development into a major service producer, its foreign dimension and its competitiveness cannot be

understood if not framed in a theory of profit oriented firm decision making and behavior, with the firm being seen as an autonomous, financial decision unit, and operating in an explicit dynamic market process. The knowledge to manage large business organizations efficiently, and large international groups in particular, may, in fact, constitute the main competitive advantage of the advanced industrial nations. Hence, to understand the policy problems of industrial economies, and the small open economies in particular, we need a theory that explains how institutions change and how macro economies behave in terms of that process.

Such a theory will certainly modify, or change a number of standard conclusions from the theory of competition and trade. This paper will present evidence supporting the need for such a revision of theory, or indicate some approaches to take.

The need for a general theory of dynamic markets and their institutions

The Swedish Schumpeterian economist Johan Åkerman once (1950) observed that a theory pretending to capture the dynamics of a market economy "has to incorporate the four fundamental ideas of interdependency, value, process and institutions".

I am following Åkerman in spirit in organizing this paper. The special role of (foreign) competition, whether viewed from the point of view of a firm or a nation, has to do with how it affects the dynamics of resource use, within the administrative system of a business organization (institutions), or between business entities in the market. We are not only concerned with how it affects competition through the market process - the traditional concern of industrial organization. The supply process, or a dynamic theory of the firm in a broad sense has to be integrated into a general analysis of the interaction of institutions in all markets (interdependency). One particular aspect of this is the in-

ternationalization of firms and how it affects market behavior. Without a "notion" of general dynamic market interaction it is not possible to understand the "cost crisis" of, for instance, the Swedish economy during the 1970s that brought industrial production to a complete stand still for almost 10 years.

In doing so I may be broadening the content of my paper beyond what was originally intended by the organizers of this conference. For small, advanced industrialized countries like the Netherlands, Switzerland or Sweden, this in my view is, however, the natural approach. Foreign competition exercises a discipline on the policy makers and hence on the macroeconomy. Foreign markets widen the opportunity set of business firms. This is true also for larger industrial countries, but to a smaller extent.

To understand the "unusual" economic events among the industrial countries in the past decade the foreign dimension has to be brought into the analysis both from the point of view of the firm and the macro economy.

During the last decade the industrial world has witnessed a diverse restructuring of the production system of various countries. While admiration has been expressed for the vitality of the US economy, the Japanese industrial restaging still escapes understanding if looked at through western glasses. European industries, on the other hand, have been regarded with concern.

Part of, or most of, our lack of understanding of the new macroeconomic phenomena in the industrial world has to do with our lack of (quantitative) understanding of the dynamics of the market allocation process, and our limitation to data generated by a national statistical system. (In fact, none of the phenomena discussed are new to economics. They are simply forgotten by economists.)

Preoccupation with the static theory of economic interdependency has prevented the development of the dynamic theory of interac-

ting markets that I am asking for to carry my analysis to the aggregate level of the national economy (welfare). Our lack of empirical understanding of what goes on within the paramount institution of the western economy - the firm - has led us to view the firm as a hardware processing unit. With a given number of production functions being ex ante price takers in markets and no explicit representation of the price and quantity realization process we miss the point that a market economy is best represented as an ongoing process of general, monopolistic competiton (my interpretation of Arrow 1959) between a varying number of actors, competition being based on knowledge rents acquired through experimentation and learning in the markets. Since we are carrying on extensive research in both areas at my institute I take this broader approach and discuss firm behavior and reorganization, with special attention to its foreign dimension in the context of a micro-to-macro (M-M) analysis.

The main content of this paper will be to present evidence of the changing nature of the business organization and its growing dependence on a unique knowledge base. I will then discuss what this implies for the theory of the firm and market behavior in both cases with particular emphasis on the international dimension. I will also sketch my ideas about what this means for the development of a dynamic market based macro theory, which is lacking in economics (Pelikan, 1985).

I want to present my story about the international organization of production at three levels of aggregation

(1) the interior life of the business unit defined as a financial entity (next section on institutions and the determination of productivity change)
(2) the interaction of such business units in markets, defining as clearly as possible what a dynamic market is (section 3)
(3) the welfare aspect of foreign competition; nationally and globally (section 4).

The third level of aggregation makes up, of course, the micro-macro consequences of the other two, and integrates the four fundamentals of Åkerman (1950).

2. The multidivision firm as a multinational corporation

What does a firm do?

This section introduces the business organization and its interior life. We will do this broadly to pave the way for the next two sections on the market and on the micro-macro-aggregation problem. The market process can be no more than the combined action of all its institutions. The institutions that we discuss are the suppliers and traders of goods and services. Their market engagement tends to be very fragmented and technological change is constantly reshaping, more than ever before, the content of its activities.

We begin by introducing a listing of the normal activity set of a manufacturing firm to hammer home three main points, namely that every business firm to some extent internalizes activities that are normally part of the market process, as distinct from factory production, that the extent of these activities within a manufacturing firm varies and depends on technological and market circumstances, and that the major source of productivity advance has been internal reorganizations in the activity set. During the last decade these recombinations have occurred primarily between the activities in the list below. (An especially important organizational change is the extension of a foreign marketing arm.)

Table 1. Major tasks in a business organization

1. Organizational change
2. Innovative activities, organizational change
3. Product development
4. Portfolio management
5. Banking
6. Insurance and risk reduction
7. Factory production
8. Marketing and sales
9. Education
10. Welfare tasks

Productivity advance within the firm to a large extent appears to be associated with these recombinations of activities. A special feature is the expansion of marketing (item 8) in the international dimension and of product development (item 3), together shifting the firm onto a product technology base. In addition, the growing financal and portfolio management activties of firms (also in an international direction, items 4, 5 and 6) emphasize the diffuse borderlines between the market and the administrative system called a firm. In order not to look ridiculous, the theory of the firm and of the market economy soon has to come up with an explicit representation of these other dominant non-factory-process activities that essentially deal with the firm as an information processor, as a trader in the market, and as an administrative user of information to dynamically coordinate interior production activities.

Knowledge matters for international competitiveness

Successful business organizations in small, but advanced industrial nations soon outgrew their national boundaries. One reason for that is that advanced industrial production is always based somehow on specialization. To grow big, therefore, requires extensive trade across national boundaries.

Second, the knowledge to operate large business organizations is a prerequisite for an advanced industrial nation. Many production activities can be run on a small scale. But some require a large scope of operations. In this respect I think economics has been much too preoccupied with the scale of hardware processing. While plant size seems to be on the decline as an indicator of competitiveness; financial scale, the capacity to embark on "large" projects, to commit funds long term, and to absorb risks appear to be growing in importance (Eliasson-Fries-Jagrén-Oxelheim, 1984). The knowledge to run large organizations efficiently was recogized already by Marshall (1919) as the third production factor, but has not been much elaborated in production theory. I have, in fact, stumbled on an old Swedish economics text from

1768[1] which is much more elaborate in this respect than any modern text I have seen. It compares Swedish industry with British and Dutch industries and takes extensive note of the deficient knowledge base of Swedish firms, and of shipyards in particular. (The industrial knowledge base upon which nations like Sweden, Switzerland, and the Netherlands base their economic welfare today is virtually impossible to accumulate without the parallel development of a large foreign business sector. To me this is a much more useful way of looking at the determinants of national welfare than to begin at the trade end.)

Hence, a small, advanced industrial nation also has to develop the knowledge to operate firms across national boundaries through trade, international production and finance. (The more dominant a few firms in the national economy (see Tables 2 and 3), the more internationalized are firms.)

The knowledge to operate across national boundaries has been typical of European firms in all of recorded history because of the national fragmentation of Europe. The "international side" of that knowledge has not been developed until recently in U.S. firms, probably because of the size of domestic U.S. markets. Somehow, Japanese producers have been able to reap the returns from international trade in the classical way through direct goods exports from a domestic production base. (This makes it interesting to see what distinguishes Japanese firms from European firms, and - in addition - what distinguishes European firms with extensive international production from those who export from a production base at home, like the Japanese firms.)

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1 Westerman, J, 1768, Om svenska näringarnes undervigt emot de utländske förmedelst en trögare arbetsdrift, (About the inferiority of Swedish business activities compared to foreign business, because of a slow work process), Stockholm.

The concentration of financial control

What I just said suggests first that the smaller the successful industrial nation, the larger the proportion of the industrial labor force concentrated in a small group of large companies that critically affect macroeconomic behavior of the nation. This can be observed in table 2 (compare the U.S., Japan, West Germany, Switzerland and Sweden). The unexpected observation is probably that Japan has such a low concentration ratio while the U.S. concentration ratio is so large. Second, the smaller the national economy, the larger the fraction of total value added generated outside the domestic economy. Third, we should also expect that - given the size of the country - concentration will increase with quality of industrial performance. This requires impressionistic reading to see in Table 2. The proposition is however confirmed in table 3 of the Nordic countries, of comparable size, but with different qualities of the industrial sectors. For the Nordic countries, we have had access to value added data for the individual firms which gives more appropriate concentration ratios.

The table also exhibits a growth in concentration ratios of all the four Nordic countries. This may reflect the combined specialization of production that we know has continued. But the table also shows a different tendency that has been at work simultaneously. The data cover the firms defined as financial units, not as production establishments. Hence, they exhibit the concentration of financial control rather than production. For instance, the group of ten for Sweden include the three firms Electrolux, ASEA and Ericsson. This group carries on production that corresponds roughly to what Siemens in West Germany, Philips in the Netherlands and General Electric in the U.S. do. The three Swedish companies together employed (globally) more than 223 thousand people in 1984, Siemens 319 thousand, Philips 344 thousand and General Electric 340 thousand people. With the same financial organization of "the four", concentration would be much higher in Sweden.

The difficulties of designing meaningful size and concentration measures are nicely illustrated by Pratten's (1976) observations from comparing "matched" Swedish and U.K. firms. The Swedish firms were much smaller as financial units than their U.S. counterparts, but they, nevertheless, operated larger, or much larger production plants. Hence, the productivity performance and output growth rates of Swedish firms were much higher than those of U.K. firms. However, the U.K. firms recorded a higher rate of return to capital on the average.

It is interesting in this context to ask whether the decentralized organization of Swedish electrical and electronics production reflects the size of the nation, or a different industrial finance and banking tradition. The latter seems to be the case. But we also note that the last decade has witnessed an intense merger activity across the industrial nations combined with an intense shedding of unprofitable lines of business. The result of this "recombinatorial activity" appears to be (see Table 4) that the very large business organizations in the U.K. have shrunk while they have increased somewhat in Sweden. This may reflect different responses to profitability problems in the 70s, that have been solved in Sweden through increased technological specialization, combined with increased global scale of operations, but also a shift in the direction where economies of scale matter, namely in finance and risk reduction.

From cost efficient factory production towards a product technology base

The most obvious structural change of the past decades has been the emergence of fast growing engineering, fine chemicals and pharmaceutical firms among manufacturing industries. These are firms having their unique knowledge base in a product technology, rather than in the efficient factory processing of simple products for staple goods markets, where the competition parameter

Table 2 **The share in domestic manufacuring employment of the largest manufacturing firms - global firm employment in percent of domestic manufacturing employment 1983**

	Sweden	U.S.[x]	U.K.[x]	Switzerland	Japan	West Germany	Canada	France
5 largest	26.1	7.9	10.6	53.7	3.4	10.8	11.8	11.5
10 largest	36.2	11.2	16.8	73.2	5.2	16.5	16.7	17.1
20 largest	46.4	15.3	25.5		7.2	21.6		
40 largest	57.0	21.4						

[x]) 1984. The numbers for the U.S. may appear large. The reasons are that the largest U.S. manufacturing firms - as in Sweden and Switzerland - are very internationalized and that U.S. manufacturing employment in percent of total employment is relatively low.

[xx])Excluding Shell and Unilever.

Source: Jagrén (1986), Fortune, Annual Reports, Common Market Official Statistics.

Table 3 **Global value added of firms in percent of domestic manufacturing value added - Nordic countries 1982 and in brackets 1976**

	Sweden	Denmark	Finland	Norway
5 largest	22.0 (13.6)	10.9 (8.2)	16.3 (13.6)	16.7 (12.8)
10 largest	32.9 (21.7)	13.9 (11.5)	23.3 (19.7)	21.8 (16.1)

Note: Comparison between 1976 and 1982 has a selection bias, since the firms included are those that were the largest in 1982.

Source: Oxelheim (1984).

Table 4 **Average size of the five largest firms in 1984**
- number of employees of corporate group (thousands)

	The Netherlands	Sweden	US	UK[a]	West Germany	Japan	Switzerland
1972	121	51	451	219	195	-	70
1983/84	100	67	444	167	223	134	85

[a] Excluding Unilever and Shell.

is "price". Some firms have managed to change their internal structure from a basic industry towards a product innovator orientation. (The Swedish company Sandvik is one example.) Such a transformation as a rule is a very long winding affair, stretching over several decades, and is not normally successful. The general picture is that "product based" firms have grown faster than "process based" firms. However, also companies already based on product technologies have experienced great difficulties evolving into what I call the modern industrial firm. A particular endowment of prior industrial knowledge, often infused through a change of top management, appears to be an important prerequisite. The main qualification for success appears to be the ability to engage in continued successful product innovations, and to develop the marketing network necessary to establish the right customer relationships for highly specialized products. This requires changing the knowledge base of the entire organization, which is difficult, and the investment of huge financial resources in "soft" capital, which, as a consequence, is highly risky. Nevertheless, Swedish engineering firms at large have been successful in managing this transformation. We currently have a research project at IUI devoted to investigating what prior knowledge and what management methods that were needed to do exactly that. The data in Tables 5 give an idea of the content of activities of the largest Swedish firms. If we had picked the most successful firms, the concentration of invested resources to products developed through R&D spending and marketing, mostly abroad would have been even more pronounced than the 50 percent for the 37 largest firms in 1978.

If economies of scale are diminishing in importance in hardware production, while they are on the increase in R&D spending on product development and global marketing - as seems to be the case - an extremely dynamic and aggressive international market economy is developing. R&D spending for product development and global marketing are reinforcing each other, generating new institutional combinations and overall productivity change. But

shifting into specialized product markets competing with rapid product quality change appears to be a highly risky commercial strategy. This is something firms in most markets for engineering products have experienced during the 70s and 80s, but notably firms in electronic industries.

Increased uncertainty breeds growth in financial organizations

Increased market uncertainty has to be coped with, and firms tend to do that through diversifying and increasing their size as financial units. This, however, tends to have adverse effects on productivity through increasing bureaucratization of firms and diminishing internal flexibility.

A commercial bank is the typical exploiter of economies of scale. A manufacturing firm carries on a multitude of financing functions internally. Technically the banking activities of firms can be expanded. Incentives to do so have existed during the entire post-war period. Credit markets of European countries have been controlled or regulated, providing - together with corporate taxation systems - an incentive to keep internal financial resources within the organization. This may have pushed rate of return requirements down (see Södersten-Lindberg, 1983). In addition, manufacturing business has become more risky, emphasizing the need for internal risk reduction. The shift towards a product based technology places new demands on financing and makes access to traditional, "conservative" banking finance more difficult. Product development takes longer, and finance requirements grow, but once in the market, product life has been consistently shortened. New capital structures require various forms of internal, or equity finance rather than conventional loan finance. One response has been the development of larger, financially defined manufacturing firms, that incorporate some major functions of a bank, an investment company, and an insurance company in order to internalize the markets for money and risk (see Table 1).

While economies of scale appear to be diminishing in factory production[1] they have been on the increase in marketing, finance and risk management. This has also led to the creation of larger business organizations. This development clearly requires a parallel development of management technology to successfully coordinate the diverse activities of a large manufacturing firm listed in Table 1. One could also say - and this takes us over to the next section on the market - that the larger firms grow as financial organizations, the more of the market coordination functions in finance, production, distribution etc. are internalized as administrative coordination, and the less of total resources devoted to factory production (item 7 in Table 1). Non-factory production also requires a relatively larger input of knowledge, or human capital, than factory production. Hence, I venture to propose that the more advanced the industrial nation, the less of total resources within manufacturing that are devoted to factory production. The non-processing part of resource use is altogether devoted to various forms of information processing. Part of the human capital formation is learning through constant trial-and-error experimentation in the market. Firms that succeed develop a competitive base in knowledge, the value of which depends on how fast and for how long they can update and maintain their "knowledge edge" in international markets. This change is not only messing up our statistical nomenclatures. It will also force a change in our notions of a comparative advantage, the competitive situation of a national economy and a market.

3. The international market process

We begin this section with a few words on the standard notion of a market theory and observe that the profession has had great difficulties in breaking loose from static general equilibrium theory. But even a dynamic general theory of monopolistic competition called for by Arrow (1959) is not enough. One also has to allow for a varying number of players in the market. This is how

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1 See e.g. Albrecht (1985).

Table 5A **Investments[a] in the 5 and the 37 largest Swedish manufacturing groups, 1978**

Firms have been ranked by foreign employment

Percent

	The 5 largest groups		The 37 largest groups	
	All group	Foreign subsidiaries only	All group	Foreign subsidiaries only
R&D	25	10	21	6
Machinery and buildings	45	41	52	42
Marketing	30	49	27	52
TOTAL	100	100	100	100

a Investments in Marketing and R&D have been estimated from cost data.

Table 5B **Wage and salary costs in different spending categories in the 5 and the 20 largest Swedish groups, 1978**

Percent

	The 5 largest groups		The 20 largest groups	
	All group	Foreign subsidiaries only	All group	Foreign subsidiaries only
R&D	7	3	7	2
Processing and other	63	52	70	58
Marketing and distribution	30	45	23	40
TOTAL	100	100	100	100

Note that we have been unable to separate out administrative costs etc. from poduction process cost data and that wages and salaries in marketing and distribution probably are underestimated. The "other" item should be in the neighborhood of 15 percent of total costs according to preliminary data from an ongoing IUI study.

Source: Eliasson, G., De utlandsetablerade företagen och den svenska ekonomin, IUI Research Report No. 26, Stockholm 1984.

Åkerman's fourth factor "institutions" - enters the picture. But it is not enough to allow for free pricing and free entry and exit to ensure a viable market process. The major vehicle for productivity change is institutional reorganization within existing units and - even though we know little about this phenomenon - institutional fragmentation, recombination and merger activities. This section particularly emphasizes international markets and the factors that make business organizations transcend national boundaries. Once you have a theory for institutional change you also have a theory for technological change. Since technological cange in a broad sense is the base from which competitive entry and aggressive pricing behavior is exercised, a theory of dynamic markets has to be explicit - not necessarily formal - about the ways institutional change is engineered. We discuss this on the basis of some fragmentary evidence from Swedish firm data, and then go on in the next section to Åkerman's second factor, welfare, but in a new, dynamic setting. The reason for taking this view is that the internationalization of firms plays a major role both in defining performance of the market process and (in the last section) in disciplining and restricting the scope of action of Governments.

What is a market?

The economist's standard notion of a market theory - general equilibrium theory - lacks the essential features of a dynamic market process. It is static, while all market activities take place in time. The concept of equilibrium does not signify the end point of a market process. Hence, it is difficult to envision the Walras-Arrow-Debreu-Hahn model as a formalization of the real "invisible hand" Adam Smith thought of. All information needed to find "the equilibrium" is assumed to be available, and can be gathered and interpreted immediately and at no, or at a known, cost. This is a theory of central planning, not of a market economy, according to Pelikan (1985) in his reinterpretation of the discussion from Lange (1936) to Malinvaud (1967).

When the auctioneer is removed and agents are allowed to be price setters general monopolistic competition with a variable number of players becomes the market game. Furthermore, the competitive process becomes part of the information gathering process. If information gathering and use is a major cost item in total production it will also be a major determinant of whatever equilibrium properties the macroeconomic process possesses. Also a major part of the competitive process is to make information processing more efficient. This - as we have just observed - occurs mainly through institutional reorganization. As a consequence, full information is not theoretically possible and the meaningfulness of standard notions of equilibrium become doubtful (see Eliasson 1985a, chapter VII). Since such a notion of equilibrium is the base of standard welfare analysis, and of related normative analysis of trade and market organization there may be a great principal problem lurking behind the small and reasonable improvements in theory suggested by Åkerman (1950).

This is also the "model" of the micro-macro market process that is needed to understand the dynamics of resource allocation or aggregation in the next section. The preceding account of the modern firm emphasized how the firm devoted the bulk of its resources to doing exactly what the auctioneer in the Walrasian general equilibrium system does at no charge.

There is a large literature in which information costs are brought into the Walrasian framework. Search theory, notably labor market approaches (Diamond, 1984) is perhaps the most well-known approach. Matching theory, principal agent theory, the theory of teams etc. and Williamson's (1975) theory on the hierarchical structure of business organizations are other approaches. Clower-Friedman (1985) introduce traders in information explicitly, and they come closest to what I have in mind, namely that "information processing" is a natural part of the production process that can be handled by producers of goods, or special agents that they hire. It all depends. Clower-Friedman's agents are price-setters in

a very restricted sense, i.e., no more than allowed for the existence of a static equilibrium. The actors also make up a fixed set. I believe empirical evidence is such that both of these simplifying notions will have to go, and that causes problems for the analysis of the next section.

The business unit; a producer, an information processor or a market intermediator

Tables 5 give data on the allocation of internal investment activities in the largest Swedish firms. They tell that service production is significant, or even dominant in manufacturing, and that it is oriented towards improving the quality of the product as it eventually reaches the final user. In a broad sense R&D activities - mostly oriented towards product improvement - and marketing should be classified as information gathering and use.

The importance of information and knowledge becomes even more important if we take a close look at each activity. A significant part of costs - not explicit in the table - is devoted to the (management) task of holding the entire business entity together (budgeting, profit control, reporting etc.), making the firm entity transparent as to where profits and losses occur, and taking action upon this information. (Eliasson, 1976, Eliasson-Fries-Jagrén-Oxelheim, 1984).

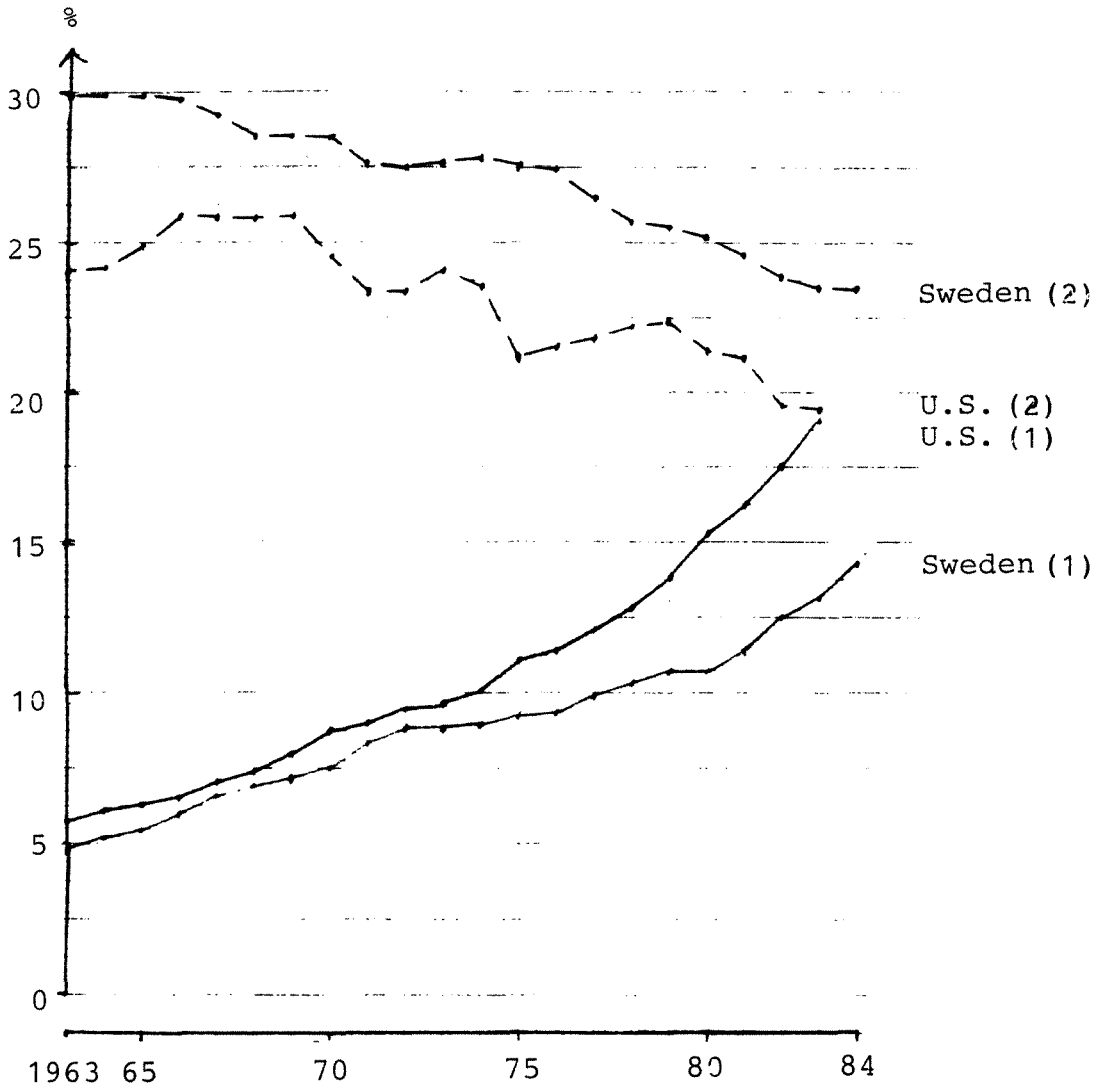
We have learned from other IUI studies that each production task resulting in a given product can be organized in a variety of ways and that studies of firms reveal all that variation. Some solutions are motivated by relative factor costs. But many solutions that are superior in all respects clearly depend on a superior product, productivity and market knowledge and know-how to combine it. If the right person, or group of persons, enters a firm, an upgrading can often be achieved at an insignificant investment. I have had the opportunity to see how that was done when a Swedish company bought a British company and introduced the Swedish organization and management of production.

Institutional fragmentation and recombination

In many firms information processing, transacting and trading draw more resources than factory production. While economies of scale appear to be of declining importance in factory production, they gain in importance in marketing, finance and "insurance" in a broad sense. To some extent this must be the consequence of more efficient administrative management techniques and hence an internalization of market processes. But it is also - as we observed in the previous section - a result of a changing market environment (more uncertainty, etc) and technological change, especially in terms of bringing the right type of product to the right customer. Production and product development to an increasing extent require highly specialized inputs. In some areas not even the world's largest companies can afford to, have the time to or can develop and keep all these specialties inhouse.

The increasing multiplicity and service orientation of total manufacturing production is setting the stage for institutional, or organizational fragmentation. Sometimes service production is located inside the firms, sometimes the same services are hired. It all depends and this clearly blurs the concept of a firm and of manufacturing industry. "Deindustrialization" has been a key note for political concern in the industrial world meaning a diminishing share of employment. In fact, the sector "business services" has been the fastest growing employer in most industrial countries. If employment in business services is added to manufacturing employment, the decline in the use of man hours in manufacturing and business services together in percent of total employment in the U.S. or in Sweden is not so pronounced and the downward trend has been present for more than 20 years (see Figure 1). In fact, the level of employment in the U.S. increases strongly. If employment in foreign manufacturing establishments of U.S. and Swedish firms and in domestic wholesale and retail sale associated with manufacturing is also added manufacturing and related activities together appear to be expanding rather than declining

Figure 1 **Employment in Business Services, manufacturing and total employment 1963-1984 - The U.S. and Sweden**
Percent



——— = Business services/Manufacturing

- - - = Business services + Manufacturing/Total employment

activities in relation to the rest of the economy. The bulk of these external service activities are substitutes for internal transactions costs for similar service activities (see Lindberg-Pousette, 1985). They are either internally operated as part of the administrative system called a firm, or the corresponding services are externally hired in the market. We have found in several IUI studies that the way service production is organized and integrated with goods production is highly important for overall business performance.

Customer markets

The bulk of manufacturing service production concerns product development or marketing, sales and distribution. The more complex the product, the more customized service customers require. If factory production is a small fraction of value added, while value added more than doubles after having left the factory gate and is boosted by service, maintenance guarantees etc., it is obvious that price in the simple meaning of production theory ceases to be the dominant market parameter.

The bulk of foreign activity of Swedish firms, and probably of other European firms as well, is devoted to marketing activities of various kinds, boosting the value of the product and bringing the producer into the customer's shop. With a specialized machine installation you don't shift suppliers easily, as in staple goods markets. Okun (1981) has coined the term "customer markets" for this kind of supplier-customer relationship. And the relationships can take on a multitude of "institutional forms".

What do we mean by a free market that contributes to efficient resourace allocation?

Looked at from this end the concept of "a free market" that we use to derive welfare conclusions in trade theory and general

equilibrium theory takes on several new dimensions. First of all the bulk of cost applications has to do with the processing of information to design the product to suit the customer and move the products to the right customer. Costs associated with running the auctioneer activity, or rather the invisible hand, are more important for determining the welfare optimum, than national factor endowments and comparative advantages associated with factory production of goods and the trading of goods per se. As McKenzie observed already in 1954, if exports from one country depends on imports of raw materials, parts or components from another country, "comparative advantages" begin to be unstable. When the comparative advantage in one particular area of production depends on the local ability to exploit an internationally available pool of technical and commercial information, for one thing comparative advantages become very shifty since any competitor any time can come up with a better idea. Furthermore, they become critically dependent upon the local efficiency in learning and keeping up with competitors. If a marketing organization in addition transcends national borderlines and is the prime profit determinant of the exporting firm comparative advantages become indeterminate. This conclusion is further reinforced in a situation when a country's exports originate from a combination of domestic product design and development knowledge and final assembly know-how from imported parts and components, that are marketed through an international network of subsidiaries. This is more or less true for between 25 and 50 percent of industrial production in countries like the Netherlands, Sweden and Switzerland.

The importance of free competetive entry

The free movement of goods is one criterion for a free market, but free access to, and use of information may be as important. With information costs in the forefront, free pricing by suppliers and free competitive entry of new competitors and new products

and services become critical welfare determinants. However, if the knowledge to use information in efficient and innovative ways can be accumulated as part of the ongoing production process, you would still expect to find monopolies - or firms - even in very open economies and in extremely competitive market environments (cf. the query in Caves-Parker-Spence-Scott, 1980). At least ongoing IUI studies are accumulating an overwhelming evidence that it is the knowledge to run and innovate complex manufacturing organizations that explains the development of the modern firm, based on a temporary schumpeterian knowledge rent, as presented in the previous section. The foreign establishment of subsidiary activities may in some cases be motivated by factory production cost considerations. In the bulk of cases, however, it is either a profitable marketing investment or - which is the same thing - a profitable way of climbing trade barriers establishing a form of competitive entry in protected markets (Eliasson-Bergholm-Horwitz-Jagrén, 1985 and Swedenborg, 1979).

4. Macroeconomic performance, policy and welfare

When reading this section on macro economic performance keep the data in Table 6 in mind.

Table 6 The 10 largest Swedish manufacturing corporations

- account directly and indirectly in Sweden for 30 percent of the domestic manufacturing labor force, and
- in addition employ more people abroad, mostly in activites associated with marketing.
- account for 30 percent of total Swedish exports, most of it being delivered to controlled foreign subsidiaries
- account for more than 70 percent of total Swedish foreign employment
- account for almost half of total R&D spending in Swedish manufacturing
- are world product leaders in at least one set of products.

The picture conveyed is that of a group of large, international marketing organizations that develop and assemble goods from imported parts and components. These firms dominate outgoing foreign trade of the entire country, and partly also import trade, and hence economic performance of the macro economy. In addition, a large part of product value in the hands of the final customer, often more than half, has been added in marketing and distributive networks outside the producing country. Sometimes autonomous traders produce the extra value added, but to an increasing extent marketing, distribution and customer service is run within the producing organization.

The firms base their dominant market position on a unique product and market know-how that has to be updated and renewed at a faster rate than that with which competitors learn about it. Their market monopoly lasts as long as they are able to stay ahead in that race. The temporary monopoly rent is a means of investing in knowledge to stay ahead. On the surface this situation appears to support Schumpeter's gloomy prediction of the automatization of development, increasing concentration and the merging of the industrial and the political systems. On the whole, the large, international Swedish firms have been successful in adjusting their structures to the new, market situations of the 80s. And the Government has indeed, on and off, been attempting to run industrial policies through the large firms (Eliasson-Ysander, 1983; Eliasson, 1984b). However, these policy attempts have generally been failures, prolonging the adjustment process, saving some capital for the owners and leaving the responsibility to switch off final terminal support to dead industrial capital to the politicians, who are the least suited to perform that task. Even though the large firms are old and dominant, there has been some significant turnover through relative growth, with a gradual phase down of the dominant basic industries of the 60s. Moreover, a significant innovative activity has occurred among the small firms (Granstrand, 1985).

With some exceptions, the large firms of the small European countries are not large compared with the large firms of large countries. In addition, few firms are large when placed in a global market setting. Success in global markets has made it possible for some firms in small countries to grow very large compared to the national economy where they happen to reside. They are still small in an international setting and as long as competition in international markets remains intense, the concentration problem should not be a problem. From this, however, does not follow that we can return to traditional, general equilibrium analysis to evaluate the welfare consequences of foreign trade.

A welfare analysis of trade, and of foreign trade in particular, has to recognize (1) the market process as being that of general monopolistic competition and, hence, the existence and constant turnover of temporary rents. While Schumpeter (1934) saw innovating entrepreneurs as disturbers of the Walrasian equilibrium, and the engines of the growth process, Kirzner (1973) rather viewed entrepreneurs as an equilibrating force that responded to potential temporary rents with innovative behavior. Together these principles capture the dynamics of product competition among firms, which is something fundamentally different from the notion of competition implicit in general equilibrium theory. In addition, it appears as if the sustenance of diversity of structures through a steady, innovative, rent creating process is a necessary condition for stable, macroeconomic growth (Eliasson, 1984c). If this is accepted free competitive entry in the production process, and the acceptance of free, competitive exit will be the prime welfare enhancing attributes to watch for. In a global setting, Japanese competition is probably a far better anti-trust policy than any anti-trust law, and all labor and parliamentary noise bears witness to that. This is why we now return to the diversity of objectives among firms and politicians.

Dynamic market competition as we have presented it generates benefits in the long-term in the form of growth in output at the expense of a rapid and, to a disquieting microeconomic adjust-

ment process. Nations badly organized to accommodate this adjustment tend to lose in long-term economic welfare, i.e. nations badly organized to impose a long-term view on its inhabitants, or a low political discount rate. This problem is largely political and pedagogical.

To understand and support this competition process through policies it becomes necessary to understand how temporary rents are generated, which means being knowledgeable about the ways firms take their long-term profit oriented decisions. Foreign trade will be one of many macroeconomic consequences of these decisions. Unfortunately, the economics profession is not very knowledgeable about the dynamics of market competition (Day-Eliasson, 1986). The developement of relevant theory and solid empirical research in this area should hence be the mainline of industrial economics.

Dynamic market allocation and macro economic performance - suggestions towards a theory of industrial economics

The disorderly economies of the 70s have produced statistical records that puzzle observers trained on data from the previous decade. Denmark, for instance, has experienced an extremely high, real interest rate for more than 10 years. It has recorded significant drops in manufacturing investment spending and employment, but, nevertheless, output during the same period has grown at a rate on par with OECD Europe. The opposite patterns prevail for Sweden and Norway.

The high real interest rates in the U.S. have not prevented manufacturing investment there from growing steadily for several years. At the same time, European politicians, observing stagnating investments and output and mounting unemployment problems (see Figures 2) because of high interest rates, complain to president Reagan about the tight U.S. monetary policies that drive up

world interest rates. European politicians will have even more reason to grumble when U.S. interest rates come down together with the dollar and European firms have to face structurally updated U.S. firms in competitive world markets.

Such diverging macroeconomic developments, that were not predictable from the theoretical repertoire, and statistical data of the 60s call attention to the competitive situation of firms and the dynamic efficiency of capital and labor markets in the various countries. In particular, it suggests that the competitive situation of a national economy requires a dynamic micro-to-macro analysis to be understood. The firms - we have observed already - should be studied from the point of view of how profit motivated behavior generates competition and growth in output. If the macroeconomic consequence - the policy problem - is a long-term, balanced growth in output that is faster than in other countries, we can talk about a competitive nation (Eliasson, 1972). As a rule, increased trade with other countries contributes to such growth through facilitating specialization etc. But there is no unique way of predicting the trade patterns that follow from the exploitation of quasi monopoly, knowledge rents that accumulate within the modern firms as they participate in, and learn from the ongoing market process.

The problem is that the formulation of a micro-macro theory that incorporates all features we have claimed to be necessary, becomes an intellectually overwhelming task.

If free entry and free price setting by individual agents is allowed in all markets, you remove standard equilibrium properties from theory, and lose the possibility to pass clear and simple normative statements on welfare. If the only way to reach clear welfare conclusions is to fall back on static equilibrium theory, or a theory of central planning, in which economic growth cannot

occur, as an endogenous consequence of the way the economic system is organized and operates, one might as well pass.[1]

The main "policy problem" that confronts us when we introduce "institutional dynamics" into the analysis of trade is that we lose intellectual control of the distributional consequences of the growth process, both as regards the distribution of faster growth over nations, and the micro distributions of welfare within the nations.

To begin with, we need a new analytical tool for the analysis of economic growth, efficiency and distribution. This will eventually have to be a general theory of monopolistic competition called for already - as I interprete him - by Arrow (1959). A general theory of monopolistic competition will have to be explicit about the creation of knowledge and rents in institutions, and the use of information of institutions in the market process.

In the modern, market based firm productivity growth occurs through institutional reconfiguration rather than through the transmission of technical innovations in the production process. Economies of scale appear to be increasing in the development and global marketing of specialized products, while they are decreasing in the production of standard products. Institutional change is the vehicle for exploiting such new technologies associated with the organization of overall production, marketing and distribution of

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1 I do not think replacing deterministic models - suggested during the discussion - with stochastic models will help. Complex deterministic models always generate behavior that resembles a stochastic process in some dimensions. The scientific problem is to determine when behavior departs from the stochastic mode and for what kind of problem this matters. Thus, for instance, the outcome of high risk R&D projects in industry may occasionally appear random. But more resources spent, the ways R&D work is organized, the choice between imitating and developing the knowledge yourself, the way new ideas are picked up in the operating divisions of firms etc. must matter.

constantly changing specialized products. The result appears as productivity increases at the level of the firm as a financial organization.

We need a micro-macro theory of dynamic aggregation. Here is a suggestion how to begin.

A micro-macro-(M-M)theory of dynamic aggregation

We have developed a simplified version of dynamic M-M aggregation model at IUI. It includes profit motivated entry of new firms and free exit of entire firms.

It is not explicit about the multifaced set of internal production activities that I have declared very important on the previous pages, but it is capable of quantifying the dynamics of allocation under the assumption of exogenous institutional change. But what we have is enough to endogenize structural change and the efficiency of the economic growth process - factors that make it possible for some national economies to advance faster than other national economies for decades.

The critical analytical problem is how to handle "technological change" or productivity change at the firm level. Technological change, as we measure it at any level of aggregation is partly the result of pure technical improvements, but mostly the result of institutional adjustment factors that are not explained in the model.The higher the level of aggregation, the more of economics and allocation that enters into measured total factor productivity change. In the M-M model we simply do as Schumpeter suggested and make productivity change exogenous at the level of new investments of individual firms. This amounts to an assumption that new technologies are internationally available. The firm problem is to what extent specific firm knowledge exists to exploit the internationally available knowledge. Hence, new technologies are introduced into the production structure of the individual firm through the endogenous investment process.

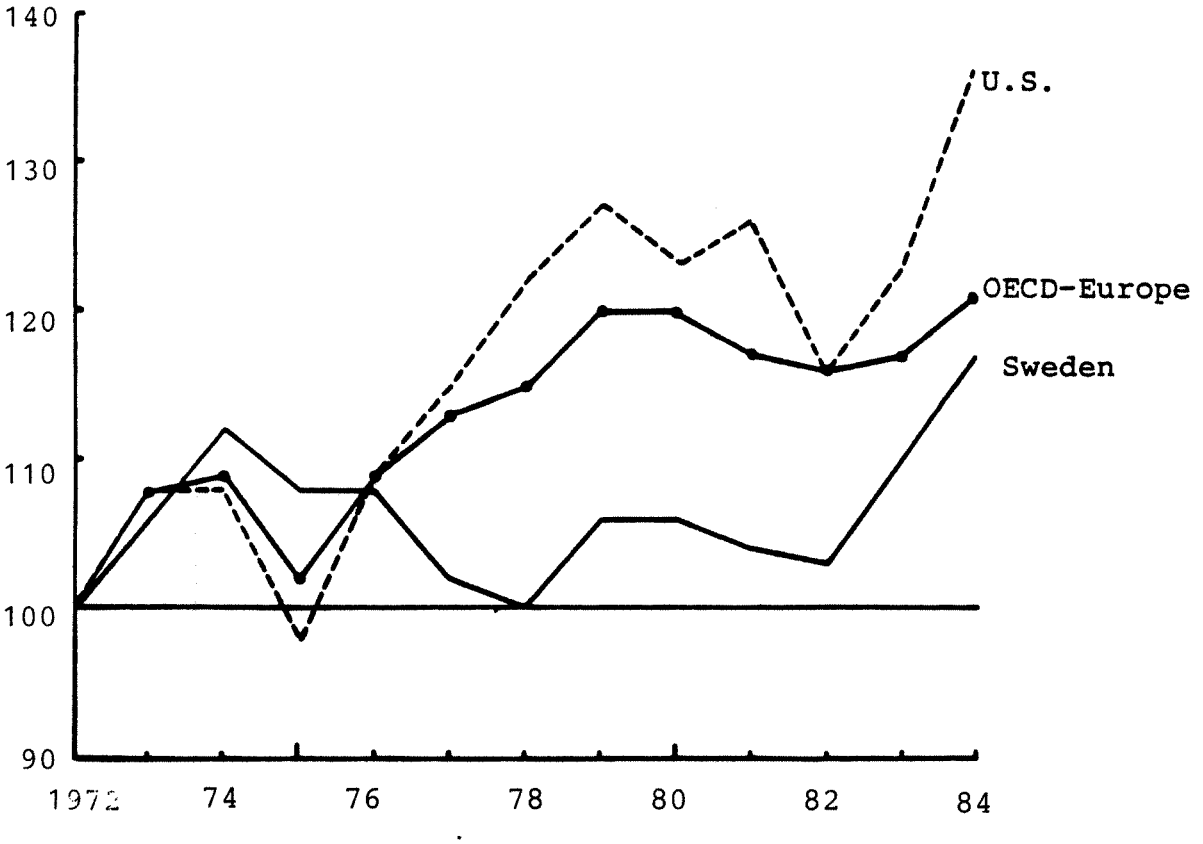
The main point, however, is that even with larger and larger flows of new technologies associated with new investment the economics of the investment decision and of labor and product markets largely determine the local economic outcome. Technological knowledge available may set the upper bound for output, but the economics of the allocation process determines how far below this potential the economy will operate, and what relative product and factor prices will be.

The differences in productivity and production growth that can be generated on the basis of the Swedish micro-to-macro model on a given set of technological data, assuming different market processes exceed those observed between countries in Figure 2. In fact, by simply varying the parameters, determining the speeds of price and quantity adjustments in factor markets, holding everything else the same, we have been able to generate macro output growth trajectories over 50 year time spans that differ by as much as one to two percent per annum (Eliasson, 1983; Eliasson-Hanson, 1986).

As we have defined it, reorganization of firm structures in the direction of relatively more resources devoted to product development and marketing is a form of technological change in the sense that more profits and perhaps more output are obtained from the same inputs. The extension of marketing abroad promotes volume expansion in the form of foreign trade that promotes - in the Micro-to-Macro model - significant domestic production growth from the same resource base. The ways the market regime is organized, means more for industrial output than technical change at the macro level (Eliasson, 1985b). The market regime determines the dynamics of market competition in the M-M-model, or the ways temporary rents are created and competed away. For small economies foreign competition may mean more in this respect than domestic competition.

Figure 2 **Investment, employment and output of manufacturing industry in some OECD countries**

Figure 2A **Manufacturing output**
1972 = 100



Source: OECD Main Economic Indicators.

Figure 2B **Manufacturing investment spending**
1972 = 100

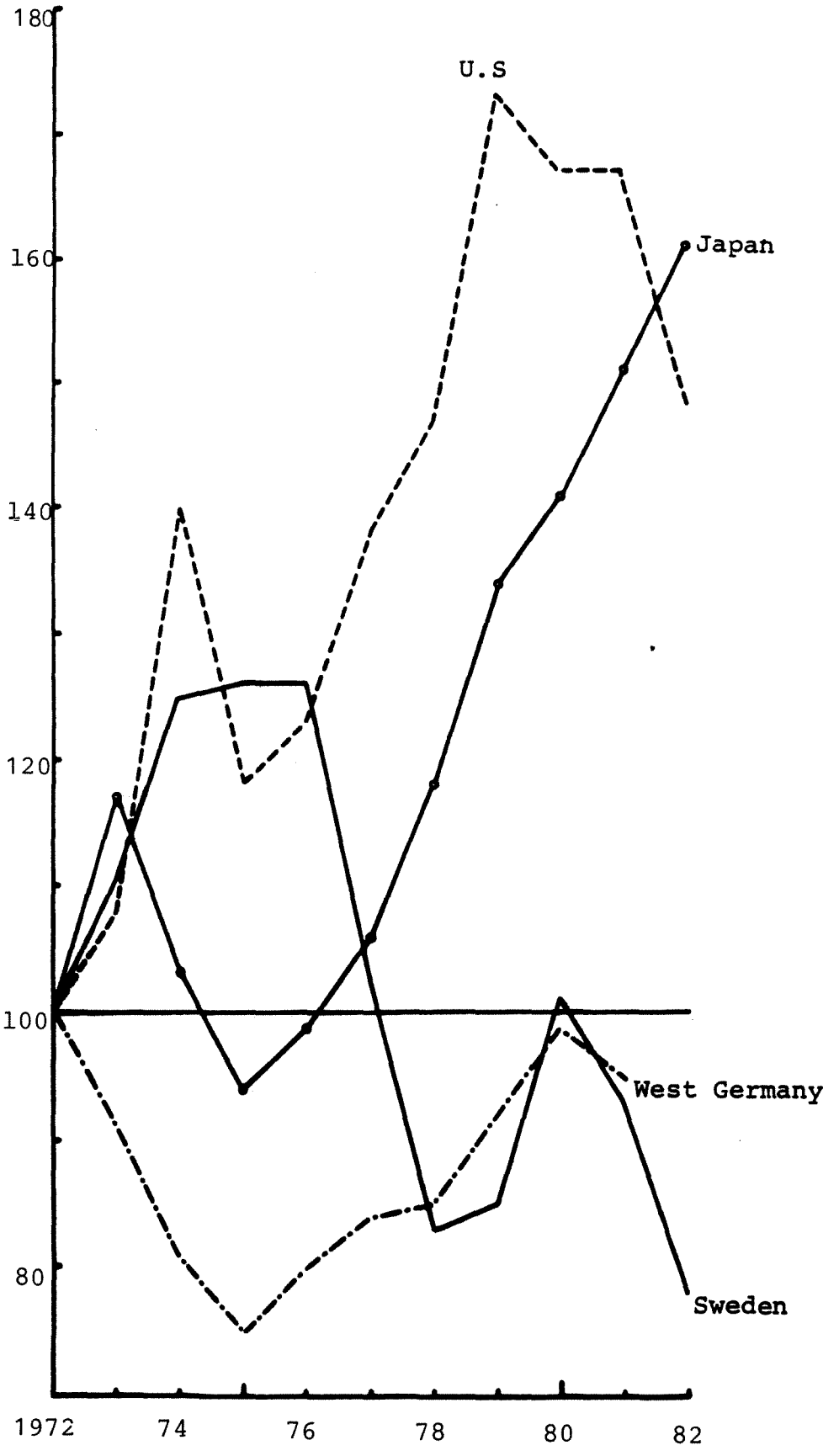
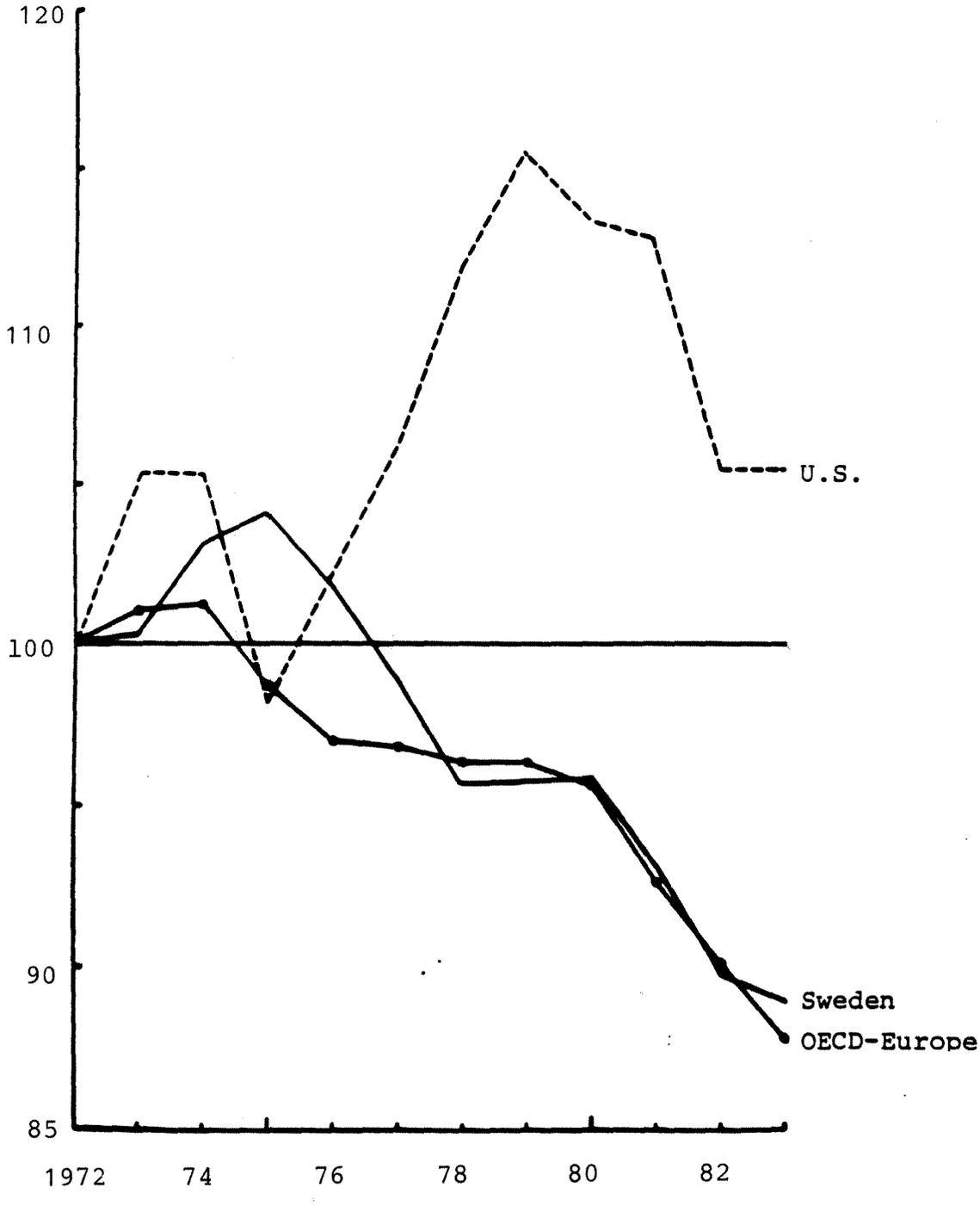


Figure 2C Employment in manufacturing



Source: OECD Labor Force Statistics.

How the old Swedish policy model promoted welfare through promoting dynamic market competition

To open up an economy to unrestricted foreign competition requires a viable, differentiated and innovative industry (Eliasson, 1984c, 1985d). Opening up a protected industry with inferior producers, and a sticky factor price structure will invariably cause a socially unacceptable adjustment process; (This is probably the main explanation behind the bad economic peformance of the British economy, and the large adjustment problems when the protection diminished.) The "old Swedish policy model" was a way of preserving a viable, innovative industry and combining it with a fast, competitive market regime. This was "policy engineered" in the following ways. First, (the welfare function) welfare was associated with macroeconomic growth in output, and with relative stability of growth, i.e., it was considered important to keep cyclical variations within a reasonable range. Distributional ambitions were - to begin with - very cautiously - introduced through a redistibution system via progressive taxation, Government transfers and the expansion of public sector production. Second, all aspects of factor mobility were officially removed from the national welfare function. Third, as an explicit agreement between employers, the unions and the ruling Government, free competitive entry was organized through keeping the economy open to foreign competition and through the understanding between Government, Employers and Unions that new technical solutions to production would be be freely introduced in the most efficient ways, i.e., as the employers saw it. This free entry policy was coupled with a full employment commitment by the Government. In fact, the Government even generated a faster adjustment process in the labor market through the solidaric wage policies and part of the full employment undestanding was that labor should accept to move and adjust in pace with the market. Besides these three policy principles the Government maintained a hands off policy vis-à-vis the production and investment process. One could say that the political system supported a very competitive market game in both

product and labor markets, making it possible for firms to stay competitive through technical and organizational innovations, including free exit.

The reader should observe that the first departure from the free competitive entry and exit principles was not the extreme industrial subsidy program of the 70s (Carlsson, 1983); it was the excessive growth of monopolized, price-controlled public sector protected from competitive entry and exit.

Hence, the old Swedish policy model, engineered by the ruling social-democratic party was in relevant respects a free market model, coupled with a political indoctrination system designed to impose the social discipline necessary for the acceptance of the market adjustments process. The latter indoctrination aspect of the Swedish policy modelmay in fact be its most important feature. This "device" solved the dilemma of conflicting policy objectives between the long term and the short term. The policy model, however, was gradually abandoned from the late 60s and onwards. The macroeconomic "development" since then has been disastrous. The interesting question is to what extent the new, less market oriented policies caused economic stagnation, or whether the old model simply would not have been workable today. The latter is the common conclusion (see e.g. Lundberg, 1985). My conclusion is the opposite.

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