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NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

SPRING 1991

Program Report

The International Seminar on Macroeconomics

Robert J. Gordon

The International Seminar on Macroeconomics (ISOM), founded in 1978, was one of the earliest collaborative activities of the NBER with economists and organizations in Europe. The proceedings of all but the first of this annual conference series have been published as special issues of the *European Economic Review (EER)*. This retrospective article traces the origin and organizational aspects of the ISOM that have contributed to its success. Subsequently the article turns to some of the main themes of international and comparative macroeconomics that emerge from the record of more than a decade of ISOM conferences.¹

Origin and Organization

In 1977-8 international economic and political relations between Europe and the United States were strained by debates over the distribution of oil deficits, the desirability of expansionary demand policies, and the necessity of intervention in currency markets. Academic controversy raged over the interpretation of the new macroeconomic environment of the 1970s, especially policy responses to oil price shocks and the potential for monetary independence under flexible exchange rates. The development of academic macroeconomics since World War II had been dominated by Americans, but their models suffered from a closed-economy orientation that failed to incorporate many of the distinctive features of the 1970s. Europeans, who were born

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This issue of the *Reporter* highlights the International Seminar on Macroeconomics. Next, Barry J. Eichengreen describes his work on the Gold Standard and the Great Depression. Then, Patric H. Hendershott reports on his research in real estate. After biographical sketches, news of NBER conferences, the Conference Calendar, and other NBER news and reports, the *Reporter* concludes with short summaries of recent NBER Working Papers.

internationalists, nevertheless (with some notable exceptions) had been on the periphery of academic developments since the war, reflecting many influences, including the interwar emigration of talented economists from central Europe, the increasing dominance of the English language in academic economics, and the lead of Anglo-American academics in developing the new postwar toolkit of mathematical theory and econometrics.

This setting of international discord, theoretical controversy, and transatlantic academic imbalance combined to spur the conception by Martin Feldstein, NBER president, that an international seminar should be organized. Feldstein met in Paris with Georges de M n il, and they framed the joint sponsorship of the seminar by the NBER and the Maison des Sciences de l'Homme

¹A summary of the ISOM conference proceedings appears annually in the fall issue of the NBER Reporter.

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(MSH).² I was then designated by Feldstein as the co-organizer of ISOM with de Ménéil.³

The coorganizers made several early decisions that have shaped ISOM since its first meeting. To avoid the intellectual dominance of American macroeconomics, the seminar was designed with a format explicitly to promote European participation. Rather than alternating between the United States and Europe, the conference is always held in Europe.⁴ In a two-day conference with seven formal paper presentations, at least five of the papers are authored solely by Europeans or have at least one European coauthor. But an equal transatlantic balance is maintained among the formal conference discussants: there are two for each paper, one from each side of the Atlantic. The overall list of participants consists roughly of one-third Americans and two-thirds Europeans. Beginning in 1983, the definition of non-Americans was broadened to include Japanese economists.

As the ISOM evolved, these decisions on format have been instrumental in its success. The skewing of authors and participants away from Americans helped to establish the atmosphere of an intellectual common market among the European participants, balanced by the transatlantic perspective provided by the discussants. A stable and broad-based program committee, virtually intact since the first meeting, has provided an important element of continuity that has helped maintain the "style" of the ISOM; members of the program committee not only attend each meeting and advise on the merits of potential future authors, but also serve frequently as discussants.⁵

The financing of the conference has been shared by the NBER with the MSH, acting as an umbrella organization that channels the contributions of different national European organizations. In addition, the Banque de France, Banca d'Italia, Banca d'España, Oxford University, Universität Mannheim, les Facultés des Universitaires Notre-Dame de la Paix (Namur, Belgium), and the Japanese Ministry of Finance all have provided lo-

²William H. Branson, director of the NBER's Program in International Studies, also was involved in the early discussions, particularly stressing the need for an equal transatlantic institutional collaboration with roughly equal funding from both sides.

³In keeping with our division of responsibilities, I have written this report to the NBER community on the activities of the ISOM, with helpful input and suggestions from de Ménéil and Feldstein.

⁴The sole exception was the First Asian Meeting of the ISOM, held in Tokyo in June 1988.

⁵Members of the program committee since the outset have been Giorgio Basevi, William H. Branson, John S. Flemming, Heinz König, and Jean L. Walbroeck. Several years later they were joined by Jacob A. Frenkel and Jacques Mairesse. Masaru Yoshitomi joined the committee in 1986, to be replaced in 1989 by Koichi Hamada.

cal facilities and support, and a second meeting in Oxford in 1992 will be supported by the Bank of England.⁶

A special annual issue of the *EER* became the publication outlet of the ISOM after its first conference, an achievement attributable in large part to the dual role of Jean L. Waelbroeck as coeditor of the *EER* and member of the ISOM program committee. Starting with the proceedings of the second ISOM conference of September 1979, published in May 1980, we have maintained a tradition of prompt publication. In 1987 the *EER* became the official journal of the European Economic Association (EEA), and the EEA thus found that it had inherited a successful and ongoing project. To establish a formal link between the ISOM and the *EER*, the EEA decided provisionally to become a third cosponsoring organization of the ISOM (with the NBER and MSH), subject to periodic review.

The defining features of the ISOM conference series can be established by comparison to four other ongoing macroeconomic conference series with regular publication outlets. Established since 1970 and 1973, respectively, the Brookings Panel on Economic Activity (BPEA) and the Carnegie-Rochester Conference Series (CRCS) primarily involve U.S. economists and invite papers of current policy relevance and interest to an audience both inside and outside the academic community.⁷ The closest counterpart to these American series in Europe is *Economic Policy*, founded in 1985, which follows a format closely modeled on the Brookings Panel and focuses on issues of pan-European interest in both micro and macro policy. Another relatively recent arrival is the NBER Annual Conference on Macroeconomics, founded in 1986, which differs from both the BPEA and CRCS in paying more attention to recent developments in frontier macroeconomic research and methodology, and less to short-run policy issues.⁸

Although antedating the NBER macro conference, the ISOM shares its emphasis on frontier research topics. Otherwise, the ISOM differs from the four other conference series in its transatlantic (rather than main-

ly American or European) orientation, in its greater emphasis on both international and comparative macroeconomics, and in its lesser emphasis on doctrinal disputes in domestic macroeconomics. Few ISOM papers are devoted entirely to theory, and ISOM authors are encouraged to provide a comparative empirical analysis on data for two or more countries.

Main Themes

Including the forthcoming 1991 conference, exactly 100 papers have been presented at the ISOM since its founding. Originally the seminar covered a wide variety of topics in each annual conference, but since 1984 there has been a unifying theme for most of the meetings. One can trace the response of international and comparative macroeconomics to changing world events by extracting the main themes presented at the ISOM.⁹

Exchange Rates and International Adjustment. The core issues of international monetary adjustment have always been high on the ISOM agenda, but there has been a shift in emphasis. Early ISOM papers explored the implications of the flexible exchange rate system for monetary policy, inflation, and disinflation. The facts that real exchange rates are volatile, and that flexible exchange rates did not insulate domestic policy from international shocks, were recurring themes.¹⁰ By the mid-1980s attention had shifted to the implications for international policy coordination of U.S. fiscal deficits and the sharp rise in the dollar.¹¹ Subsequently the effects of the European Monetary System (EMS) moved to center stage. The transatlantic friction associated with the volatile exchange rate of the dollar contrasted with the convergence of economic policies and inflation rates within the EMS group of countries. The volatility of the dollar led to increased interest in "target zones" and "managed floating," while the apparent success of the EMS spurred research on central bank credibility and the advantages of "tying one's hands."¹²

⁶ The ISOM met at the local facilities of the MSH in 1978, 1979, 1981, and 1983. It was hosted by the Banque de France in 1985 at Avalon, in 1987 at the Château de Ragny in Burgundy, and in 1989 at the Château de la Vrillière in Paris. Other meetings were held in Oxford in 1980, Mannheim in 1982 and 1990, at the Perugia (SABIDA) conference center of the Banca d'Italia in 1984, in Namur, Belgium in 1986, and in Tokyo in 1988 at facilities provided by the Japanese Ministry of Finance. Financial support for the Tokyo meeting was shared by the Ministry of Finance and FAIR (Foundation for Advanced Information and Research).

⁷ The Brookings Papers on Economic Activity series has been published since 1970 by the Brookings Institution in Washington (and added an additional micro policy meeting and issue in 1988), while the Carnegie-Rochester Conference Series has been published since 1976 by North-Holland.

⁸ *Economic Policy* is published as a periodical, with two issues per year, by the Cambridge University Press. The NBER Macroeconomics Annual is published by the MIT Press.

⁹ The following footnotes provide a representative selection of authors and paper titles; parenthetical references to individual papers indicate the year of publication in the *European Economic Review*.

¹⁰ This recognition is dramatized in the title of Jacob A. Frenkel's paper, "The Collapse of Purchasing Power Parities in the 1970s" (1981). See also Willem H. Buiter and Marcus M. Miller, "Real Exchange Rate Overshooting and the Output Cost of Bringing Down Inflation" (1982).

¹¹ This was the theme of the 1984 conference. See Paul R. Masson and Adrian Blundell-Wignall, "Fiscal Policy and the Exchange Rate in the Big Seven: Transmission of U.S. Government Spending Shocks" (1985); John B. Taylor, "International Coordination in the Design of Macroeconomic Policy Rules" (1985); Kenneth S. Rogoff, "Can Exchange Rate Predictability Be Achieved Without Monetary Convergence?" (1985); and Alessandro Penati, "Monetary Targets, Real Exchange Rates, and Macroeconomic Stability" (1985).

¹² John Williamson and Marcus M. Miller, "The International Monetary System: An Analysis of Alternative Regimes" (1988); Francesco Giavazzi and Marco Pagano, "The Advantage of Tying One's Hands: EMS Discipline and Central Bank Credibility" (1988).

Labor Markets and Macroeconomic Adjustment. The years of the ISOM witnessed the failure of the European unemployment rate to follow U.S. unemployment down to pre-1980 levels, as the world economy recovered in the 1980s. A central theme, developed in a seminal paper at one of the first seminars, was that differences in U.S. and European performance could be traced to wage adjustment; the United States experienced "nominal wage rigidity," while Europe suffered from "real wage rigidity."¹³ As the 1980s evolved, however, European real wage growth moderated markedly, indicating that European unemployment was not mainly classical in nature, but rather revealed an inadequacy of aggregate demand.¹⁴ A related issue was the unsatisfactory rate of productivity growth in the United States relative to that in Europe, which ISOM papers tied to numerous causes, including U.S. fiscal deficits and "running out of ideas."¹⁵ A subsidiary theme was the role of housing markets and job security legislation in creating barriers to labor mobility and growth in both Europe and Japan.¹⁶

Debt and Deficits. Dominant policy themes in the 1980s were the causes and effects of fiscal deficits, particularly in the United States, and solutions for the growing debt burden of less-developed countries and, later, Eastern Europe. Important theoretical papers explored the sources of differing levels of deficits across countries, and the long-run implications of debt.¹⁷ New theoretical insights also were provided on the determi-

nants of external debt under risk of default, and the role of external debt in the Great Depression of the 1930s.¹⁸

Real Trade and Economic Integration. In the late 1980s the EMS seemed to be successful in achieving a convergence of European inflation rates, and many of the industrial economies experienced renewed growth and declining unemployment. In response, the focus of the ISOM turned from international monetary issues to the problems posed by the forthcoming integration of Europe in 1992, concentrating on issues raised by imperfect competition and barriers to mobility in factor markets.¹⁹ Also examined was the difficulty of interpreting trade imbalances, stemming from potential confusion among the effects of exchange rate changes, supply shifts, and unequal income elasticities of demand.²⁰

Comparative Studies. The ISOM has always fostered comparative empirical research. In addition to studies reviewed above, others providing empirical estimates for two or more countries cover a wide range of topics (and are too numerous to cite separately here). On traditional topics of "domestic" macroeconomics we have published comparative studies of consumption, investment, the demand for money, the demand for factors, "Okun's Law," and the formation of price expectations. Comparative studies with a supply-side emphasis have treated productivity levels, productivity growth at the sectoral and firm level, and the measurement of profit rates.

In conclusion, this brief review provides numerous examples of the dynamic development of economics, in which the evolution of events continually provokes the development of new theoretical ideas and the setting for new empirical studies. The ISOM will continue to explore the most important issues in international monetary and real economics, and will continue to encourage more economists to engage in comparative research that illuminates the many puzzles in the divergent evolution of industrial economies.

¹³William H. Branson and Julio J. Rotemberg, "International Adjustment and Wage Rigidity" (1980).

¹⁴Dennis Grubb, Richard Jackman, and Richard Layard, "Wage Rigidity and Unemployment in OECD Countries" (1983); Wolfgang Franz, "The Past Decade's Natural Rate and the Dynamics of German Unemployment: A Case Against Demand Policy?" (1983); Olivier J. Blanchard and Lawrence H. Summers, "Fiscal Increasing Returns, Hysteresis, Real Wages, and Unemployment" (1987); and Robert J. Gordon, "Productivity, Wages, and Prices and Inside and Outside of Manufacturing in the United States, Japan, and Europe" (1987).

¹⁵William D. Nordhaus, "Economic Policy in the Face of Declining Productivity Growth" (1982); and John F. Hellwig, Peter H. Sturm, and Gérard Salou, "International Comparison of the Sources of Productivity Slowdown, 1973-82" (1985).

¹⁶Gordon Hughes and Barry McCormick, "Housing Markets, Unemployment, and Labour Market Flexibility in the United Kingdom" (1987); Hiroshi Yoshikawa and Fumio Ohtake, "An Analysis of Female Labor Supply, Housing Demand, and the Saving Rate in Japan" (1989); and Giuseppe Bertola, "Job Security, Employment, and Wages" (1990).

¹⁷Olivier J. Blanchard, "Current and Anticipated Deficits, Interest Rates, and Economic Activity" (1984); Giuseppe Tullio, "Long-Run Implications of the Increase in Taxation and Public Debt for Employment and Economic Growth in Europe" (1987); and Nouriel Roubini and Jeffrey D. Sachs, "Political and Economic Determinants of Budget Deficits in the Industrial Democracies" (1989).

¹⁸Jonathan Eaton, Mark Gersovitz, and Joseph E. Stiglitz, "The Pure Theory of Country Risk" (1986); Daniel Cohen and Jeffrey D. Sachs, "Growth and External Debt Under Risk of Debt Repudiation" (1986); and Barry J. Eichengreen and Richard Portes, "Debt and Default in the 1930s: Causes and Consequences" (1986).

¹⁹See especially Victor D. Norman, "Assessing Trade and Welfare Effects of Trade Liberalization" (1990); Anthony J. Venables, "The Economic Integration of Oligopolistic Markets" (1990); and Richard E. Baldwin, "Factor Market Barriers Are Trade Barriers: Gains from Trade from 1992" (1990).

²⁰Paul R. Krugman, "Differences in Income Elasticities and Trends in Real Exchange Rates" (1989).

The Gold Standard and the Great Depression

Barry J. Eichengreen

The Depression of the 1930s remains the ultimate testing ground for theories of macroeconomic fluctuation, while the operation of the gold standard is the ultimate measuring rod for alternative international monetary systems. Yet neither the cause of the Great Depression nor the workings of the gold standard are understood adequately.¹ One reason, my research suggests, is that they tend to be analyzed in isolation from one another when, in fact, the gold standard provides the key to understanding the Depression, and the Depression illuminates how the gold standard worked.²

How the Gold Standard Worked

The dominant explanation for the stability of the prewar gold standard emphasizes adept management by the Bank of England. The Bank is said to have stabilized the gold standard system by acting as international lender of last resort. In an influential book, Charles Kindleberger contrasted the pre-World War I situation with the interwar period, when Britain was not sufficiently powerful to stabilize the system, and the United States was not prepared to do so.³ In an application of what has come to be known as the "theory of hegemonic stability," Kindleberger concluded that the requisite stabilizing influence was supplied adequately only when there existed a dominant power ready and able to provide it.⁴

¹Previous NBER books have made important contributions to the literatures on both subjects. See, for example, M. Friedman and A. J. Schwartz, *A Monetary History of the United States, 1867-1960*, NBER Studies in Business Cycles No. 12, Princeton, NJ: Princeton University Press, 1963, and W. A. Brown, Jr., *The International Gold Standard Reinterpreted, 1914-1934*, NBER General Series No. 37, Ann Arbor, MI: University Microfilms, 1940.

²This article summarizes the argument developed in my forthcoming NBER book, *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939*, New York: Oxford University Press.

³C. Kindleberger, *The World in Depression, 1929-1939*, Berkeley: University of California Press, 1973.

⁴B. J. Eichengreen, "Hegemonic Stability Theories of the International Monetary System," NBER Reprint No. 1271, September 1989.

My research challenges this view. It suggests that the interwar period was hardly exceptional for the absence of a hegemon. Neither was there a country that single-handedly managed international monetary affairs prior to World War I. The prewar gold standard was a decentralized, multipolar system whose smooth operation was not attributable to stabilizing intervention by a dominant power.

The stability of the prewar gold standard was attributable rather to two very different factors: credibility and cooperation.⁵ The credibility of the gold standard derived from the priority attached by governments to balance-of-payments equilibrium. In the core countries—Britain, France, and Germany—there was little doubt that the authorities would take whatever steps were required to defend the central bank's gold reserves and to maintain the convertibility of the currency into gold. If one such central bank lost gold reserves and its exchange rate weakened, then funds would flow in from abroad in anticipation of the capital gains that investors in domestic assets would reap once the authorities adopted the measures needed to stem reserve losses and strengthen the exchange rate. Because there was no question about the commitment to the existing parity, stabilizing capital flows responded quickly and in considerable volume. The exchange rate strengthened of its own accord. Stabilizing capital flows thereby minimized the need for government intervention.⁶

What rendered the commitment to gold credible? In part, there was little perception that policies required for external balance were inconsistent with domestic prosperity. There was no well-articulated theory of how supplies of money and credit could be manipulated to stabilize production or reduce joblessness. The working classes, possessing limited political power, were unable to challenge the prevailing state of affairs. In many countries, the extent of the franchise was still limited. Those who might have objected that restrictive monetary policy created unemployment were in no position to influence its formulation.

Nor was there a belief that budget deficits or changes in the level of public spending could be used to stabilize the economy. Since governments followed a balanced-budget rule, changes in revenues dictated changes in public spending. Countries rarely found themselves confronted with the need to eliminate large budget deficits in order to stem gold outflows.

Ultimately, however, the credibility of the prewar gold standard rested on international cooperation. Minor problems could be dispatched by tacit cooperation, generally achieved without open communication among the parties involved. When global credit condi-

⁵B. J. Eichengreen, "The Gold Standard since Alec Ford," NBER Working Paper No. 3122, September 1989.

⁶The argument draws on the recent literature on exchange rate target zones. See P. R. Krugman, "Target Zones and Exchange Rate Dynamics," NBER Working Paper No. 2481, January 1988.

tions were overly restrictive and a loosening was required, for example, the requisite adjustment had to be undertaken simultaneously by several central banks. Unilateral action was risky; if one central bank reduced its discount rate but others failed to follow, that bank would suffer reserve losses and would be forced to defend the convertibility of its currency. Under such circumstances, the most prominent central bank, the Bank of England, signaled the need for coordinated action. When it lowered its discount rate, other central banks responded in kind. In effect, the Bank of England provided a focal point for the harmonization of national monetary policies.

Major crises, in contrast, required different responses in different countries. The country losing gold and threatened with a convertibility crisis had to raise interest rates to attract funds from abroad; other countries had to loosen domestic credit conditions to make funds available to the central bank that was experiencing difficulties. The follow-the-leader approach did not suffice, especially when it was the leader, the Bank of England, whose reserves were under attack. Instead, such crises were contained through overt, conscious cooperation. Other central banks and governments discounted bills on behalf of the weak-currency country, or loaned gold to its central bank. Consequently, the resources upon which any one country could draw when its gold parity was under attack far exceeded its own reserves.

Both the credibility of the commitment to gold and the extent of international cooperation were eroded by World War I. The credibility was challenged by political and economic changes that shattered the particular constellation of political power upon which policy decisions had been predicated before 1913. Issues that had previously remained outside the political sphere, such as the determination of wages and employment, suddenly became politicized. Extension of the franchise and the growth of political parties dominated by the working classes intensified the pressure to adapt policy toward employment targets. When employment and balance-of-payments goals clashed, it was no longer clear which would dominate. Doubt was cast over the credibility of the commitment to gold. No longer did capital flow only in stabilizing directions. It might do the opposite, intensifying the pressure on countries experiencing a loss of reserves.

The decisions of central bankers, long regarded as obscure, became grist for the political mill. Monetary policymakers consequently lost much of the insulation they once had enjoyed. Those responsible for fiscal policy generally enjoyed still less insulation from political pressures. The war shattered the understandings regarding the distribution of the fiscal burden that had existed before 1913. The level and composition of taxes were altered. Incomes were redistributed. The question became whether to retain the new distribution of fiscal burdens or to restore the old order. Economic interests fought a fiscal war of attrition, resisting any increase in the taxes they paid and any reduction in the transfers they received. Each faction held out in the hope that

the others would give in first.⁷ Even in countries where central bankers retained sufficient independence from political pressures that they could be counted on to defend gold convertibility, fiscal policy became highly politicized. Absent a consensus on fiscal incidence, there was no guarantee that taxes would be raised or government spending would be cut when required to defend the gold standard. Credibility was the casualty.

With the erosion of credibility, international cooperation became still more important than before the war. Yet the requisite level of cooperation was not forthcoming. Three obstacles blocked the way: domestic political constraints; international political disputes; and incompatible conceptual frameworks. Domestic interest groups with the most to lose were able to stave off adjustments in economic policy that would have facilitated international cooperation. The international dispute over war debts and reparations hung like a dark cloud over international negotiations, contaminating efforts to redesign and cooperatively manage the gold standard system. The competing conceptual frameworks employed in different countries prevented policymakers from reaching a common understanding of their economic problem, much less from agreeing on a solution.

The argument, then, is that credibility and cooperation were central to the smooth operation of the pre-war gold standard. The scope for both declined abruptly after World War I. The instability of the interwar gold standard was the result.

The Causes of the Great Depression

Given this explanation for the instability of the interwar gold standard, it remains to link the gold standard to the Great Depression. That link stretches back to the changes in the pattern of balance-of-payments position of the United States and weakened that of other nations.⁸ In the mid-1920s, the external accounts of other countries remained tenuously balanced on long-term capital outflows from the United States. But if U.S. lending was interrupted for any reason, the underlying weakness of other countries' external position suddenly would be revealed. As they lost gold and foreign exchange reserves, the convertibility of their currencies into gold would be threatened. Their central banks would be forced to restrict credit, their fiscal authorities to compress public spending, even if doing so threatened to plunge their economies into recession.

This is what happened when U.S. lending was curtailed in the summer of 1928 as a result of increasingly

⁷ This process is modeled by A. Alesina and A. Drazen, "Why Are Stabilizations Delayed?" NBER Working Paper No. 3053, August 1989. See also B. J. Eichengreen, "The Capital Levy in Theory and Practice," NBER Working Paper No. 3096, September 1989.

⁸ B. J. Eichengreen, "Til Debt Do Us Part: The U.S. Capital Market and Foreign Lending, 1920-55," NBER Reprint No. 1148, March 1989.

stringent Federal Reserve monetary policies. Superimposed on already weak foreign balances of payments, this policy shift provoked a greatly magnified monetary contraction abroad. In addition, it provoked a contractionary shift in fiscal policies in parts of Europe and much of Latin America. This shift in policy worldwide, and not merely the relatively modest shift in policy in the United States, provided the contractionary impulse that set the stage for the 1929 downturn.

Policies in other countries were linked to policy in the United States by the international gold standard. Given the preexisting pattern of international settlements, a modest shift in U.S. policy could have a dramatic impact on the payments positions of other countries and hence could provoke a greatly magnified adjustment in the stance of their economic policies. Monetary authorities outside the United States were forced to respond vigorously to the decline in capital inflows if they wished to stay on the gold standard. Fiscal authorities were forced to retrench to compress domestic spending and limit the demand for imported goods.

It is hard to see what else officials in individual countries could have done, given their commitment to gold. Unilateral monetary expansion or increased public expenditure moved the balance of payments into deficit, threatening the gold standard. So long as they remained unwilling to devalue, governments hazarding expansionary initiatives were forced to draw back. Britain learned this lesson in 1930, the United States in 1931–3, Belgium in 1934, and France in 1934–5.⁹

The dilemma was whether to sacrifice the gold standard in order to reflate, an option most policymakers opposed, or to forswear all measures that might stabilize the economy in order to defend the gold standard. Finessing this choice required international cooperation. Had policymakers in different countries been able to agree on an internationally coordinated package of expansionary initiatives, the decline in spending might have been moderated or reversed without creating balance-of-payments problems for any one country. Reflation at home would have reversed the decline in spending; reflation abroad would have prevented the stimulus to domestic demand from producing trade deficits and capital flight. Under the gold standard, reflation required cooperation.

A separate question is what amplified the destabilizing impulse to the point that it became the great economic contraction of modern times. There is widespread agreement that the answer lies in the spread of financial instability starting in the second half of 1930—in the bank failures and financial chaos that led to the liquidation of bank deposits and disrupted the provision of financial services. The role of banking crises in the propagation of the Great Depression is widely ac-

cepted for the United States.¹⁰ But bank failures played an important role in other countries as well.¹¹ When allowed to spread, bank runs disrupted the functioning of financial markets. Shattering confidence, disrupting lending, freezing deposits, and immobilizing wealth, they amplified the initial contractionary shock.

This answer to the question of what amplified the destabilizing impulse only suggests another question: why did policymakers fail to intervene to head off the collapse of their domestic financial systems? They failed to do so because the gold standard posed an insurmountable obstacle to unilateral action. Containing bank runs required them to inject liquidity into the banking system. But doing so could be inconsistent with the gold standard rules. Defending the gold parity might require the authorities to sit idly by as the banking system crumbled, as did the Federal Reserve System at the end of 1931 and again at the beginning of 1933.

Even when central bankers risked gold convertibility by intervening domestically as lenders of last resort, the operation of the gold standard could render their initiatives counterproductive. The provision of liquidity on a significant scale signaled that the authorities attached as much weight to domestic financial stability as to the gold standard. Realizing that convertibility might be compromised and that with devaluation they might incur capital losses on domestic assets, investors rushed to get their money out of the country. Additional funds injected into the banking system leaked back out as depositors liquidated their balances. Conversely, the banking crisis was intensified.

Once again, escaping this dilemma required international cooperation. Loans from other gold standard countries could have replenished the reserves of central banks confronted with banking crises. But the longer creditor countries vacillated, the larger the necessary loans became. Ultimately, the requisite loans could only be provided collectively. Once again a variety of obstacles—reparations, diplomatic disputes, and doctrinal disagreements among them—thwarted cooperation.

The End of the Gold Standard and the End of the Depression

If the gold standard contributed to the severity of the slump, then did its collapse set the stage for recovery? The currency depreciation made possible by aban-

¹⁰B. S. Bernanke, "Nonmonetary Effects of Financial Crises in the Propagation of the Great Depression," *American Economic Review* 73, pp. 257–276.

¹¹B. J. Eichengreen, "International Monetary Instability between the Wars: Structural Flaws or Misguided Policies?" NBER Reprint No. 1486, January 1990, and B. S. Bernanke and H. James, "The Gold Standard, Deflation, and Financial Crisis in the Great Depression: An International Comparison," NBER Working Paper No. 3488, October 1990.

⁹B. J. Eichengreen, "Relaxing the External Constraint: Europe in the 1930s," NBER Working Paper No. 3410, August 1990.

donment of the gold standard, according to the conventional wisdom, failed to ameliorate conditions in countries that left gold while exacerbating the Depression in countries that remained. My research shows that nothing could be more contrary to the evidence.¹² Depreciation was the key to economic recovery. Prices were stabilized in countries that abandoned the gold standard. Output, employment, investment, and exports rose more quickly than in countries that clung to it instead.

The advantage of currency depreciation was that it freed up monetary and fiscal policies. No longer was it necessary to restrict domestic credit in order to defend convertibility. No longer was it necessary to cut public spending on countries where expenditure was already in a tailspin.

Yet there was surprisingly little tendency, upon suspending gold convertibility, to initiate reflationary action. Six months to a year had to pass before officials took steps to expand the money supply. The interlude was required to convince the public and policymakers that abandoning gold did not pose an inflationary threat. Only then did governments initiate the policies that finally launched their economies down the road to recovery. Herein lies the explanation for why currency depreciation did not unleash a more rapid return to full employment.

Ultimately, the question is why countries stayed wedded to gold for so long, and why countries that abandoned the gold standard failed to pursue expansionary policies more aggressively. In part, different decisions across countries reflected differences in the balance of political power, between creditors who benefited from deflation and debtors who suffered, or between producers of internationally traded goods who benefited from devaluation and producers of domestic goods who were likely to be hurt. In addition, however, policy decisions reflected the influence of historical experience. A central determinant of the willingness of governments to dispense with the gold standard in the 1930s was the ease with which it had been restored in the 1920s. Where the battle was difficult, countries had endured costly and socially divisive inflations. In such extreme cases as Germany, Austria, Hungary, and Poland, price instability had exploded into hyperinflation. In France, Belgium, and Italy, although inflation did not reach comparable heights, the legacy was the same. Policymakers and the public continued to regard the gold standard and price stability as synonymous. They continued to adhere to this view long after the 1929–31 collapse of prices had provided ample evidence to the contrary.

Countries such as Britain, Sweden, and the United States had not experienced runaway inflation in the 1920s. The gold standard and price stability were still

clearly distinguished. Policymakers worried less that devaluation would lead inevitably to monetary instability, social turmoil, and political chaos. Elected officials in these countries were able to pursue policies designed to raise prices.

Politicians in countries such as Germany and France were obsessed with inflation because it was symptomatic of deeper social divisions. It reflected the disintegration of the prewar consensus regarding the distribution of incomes and financial burdens. World War I had transformed the distribution of tax obligations. It had destroyed long-standing conventions governing income distribution. A bitter dispute erupted over whether to restore the status quo or to maintain the new fiscal system. So long as this dispute raged, postwar governments were incapable of agreeing on a package of tax increases and public expenditure reductions sufficient to balance their budgets.

Inflation had been symptomatic of this fiscal war of attrition. The longer budget deficits persisted, the less willing investors grew to absorb government bonds, and the more the fiscal authorities were forced to rely on the central bank's printing press. Only when inflation had risen to intolerable heights had an accommodation been reached. The gold standard was emblematic of the compromise. To abandon it threatened to reopen the dispute and ignite another debilitating inflationary spiral.

The war of attrition had been most intractable, and therefore exerted the most inhibiting influence on policy in the Depression, in those countries where the prewar settlement had been most seriously challenged—where fiscal institutions had been most dramatically altered, where property had been most heavily destroyed, where income had been most radically redistributed. In addition, the war of attrition was most intractable where political institutions handicapped those wishing to compromise. In countries with proportional-representation electoral systems, it was easy for small minorities to obtain parliamentary seats. The sensible strategy for political candidates was to cater to a narrow interest group. Political parties proliferated. Every group that might suffer from the imposition of a tax had an elected representative to block its adoption. Government was by coalition. When a coalition government attempted to redress the fiscal problem, adversely affected parties withdrew their support and the administration collapsed.

In countries with majority-representation electoral systems, in contrast, fringe parties enjoyed less political influence. Under majority representation, the party whose candidate receives a majority or plurality of votes cast in a district is the only one represented. Better prospects for securing a legislative majority gave political parties incentive to moderate their positions in order to appeal to a large fraction of the electorate. A government of the majority was in a better position to raise taxes, reduce transfers, or take other steps to contain the fiscal crisis.

Countries that suffered inflationary crises in the

¹²B. J. Eichengreen and J. D. Sachs, "Exchange Rates and Economic Recovery in the 1920s," *Journal of Economic History* 65, pp. 924–946.

1920s tended to have proportional-representation electoral systems. Since their institutions lent themselves least easily to political stability, they had particular reason to fear inflation and hence experienced the greatest difficulty in formulating a concerted response to the Great Depression. These connections among electoral systems, governmental stability, and economic policy outcomes form an important topic for future research.

Real Estate

Patric H. Hendershott

In the 1980s there were enormous changes in the housing finance system that affected both the homeownership rate and real house prices. In addition, housing's historic sensitivity to changes in nominal interest rates seems to have been dampened substantially. This, with the integration of national capital markets—which has reduced the ability of monetary policy to alter U.S. interest rates relative to world rates—probably brought about a significant reduction in the potency of monetary policy.

But the altered housing financing system is hardly the only factor that changed homeownership, household formation, and real house prices in the 1980s. The real costs of owning and renting housing depend on real interest rates and tax laws relating to investment in housing, and both have undergone major changes in the 1980s.¹ Moreover, household formation, homeownership, and real house prices also depend on real wages, an important determinant of the effective demands for privacy and housing.

While housing comprises over 80 percent of noncorporate real estate in the United States, the other nearly 20 percent also has undergone major changes in the 1980s. This report briefly addresses that topic, too.

Mortgage Market Changes and Housing

During the 1960s and 1970s, the U.S. government closely regulated the system of financing single-family housing in four ways. First, federally chartered depository institutions were prohibited from originating adjustable-rate mortgages (ARMs), so virtually all home-

¹ P. H. Hendershott and J. Peek, "Interest Rates in the Reagan Years," NBER Working Paper No. 3037, July 1989, and in *The Economic Legacy of the Reagan Years: Euphoria or Chaos?* Sahn and Tracy, eds., New York: Praeger, 1991; and J. R. Follain, P. H. Hendershott, and D. C. Ling, "Understanding the Real Estate Provisions of the Tax Act: Motivation and Impact," NBER Reprint No. 1010, June 1988, and *National Tax Journal*, (September 1987), pp. 303-372.

buyers were granted fixed-rate mortgages (FRMs). Second, portfolio restrictions and tax inducements led nonbank depository institutions (S&Ls and mutual savings banks) to supply two-thirds of all funds to the home mortgage market (commercial banks and the Federal National Mortgage Association—FNMA, or Fannie Mae—supplied most of the rest) and caused home mortgage rates to be roughly one-half percentage point below fair market rates during the 1970s.² Third, because depository institutions were funding their long-term investments (FRMs) with short-term deposits, deposit rate ceilings were introduced so that significant increases in interest rates would not cause large cash flow losses for the institutions. Fourth, because the capital market could not compete with "cheap" deposit money, few conventional mortgages were pooled into passthrough securities.

Prohibitions against ARMs, portfolio restrictions, tax inducements, and deposit rate ceilings all were lifted in the 1980s. Not surprisingly, the housing finance system changed dramatically.³ A national primary market for ARMs developed (between early 1982 and 1989, two-fifths of all new conventional home mortgages had adjustable rates). FRMs (both whole loans and passthroughs) held by S&Ls declined by 15 to 20 percent. Moreover, the fraction of conventional FRM originations that were pooled into passthroughs rose from less than 5 percent before 1982 to over 50 percent after 1985 and to over two-thirds in 1989.

In the last dozen years, the S&L industry has been decimated. The sharp and sustained rise in interest rates in the late 1970s and early 1980s wiped out the industry economically,⁴ and the recent Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) legislation is eliminating it quantitatively. The S&L share of outstanding home mortgages has fallen from 43 percent at the end of 1984 to 25 percent at the end of 1990. Over half of the decline has occurred since March 1989. The enormous losses generated by the high interest rates in the early 1980s paralyzed the thrift industry and caused home mortgage rates to go from one-half percentage point below fair market levels to one-half point above. This half point provided the stimulus for securitization of conventional FRMs, covering the start-up costs of the securitizers and providing the initial liquidity premium demanded by investors. By

² P. H. Hendershott and R. VanOrder, "Integration of Mortgage and Capital Markets and the Accumulation of Residential Capital," NBER Reprint No. 1334, December 1989, and *Regional Science and Urban Economics* 19 (May 1989), pp. 364-378.

³ P. H. Hendershott, "The Market for Home Mortgage Credit: Recent Changes and Future Prospects," NBER Working Paper No. 3548, December 1990, and in *Recent Changes in the Market for Financial Services*, Gilbert, ed., St. Louis: Economic Policy Conference, Federal Reserve Bank of St. Louis, 1991.

⁴ E. J. Kane, *The S&L Insurance Mess: How Did It Happen?* Washington, DC: Urban Institute Press, 1989.

1986, however, the widespread success of securitization eliminated the half-point premium.⁵

One troubling aspect of the S&L problem is the industry's continuing vulnerability to fluctuations in interest rates, which extends to recent acquirers of S&L assets. When FIRREA was passed, S&Ls were funding as many FRMs with short-term deposits as they had in 1977 (\$400 billion), and they had added \$325 billion in ARMs with interest rate caps. While the industry has since shrunk, and is still shrinking rapidly, the risks simply are being passed on to the depository institutions purchasing the S&Ls, and to the Resolution Trust Corporation.

The U.S. housing finance system has been transformed from a highly regulated, one-instrument (FRM), deposit-based system to an unregulated, two-instrument, mixed capital-market (FRM) and deposit-based (ARM) system. The regulated system made housing quite sensitive to increases in nominal interest rates for two reasons. First, higher interest rates raised the ratio of mortgage payments to income (for a given house and loan-to-value ratio), even when the present value of mortgage payments did not rise relative to the present value of future income. Because lenders set qualification standards in terms of the ratio of current values, and because borrowers had no alternative mortgage instrument to make housing more affordable, those unable to provide a larger down payment were constrained to purchase less costly houses (or to forgo their purchase). Second, deposit rate ceilings would bind, and credit rationing would occur (lenders effectively would require larger down payments, exacerbating the first problem).

The introduction of ARMs has given households a financing vehicle with a lower initial payment. Households switch to ARMs when FRM rates get into double digits.⁶ The removal of deposit rate ceilings and the widespread securitization of FRMs means that credit rationing no longer occurs when interest rates rise. This suggests that housing starts and investment should be far less sensitive to rising nominal interest rates now than they were prior to 1980. Estimates, largely generated by researchers with the Federal Reserve System, are that housing starts and outlays have been only one-fifth to one-third as sensitive to interest rates after 1982 as before.⁷

Household Formation, Homeownership, and Real House Prices

Household formation and homeownership among America's young are sensitive to the real costs of housing. Average real house prices seem to depend on real aftertax mortgage rates. Thus, I conclude that below-market rates on home mortgages contributed to a surge in household formation, homeownership, and real house prices in the 1970s; above-market rates played a role in the decline of all three in the first half of the 1980s.

Household formation depends on how early youth leave their parental homes and the extent to which they marry or otherwise form into groups when they leave. Recent research based on individuals in their twenties in 1987 indicates that these decisions are quite sensitive to locational differences in real housing costs.⁸ Youth aged 25 in areas with low (half the sample mean) real housing costs are 20 percentage points (0.9 versus 0.7) more likely to be outside the parental home than their peers in areas with high (twice the sample mean) real costs. Similarly, 25-year-olds in areas with low real costs are 10 percentage points more likely to be married than those in areas with high real costs.⁹

Not surprisingly, youth with high-potential real wage rates (double the mean) also are significantly more likely to live outside their parents' home and to be married than youth with low-potential real wage rates. The decisions to leave home and marry also are significantly related to demographic factors, such as age, race, and sex.

Relative housing costs and potential real wage rates also are relevant to the decision of youth to buy versus rent a home.¹⁰ Where house prices are low relative to rents, there is a 15-percentage-point higher probability of a 25-year-old owning a home than in areas with high house prices relative to rents. Similarly, 25-year-olds with high-potential real wages are 15 percentage points more likely to be owners than their peers with low-potential real wages. Again, age, race, and sex also matter.

The impact of the changing age structure of the U.S. population on real house prices is a more controversial question. N. Gregory Mankiw and David N. Weil found that age had an enormous impact on real house prices. They used the result to forecast a 47 percent decline in real house prices between 1987 and 2007.¹¹ I question

⁵Hendershott and VanOrder, op. cit.

⁶J. K. Brueckner and J. R. Follain, "ARMs and the Demand for Housing," *Regional Science and Urban Economics* 19 (May 1989), pp. 163-187.

⁷These studies are surveyed in P. H. Hendershott, "An Altered U.S. Housing Finance System: Implications for Housing," in *The Economics of Housing in Japan and the United States*, J. M. Poterba, ed., Chicago: University of Chicago Press, forthcoming 1992.

⁸D. R. Haurin, P. H. Hendershott, and D. Kim, "The Impact of Real Rents and Wages on Household Formation," NBER Working Paper No. 3309, March 1990, revised December 1990.

⁹Haurin, Hendershott, and Kim, op. cit.

¹⁰D. R. Haurin, P. H. Hendershott, and D. Kim, "Tenure Choice of American Youth," NBER Working Paper 3310, March 1990.

¹¹N. G. Mankiw and D. N. Weil, "The Baby Boom, the Baby Bust, and the Housing Market," NBER Reprint No. 1357, March 1990, and *Regional Science and Urban Economics* 19 (May 1989).

their results for two reasons.¹² First, the relationship between real house prices and their age-related variable really holds only for the first part of the sample: the 1950s and 1960s; it does not hold for the 1970s and 1980s. When a relationship estimated over 1947–69 is used to forecast 1970–87, the increase in real house prices is 41 percent, versus the actual increase of only 10 percent.

Second, even when Mankiw and Weil hold the age-related demand for housing constant, real house prices fall by 6.5 percent annually forever. (Demand is not falling in their 1987–2007 forecast; it is simply growing at a slower rate than in prior decades. The negative 6.5 percent trend annual decline generates the 47 percent cumulative real house price decline.)

It does appear that real aftertax interest rates have played a significant role in explaining real house prices.¹³ Real aftertax rates fell to unusually low levels throughout the 1970s, when the greatest increase in real house prices occurred, and rose to peak levels in the first half of the 1980s, when real prices declined.

Investment Real Estate

Earlier studies based on appraisals have reported that real estate was low risk, and that risk-adjusted returns on real estate were higher than returns on stocks and bonds. More current research debunks this result and shows that returns on real estate are far more volatile than previously believed. In fact, real estate returns may be about as volatile as the returns on equity real estate investment trusts (EREITs) are.

With K. C. Chan and Anthony B. Sanders, I examine EREIT returns on the grounds that, being transactions-based, they are the most representative real estate returns available.¹⁴ We explain both an equally weighted monthly return index (1973–87) for about 20 EREITs and an index of equally weighted returns for companies on the NYSE. In the end, we find no evidence of excess real estate returns.

Three macroeconomic factors consistently drive both real estate and stock market returns: changes in the risk structure of interest rates; changes in the term structure; and unexpected inflation. The impacts of these factors on real estate returns consistently are around 60 percent of the impacts on corporate stock returns generally. Moreover, for lightly leveraged EREITs, the impacts are even less. Thus, real estate is substantially less risky than corporate stocks. However, real estate does not appear to be any better hedge against inflation than corporate stock is; unexpected inflation

¹²P. H. Hendershott, "Are Real House Prices Likely to Decline by 47 Percent?" *Regional Science and Urban Economics* 21 (June 1991).

¹³P. H. Hendershott, "An Altered U.S. Housing Finance System," *op. cit.*

¹⁴K. C. Chan, P. H. Hendershott, and A. B. Sanders, "Risk and Return on Real Estate: Evidence from Equity REITs," *AREUEA Journal* 18, 4 (Fall 1990).

has a negative impact on both NYSE stock and EREIT returns.

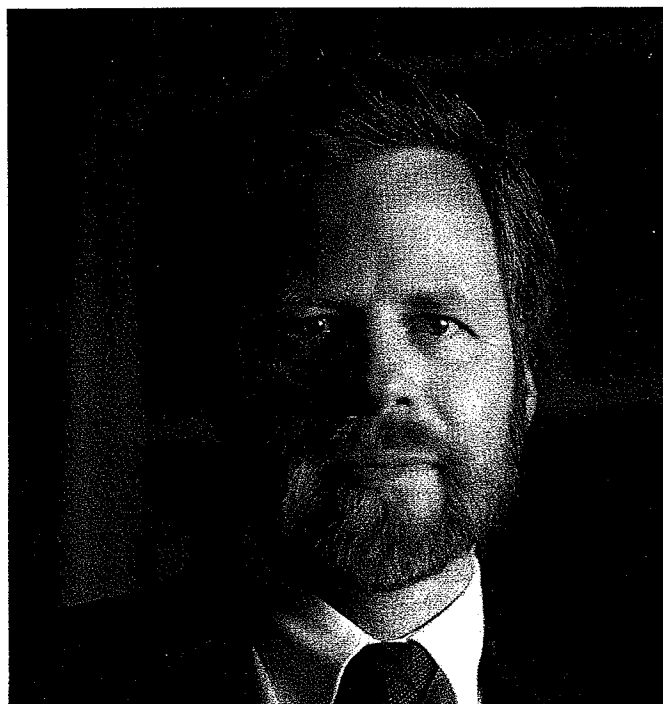
Chan, Sanders, and I also explore the possibility that the same forces that drive discounts on closed-end stock funds affect returns on EREITs. Such a relationship seems plausible, because EREITs are closed-end mutual funds invested in real estate assets. In fact, we uncover the relationship in the data. When the equally weighted EREIT return index is regressed on the change in the closed-end stock fund discount, we obtain a coefficient of 0.5, further reinforcing the view that real estate is less risky than common stocks are.

Recent data on EREITs, especially in 1990, suggest that real estate returns have deteriorated relative to what we have predicted. It appears that the failure of construction to retrench in the second half of the 1980s, because of continued 100 percent financing of developers by S&Ls that are in trouble, is finally having a negative impact on the value of existing, high-quality real estate. Given the widespread excess capacity by type of use and geographic locale, a substantial impact should be expected.

NBER Profile

Barry J. Eichengreen

Barry J. Eichengreen is a research associate in the NBER's Programs in International Studies and the Development of the American Economy, and a professor of economics at the University of California, Berkeley.



Eichengreen received an A.B. in economics and political science from the University of California, Santa Cruz, and advanced degrees in economics and history from Yale University. Prior to starting his teaching career, he was a Fulbright Fellow at Oxford University.

Eichengreen's research, which focuses on both economic history and international economics, has been published in the *Journal of Economic History*, the *Journal of International Economics*, the *American Economic Review*, and other journals. He serves on several editorial boards and on committees of the German Marshall Fund, the Social Science Research Council, and the National Academy of Sciences.

Eichengreen lives in Berkeley. His hobbies include long-distance running, pottery, and gardening.

Patric H. Hendershott

Patric H. Hendershott has been a research associate in the NBER's Programs in Taxation and Financial Markets and Monetary Economics since 1979. He is also a professor of finance and public policy at Ohio State University.



Hendershott received his Ph.D. in economics from Purdue University in 1965. After teaching at Georgetown and Northwestern Universities, Hendershott returned to Purdue in 1969 as an associate professor of

economics and finance. He was chairman of the economics group there from 1971-4 and was promoted to professor in 1972. Hendershott was appointed Purdue's Krannert Distinguished Professorship in 1980-1. He later joined the Ohio State faculty as holder of the John W. Galbreath Chair in Real Estate.

Hendershott also has been a visiting professor at the University of Florida, New York University, Stanford University, and Bond University in Australia. He was a Senior Fulbright Research Scholar in Australia in 1989.

In addition to his teaching, Hendershott has served as a consultant to a number of U.S. government departments, and organizations in the private sector. His research has been published in many journals and books, as well as in the NBER's Working Paper Series.

Hendershott, whose hobbies are jogging and traveling, is married and has three adult children, one of whom is a doctoral candidate in finance at Ohio State.

Conferences

American Economic Policy in the 1980s

An NBER conference on "American Economic Policy in the 1980s," organized by Bureau President Martin Feldstein, was held in Williamsburg, Virginia on October 17-20, 1990. In an unusual format for an NBER conference, this meeting brought together academic speakers and the key economic policy officials of the 1980s. Background papers were prepared by NBER research associates and other academics, but each session was launched by presentations of former officials. The program was:

Budget Policy

Panelists: David A. Stockman (Blackstone Group), formerly U.S. Representative and Director, Office of Management and Budget (OMB), and Charles Schultze (Brookings Institution) formerly Chairman, Council of Economic Advisers (CEA), and Director, OMB

Background Paper: James M. Poterba, NBER and MIT

Tax Policy

Panelists: Charls Walker (Charls Walker Associates), formerly Undersecretary of the Treasury, and Russell Long (Long Law Firm), formerly U.S. Senator

Background Paper: Don Fullerton, NBER and University of Virginia

Policies for the Aged

Discussant: Rudolph Penner (Urban Institute), formerly Director, Congressional Budget Office

Background Paper: David A. Wise, NBER and Harvard University, and Richard Woodbury, Harvard University

Monetary Policy

Panelists: Paul A. Volcker (J. D. Wolfensohn Company), formerly Chairman, Federal Reserve Board, and James Tobin (Yale University), formerly member, CEA

Background Paper: Michael L. Mussa, NBER and University of Chicago

Exchange Rate Policy

Panelists: Michael L. Mussa, and C. Fred Bergsten (Institute for International Economics), formerly Assistant Secretary of the Treasury

Background Paper: Jeffrey A. Frankel, NBER and University of California, Berkeley

Trade Policy

Panelists: Lionel Olmer (Paul, Weiss, Rifkind, Wharton and Garrison), formerly Undersecretary for International Trade, Department of Commerce, and Paula Stern (The Stern Group), formerly Chairman, International Trade Commission

Background Paper: J. David Richardson, NBER and University of Wisconsin

Antitrust Policies

William Baxter (Stanford University), formerly Assistant Attorney General, and Harry Reasoner (Vinson & Elkins), formerly Chairman, Antitrust Section of the American Bar Association

Background Paper: Phillip Areeda, Harvard University

Economic Regulation

Panelists: William Niskanen (Cato Institute), formerly member, CEA, and Elizabeth Bailey (Carnegie-Mellon University), formerly Commissioner, Civil Aeronautics Board

Background Paper: Paul L. Joskow, NBER and MIT, and Roger G. Noll, Stanford University

Health, Safety, and Environment Regulation

Panelists: Christopher DeMuth (American Enterprise Institute), formerly Administrator of Information and Regulatory Affairs, OMB, and James Burnley (Shaw, Pittman, Potts, and Trowbridge), formerly Secretary of Transportation

Background Paper: W. Kip Viscusi, Duke University

Financial Regulation

Panelists: William Isaacs (Secura Group), formerly Chairman, Federal Deposit Insurance Corporation, and William Taylor, Federal Reserve Board

Background Paper: Robert Litan (Brookings Institution), formerly member, CEA

LDC Debt Problems

Panelists: Thomas Enders (Salomon Brothers, Inc.), formerly U.S. Ambassador to Spain and Assistant Secretary of State for Inter-American Affairs, and William Rhodes, Citibank, N.A.

Background Paper: Paul R. Krugman, NBER and MIT

Stockman argued that three decades of incremental change in the U.S. budget gave no hint that the "fiscal carnage" of the 1980s was possible. He described the ideological battles and political miscalculations that resulted in the huge gap between revenues and spending. Schultze agreed with many of Stockman's comments, but emphasized the tremendous inertia of the political system, which reduces the chance of making a big mistake but also makes it much harder to correct one. Poterba's background paper quantifies the sources and magnitude of changes in the federal deficit in the 1980s and discusses the political forces that supported those changes. Among other lessons from the 1980s, he concludes, mechanical budget targets may provide a useful focus for fiscal policy debates, but they are unlikely to replace the fundamentally political process of tax and spending negotiation.

Walker argued that the "pendulum" of U.S. tax policy has swung from a focus on fairness to a focus on economic growth, and then back again in the 1980s. Long also gave his assessment of the debates over tax cuts and tax increases over many years. Fullerton asserts that three forces shaped much of tax policy during the 1980s: supply-side philosophy; persistent large budget deficits; and the idea of a "level playing field" among different types of economic activity.

Penner explained how the policies of the 1980s were a reaction to the policy of the late 1960s and early 1970s. In their paper, Wise and Woodbury review several important issues concerning the aged, and then contrast the important economic factors that influenced new legislation. They conclude that who wins and who loses is typically a more critical determinant of policy choices than economic efficiency, and that fairness and protection of rights have taken precedence over incentive effects of policies.

Volcker discussed the decisions of the Federal Reserve Board from 1979-86, as affected by domestic and international economic forces, as well as political forces. Tobin said that, despite many complications, the Fed restored the reputation of fine-tuning in the mid- to late 1980s. He also emphasized the large cost in employment and real output of the disinflation in the early 1980s. Mussa's paper begins by noting the contributions of monetary policy to the macroeconomic problems confronting the United States at the beginning of the 1980s, and then reviews the "tale of struggle and success" of monetary policy during the decade. He concludes that it takes a determined tightening of monetary policy to reduce the rate of inflation once it has built up momentum and the credibility of the central bank has been impaired. He also argues that there is no unique quantitative guide to appropriate monetary policy.

Mussa emphasized that exchange rate policy independent of basic monetary and fiscal policy (essentially, sterilized intervention in the foreign exchange markets) affects exchange rates because it signals something about official intentions concerning those more fundamental policies. Bergsten analyzed three turning

points in U.S. exchange rate policy in the 1980s (in terms of the desired value of the dollar and the international monetary regime) and considered alternative choices that could have been made. In his background paper, Frankel notes that the 1980s were the decade when large movements in exchange rates first became a serious political issue. He describes the competing economic theories, interest groups, and policymakers that affected exchange rate policy, and concludes that the markets and the policymakers were both susceptible to a "bandwagon" effect: actions are based more on what seems to be "in" at the moment than on what makes sense from a longer-term perspective.

Olmer recollected about trade policy decisions on steel, autos, and semiconductors. He reported that in all cases the outcome was heavily influenced by domestic political considerations, "often despite what was dictated by economic analysis, common sense, or obligations under the General Agreement on Tariffs and Trade [GATT]." Stern argued that "notwithstanding free trade rhetoric," the Reagan administration increased protectionism sharply in response to political pressures. She also asserted that the administration set a bad precedent by allowing political, not legal, criteria to determine when import relief was granted, and by avoiding long-term policies to restore recipients of relief to global competitiveness. Richardson's paper focuses on three features of U.S. trade policy that received new emphasis in the 1980s: unilateralism (trade initiatives that involve less than the full complement of trading partners); managed trade; and congressional activism. He concludes that unilateralism at least has the potential to liberalize trade, while the other two newly emphasized features have more mixed effects.

Baxter explained that the Antitrust Division can only bring antitrust cases to the courts, not remove them, so it is only well suited to increasing, not decreasing, government intervention in the marketplace. He felt that this "one-way ratchet" has contributed substantially to more interventionist antitrust policy over the years. Reasoner examined five factors that shaped antitrust policy in the 1980s: the separation (by the administration) of antitrust from other policies designed to achieve efficient functioning of markets; greater attention paid to economic analysis; the dramatic reduction of antitrust enforcement by the administration; the decline of private enforcement of the antitrust laws; and an emphasis on federalism in antitrust law. In his paper, Areeda explains that the change in the Justice Department's actions toward antitrust laws between the 1970s and the 1980s was based on the Reagan administration's belief that durable barriers to entry in a market are rare, so competition generally would prevail in the absence of blatant price-fixing cartels. Further, the courts, which play the primary role in developing and enforcing antitrust policy, responded to some of the same intellectual currents.

Niskanen argued that the Reagan administration pushed for deregulation primarily through administra-

tive action rather than through new legislation. The lesson of the 1980s is that the potential for administrative deregulation is quite limited, he concluded. Bailey saw greater progress toward deregulation than did Niskanen, and she emphasized that the decontrol of the 1980s was strongly influenced by economic ideas. In their paper, Joskow and Noll study changes in the economic regulation (controlling profits or prices) of the domestic airline, railroad, telecommunications, and natural gas industries. They find that a minimal amount of support from an organized interest group is necessary to initiate regulatory reform, but that considerations of economic efficiency play an important role in structuring the reform that occurs.

DeMuth discussed the roles played by the twin goals of regulatory relief and reform in the actions of the Office of Management and Budget in the early 1980s. Burnley explained that one lesson of his experience in deregulation in the 1980s was that, in many instances, aggressive safety regulation "is a prerequisite" to progress on economic deregulation. Viscusi's paper argues, in parallel with Niskanen's, that the 1980s saw greater oversight of health, safety, and environmental regulation. The goal was better balancing of the costs and benefits of regulation, but these reform efforts had little lasting effect because of the absence of any legislative changes.

Isaacs compared the way in which the FSLIC dealt with the growing problems in the savings and loans during the 1980s, and the way in which the FDIC dealt with similar problems in the savings banks which they insure. The FSLIC encouraged weak institutions to grow their way out of trouble, while the FDIC enforced stricter risk limits on institutions and quickly closed or merged weak ones. Taylor emphasized the impact of increasingly competitive market conditions, and thus a narrowing of profit margins and a turn toward risky ventures in order to maintain profitability, on the weakening of financial institutions in the 1980s. This problem was compounded by an inappropriate way of dealing with distressed institutions and by a reduced emphasis on "hands-on" on-site supervisory examinations. Litan's paper highlights four aspects of the financial system for which structural reform was considered in the 1980s: interstate banking; bank product diversification; deposit insurance reform; and securities markets. On the first topic, independent experts were basically in agreement, but interest group deadlock prevented policymakers from following the experts' advice. On the other topics, there was substantial disagreement about the proper policy action, even among economists.

Enders agreed that Latin American debt policy was neither foresighted nor particularly perceptive, but it did respond at critical junctures and contributed to the current historic transformation of Latin American economies and governments. Rhodes stressed several important aspects of the international response to the debt problem: first, the decision to follow a country-by-country, rather than a global, approach; second, the value of creditors' committees to both banks and

countries; third, the role played by international organizations in providing money and encouraging structural reforms. Krugman's paper asks how a U.S. government that was ideologically committed to laissez-faire economic policies and suspicious of international economic coordination found itself leading an interventionist international effort to deal with the less developed countries' (LDCs') debt problem. He concludes that the government acted as little as possible on its own initiative, but did react to events when policymakers felt that financial (and sometimes LDC political) stability was being threatened.

Also attending the conference were: Alberto Alesina, NBER and Harvard University; Geoffrey Carliner, NBER; Douglas W. Elmendorf, Harvard University; William Poole, NBER and Brown University; and Murray Weidenbaum, Washington University.

The background papers, the prepared remarks, a summary of the discussion prepared by Douglas W. Elmendorf, and an introduction by Martin Feldstein, will be published by the University of Chicago Press as an NBER conference volume.

This article was prepared with the assistance of Douglas W. Elmendorf.

Exchange Rate Regimes

Over 75 economists met in Cambridge on December 14 and 15 for an NBER-sponsored Universities Research Conference on "Exchange Rate Regimes." The conference program, organized by NBER Research Associate Alberto Giovannini of Columbia University, was:

Shaghil Ahmed, Barry Ickes, Ping Wang, and Sam Yoo, Pennsylvania State University, "International Business Cycles"

Discussants: Marianne Baxter, University of Rochester, and Alberto Giovannini

Lars Ljungqvist, University of Wisconsin, Madison, "A Rationale for Firms' Exchange Rate Hedging"

Discussants: Robert J. Hodrick, NBER and Northwestern University, and David Backus, New York University

Allan Drazen, NBER and Tel Aviv University, "Can Exchange Rate Freezes Induce Business Cycles?"

Discussants: Rudiger Dornbusch, NBER and MIT, and Alan C. Stockman, NBER and University of Rochester

Kathryn M. Dominguez, NBER and Princeton University, "Do Exchange Rate Auctions Work? An Examination of the Bolivian Experience"

Discussants: Richard H. Clarida, NBER and Columbia University, and John Cuddington, Georgetown University

Mark D. Flood, Federal Reserve Bank of St. Louis, "Market Structure and Inefficiency in the Foreign Exchange Market"

Discussants: David Hsieh, Duke University, and Richard K. Lyons, NBER and Columbia University

Gordon Bodnar, University of Rochester, and John Leahy, Harvard University, "Are Target Zone Models Relevant?"

Discussants: Kenneth A. Froot, NBER and MIT, and Charles M. Engel, Federal Reserve Bank of Kansas City

Robert P. Flood and Donald J. Mathieson, International Monetary Fund, and Andrew K. Rose, University of California, Berkeley, "An Empirical Exploration of Exchange Rate Target Zones"

Discussants: Lars E. O. Svensson, NBER and University of Stockholm, and Susan M. Collins, NBER and Harvard University

Michael Klein, Clark University, and Karen K. Lewis, NBER and New York University, "Learning About Intervention Target Zones"

Discussants: Graciela Kaminsky, University of California, San Diego, and Nelson C. Mark, Ohio State University

Ahmed, Ickes, Wang, and Yoo, using postwar data from the United States and "the rest of the world" (an aggregate of five large OECD countries), show that supply shocks are very important in generating real economic fluctuations. In particular, supply shocks originating in the labor market are the most important factor behind real fluctuations. They also show that there are no statistically significant differences between the pre-1973 fixed, and the post-1973 flexible, exchange rate periods, either in the velocity of fundamental disturbances or in the interactions between real and nominal variables.

Ljungqvist shows that a corporation's hedging on exchange rates affects its market value. In particular, optimal hedging is related inversely to a firm's productivity: a firm with bad productivity shocks is willing to bet on favorable exchange rate movements, while a firm with good productivity shocks is inclined to hedge its production from adverse exchange rate movements. These financial decisions make profits less informative about real investment opportunities. Ljungqvist also finds that uncertainty about nominal exchange rates can have real effects even when all prices are perfectly flexible.

In a number of countries, inflation stabilization programs, which include freezing the exchange rate, lead to initial sharp expansions in economic activity followed by subsequent sharp contractions. Such freezes usually end with a large devaluation, or with trade restrictions that imply a significant increase in the price of imported durables. Drazen shows that if there is uncertainty about when the freeze will end, then there will be increased holding of durables and a subsequent *fall* in accumulation of durables while the freeze is in effect. Consumption of nontraded goods and domestic eco-

conomic activity will follow a similar cycle, as has occurred in Argentina, Chile, and Israel.

Dominguez examines the role of the Bolsin—Bolivia's exchange rate auction system, introduced in 1985—in unifying and stabilizing the official and parallel markets for Bolivian currency. Using daily auction data, she shows that in the early years of the auction, the authorities were able to maintain control of the exchange rate by randomizing the timing and size of changes in the base price. In the latter years, Bolivian central bank policy became more transparent and market participants were quick to learn exchange rate targets. By 1988, the Bolsin had become a de facto crawling peg system.

Mark Flood studies the intraday operational efficiency of the U.S. foreign exchange market by conducting experiments with market competition (that is, the numbers of marketmakers, brokers, and customers in the market). He finds significant operational inefficiencies that may be explained by temporary inventory imbalances inherent in a decentralized market.

Bodnar and Leahy find that virtually all of the reduction in the variance of the franc-mark exchange rate since the introduction of the European Monetary System (EMS) was caused by reduced variance in the fundamental determinants of the exchange rate and very little by the stabilizing influence of a target zone on expectations. They also find that realignments are destabilizing. However, agents discount the effect of future realignments at a very high rate.

Robert Flood, Mathieson, and Rose measure the fundamental determinant of exchange rates. They use daily data for the EMS to explore the relationship between exchange rates and fundamentals and find little support for limited exchange rate flexibility.

Klein and Lewis show that intramarginal intervention affects the relationship between fundamentals and the exchange rate. Then they estimate the evolution of the target zone for the dollar against the Deutschemark and the yen between the Plaza Meeting in September 1985 and the stock market crash in October 1987.

U.S.-Japan Housing

On January 3-4, the NBER and the Japanese Center for Economic Research (JCER) cosponsored a conference on the "Economics of Housing Markets in the United States and Japan." The program, organized by Yukio Noguchi, Hitotsubashi University, and James M. Poterba, NBER and MIT, was:

Yukio Noguchi, and Karl Case, Wellesley College, "Land Prices, Housing Prices, and Housing Markets"
Discussants: Takatoshi Ito, NBER and Hitotsubashi University, and James M. Poterba

Takatoshi Ito and James M. Poterba, "Public Policy and Housing Markets"

Discussants: Patric H. Hendershott, NBER and Ohio State University, and Tatsuo Hatta, Osaka University

Miki Seko, Nihon University, and Patric H. Hendershott, "Housing Markets and Housing Finance"

Discussants: Jonathan S. Skinner, NBER and University of Virginia, and Toshiaki Tachibanaki, Kyoto University

Toshiaki Tachibanaki and Jonathan S. Skinner, "Personal Saving and Housing Markets"

Discussants: Michelle White, University of Michigan, and Charles Horioka, Osaka University

Tatsuo Hatta and Michelle White, "Housing, Urbanization, and Commuting"

Discussants: John Quigley, University of California, Berkeley, and Yukio Noguchi

Housing markets have attracted substantial public policy interest in both countries. In Japan, skyrocketing land prices during the 1980s made housing unaffordable for many workers. The price escalation also fueled a sharp rise in share prices, and led to concern that a decline in land and house prices could trigger financial collapse. In the United States, rapid changes in tax rules and financial markets during the last decade significantly affected the housing sector. Rising housing costs also attracted attention, particularly on the east and west coasts.

Noguchi details the rapid increase in Japanese housing costs during the 1980s, and shows that rising land prices were the principal cause of this price rise. Case describes the variation in real housing costs across U.S. cities, and shows that homebuyers' expectations of future house price inflation are a critical determinant of the prices they are willing to pay.

Both Ito and Poterba describe the special features of the tax code that influence the level of housing investment. Ito also analyzes the effect of special tax treatment of agricultural land and estate taxation on the level of housing investment. Poterba examines the tax rules facing both homeowners and investors in rental property, emphasizing that major changes in the 1981 and 1986 Tax Reform Acts affected the level of multi-family housing construction.

Seko describes the various means of financing house purchases in Japan, and analyzes the impact of credit institutions on the amount of housing purchased by different households. Hendershott focuses on the integration of mortgage and other capital markets in the United States during the last two decades, the result of the secondary mortgage market. He shows that financial integration has reduced the variation in housing construction over the business cycle, and has yielded some decrease in average housing costs, hence encouraging housing investment.

Tachibanaki describes the intricate structure of saving to buy a house in Japan, particularly the role of intergenerational transfers in helping new homebuyers make their down payments. Skinner focuses on the

link between rising U.S. house prices in the last two decades and the level of personal saving. He argues that because run-ups in housing prices are accompanied by expectations of higher housing costs in the future, these changes have relatively small effects on the level of consumer spending.

Hatta highlights the role of favorable tax treatment of employee commuting costs in distorting the Japanese economy toward lengthy commutes, especially for workers in Tokyo. White emphasizes the changing nature of the journey-to-work for U.S. commuters, showing that the rise in employment opportunities around the perimeter of metropolitan areas often has increased commuting distances with little increase in commuting time.

Also attending the conference were Martin Feldstein, NBER and Harvard University; and Seiritsu Ogura, JCER. The conference proceedings will be published later in 1991 in both English and Japanese.

Fiscal Policies in Open Macro Economies

A conference on "Fiscal Policies in Open Macro Economies," jointly sponsored by the NBER, the Centre for Economic Policy Research (CEPR), and the Tokyo Center of Economic Research (TCER) was held in Tokyo on January 7-8. The program, organized by Takatoshi Ito, NBER and Hitotsubashi University; Kazumi Asako, TCER and Yokohama National University; and Michihiro Ohyama, TCER and Keio University, was:

Giancarlo Corsetti, Yale University, and Nouriel Roubini, NBER and Yale University, "Fiscal Deficits, Public Debt, and Government Solvency: Evidence from OECD Countries" (NBER Working Paper No. 3658)

Discussant: Kyoji Fukao, Hitotsubashi University

George S. Alogoskoufis, Birkbeck College, and Frederick van der Ploeg, Tilburg University, the Netherlands, "On Budgetary Policies, Growth, and External Deficits in an Interdependent World"

Discussants: Jisoon Lee, Seoul National University, and Shinichi Fukuda, Yokohama National University

Matthew B. Canzoneri and Behzad T. Diba, Georgetown University, "Fiscal Pressures on a European Central Bank"

Discussants: Keiichi Miyata, Bank of Japan, and Kazuo Ueda, University of Tokyo

Kazumasa Iwata, University of Tokyo, "Budget Balance, Aging, and External Imbalance" (No summary was available at the time of publication.)

Discussant: Yasushi Iwamoto, University of Osaka

Dipankar Dasgupta, Otaru University of Commerce, "The Macroeconomics of Price Control"

Discussants: Kiyohiko Nishimura, University of Tokyo, and Ruperto P. Alonzo, Kyoto University

Assaf Razin, NBER and Tel Aviv University, "Determinants of External Imbalances: The Role of Taxes, Government Spending, and Productivity"

Discussants: Atsushi Tsuneki, Seijo University, and Kenn Ariga, Kyoto University

Toshihiro Ihori, Osaka University, and Raymond G. Batina, Washington State University, "International Spillover Effects of Consumption Taxation"

Discussants: Michihiro Ohyama, Keio University, and Hideki Konishi, Seikei University

Kazumi Asako, Yokohama National University, and Takatoshi Ito, "The Rise and Fall of Government Deficits in Japan, 1965-90"

Discussants: Kun-Young Yun, Yonsei University, and Kazuo Yoshida, Kyoto University

Willem H. Buiter, NBER and Yale University, and Kenneth M. Kletzer, Yale University, "Persistent Differences in National Productivity Levels and Growth Rates with a Common Technology and Free Capital Mobility: The Roles of Private Thrift, Public Debt, Capital Taxation, and Toward Human Capital Formation" (NBER Working Paper No. 3637)

Discussants: Akihisa Shibata, Osaka City University, and Tohru Inoue, Yokohama National University

Corsetti and Roubini study the main trends in the fiscal policies of the OECD countries over the last 30 years. They find that the solvency of the public sector is a serious issue in Italy, while it does not appear to be a problem in Germany or Japan. The evidence for the United States is mixed. There are also problems of sustainability of the current path of fiscal policies in Belgium, Ireland, the Netherlands, and Greece.

Alogoskoufis and van der Ploeg investigate the effects of fiscal policies by using a model with two countries and endogenous growth. They show that in the presence of capital mobility, growth rates will be equal but output levels will not converge. They also find that a world increase in the ratio of government consumption to output reduces saving and growth. At the level of a country, such a fiscal expansion also will lead to a current account deficit and to a fall in external assets.

Canzoneri and Diba analyze the need for fiscal policy coordination in the European Monetary System, and the appropriate behavior for a central bank in a monetary union. They find that, with financial integration, governments will spend too much in the absence of binding fiscal rules. The behavior of a central bank within the European Economic Community (EEC) will differ depending on whether it is operated by an agent of the EEC or is independent. Binding fiscal and monetary rules help in achieving both price and fiscal ability, they find.

Dasgupta studies the effects of macroeconomic policies in economies characterized by price controls. He tries to capture the institutional reality of macro policy

in developing countries, where significant restrictions and price controls are the norm. He finds that the effects of monetary and fiscal policy in a price control environment are very different from those obtained in standard macroeconomic models.

Razin and Leiderman analyze the effects on the current account of changes in economic policies and institutional and technological variables, applying their analysis to the case of Israel. Changes in tax policy have small effects on the current account, the authors show, while productivity shocks and changes in public investment have strong effects on the external balance and the accumulation of foreign debt.

Ihori and Batina investigate the effects of a revenue-neutral increase in consumption taxes coupled with a reduction in wage taxes in a model with two open economies. They show that, in spite of the traditional argument in favor of a consumption tax, such a reform may reduce capital accumulation and may have negative effects on the foreign level of welfare.

Asako and Ito analyze Japanese fiscal policies from 1965-90. They present evidence of a rise in government spending as a share of output, and a significant increase in the budget deficit and the debt-to-GDP ratio in the period between the first oil shock and the early 1980s. Conversely, the 1980s are characterized by fiscal retrenchment, a reduction in real spending, and movement toward a substantially balanced budget. Asako and Ito explain the fiscal deficits of the 1970s as the outcome of a misguided belief in the benefits of expansionary fiscal policy.

Buiter and Kletzer attempt to explain persistent differences in average labor productivity among countries despite a common technology and free capital mobility. Their explanation depends upon a nontraded human capital good that is an essential input in its own accumulation. They show that a higher public debt burden will increase the growth rate of human capital and output. Since in equilibrium there is underinvestment in human capital, subsidies to education are necessary to increase the accumulation of human capital.

Also attending the conference were Chun-Tien Hu, Harvard University, and Keimei Kaizuka, University of Tokyo. This report was prepared with the assistance of Nouriel Roubini.

U.S. and Canadian Labor Markets

The NBER held a conference on "U.S. and Canadian Labor Markets" in Ottawa on January 24-5. NBER Research Associate David Card, Princeton University, organized the following agenda:

David Card, and W. Craig Riddell, University of British Columbia, "Unemployment and Labor Market Adjustments in the United States and Canada"
Discussant: Lawrence F. Katz, NBER and Harvard University

Richard B. Freeman, NBER and Harvard University, and Karen Needels, Princeton University, "Skill Differentials in Canada in an Era of Rising Labor Market Inequality"
Discussant: Keith Newton, Economic Council of Canada

W. Craig Riddell, "Changes in Union Coverage in Canada and the United States"
Discussant: Richard B. Freeman

George J. Borjas, NBER and University of California, San Diego, "Immigration Policy, National Origin, and Immigrant Skills: A Comparison of Canada and the United States"
Discussant: Michael Abbott, Queen's University

Peter Kuhn, McMaster University, "Employment Protection Law in the United States and Canada"
Discussant: Alan B. Krueger, NBER and Princeton University

Rebecca M. Blank, NBER and Northwestern University, and Maria J. Hanratty, Harvard University, "Responding to Need: A Comparison of Social Safety Nets in the United States and Canada"
Discussant: Bernard Fortin, Université Laval

McKinley L. Blackburn, University of South Carolina, and David E. Bloom, NBER and Columbia University, "The Distribution of Family Income: Measuring and Explaining Changes in the 1980s for Canada and the United States"
Discussant: Charles Beach, Queen's University

Throughout most of the postwar period, unemployment rates in the United States and Canada followed similar trends. This pattern was interrupted by an abrupt rise in relative Canadian unemployment rates in the early 1980s. Card and Riddell use microdata samples from 1979-80 and 1986-7 to analyze the sources of the rise in relative Canadian unemployment over the 1980s. They suggest that higher unemployment in Canada is not simply a reflection of lower employment opportunities. Indeed, employment-population rates in the two countries actually converged in the 1980s. For women, the rise in unemployment is attributable to a sharp relative increase in the fraction of nonworking time that is classified as unemployment. This increase occurred uniformly across women with different levels of actual work experience in the previous year. For men, at least half of the relative increase in Canadian unemployment is attributable to the small group of men who report no weeks of employment in the previous year. Over the 1980s there was a sizable increase in the likelihood that Canadian men with no work experience in the previous year would remain attached to the labor force.

In the 1980s, there was an increase in earnings and labor utilization differentials between the more and less educated in the United States. Even among those at the same education level, earnings dispersion increased, particularly for young men. Freeman and Needles use data from the Canadian Census and Survey of Consumer Finance and the U.S. Current Population Survey to determine whether these phenomena occurred in Canada as well, and how differences in market shocks and institutions can explain any differences between the two very similar economies. They find that the university/high school wage differential increased much less in Canada than in the United States for both women and men. Some indicators of labor utilization rose more among individuals with different educational levels in Canada, but annual earnings differentials were still much smaller in Canada. Within educational levels, pay gaps by gender narrowed, while pay gaps by age and earnings dispersion increased at similar rates in both countries. The most important factor causing the slower growth of earnings differentials in Canada was that country's faster growth of the university graduate proportion of the work force relative to the U.S. slowdown in growth.

After following broadly similar patterns over much of this century, union coverage in Canada and the United States recently has diverged substantially. Although the demand for union representation is greater among Canadian workers, most of the differential can be attributed to the supply side. This supports the view that Canada-United States differences in labor legislation and in employers' resistance to unions are important factors contributing to the differential in union coverage. Riddell finds little support for two common explanations of the gap between the countries: differences in fundamental attitudes toward unions; and differences in the extent of public sector employment.

Over 12 million people migrated to Canada or the United States between 1959 and 1981. Beginning in the mid-1960s, the immigration policies of the two countries began to diverge considerably: the United States stressed family unification and Canada stressed skills. Borjas shows that the point system used by Canada generated, on average, a more skilled immigrant flow than that of the United States. This skill gap, however, is mostly attributable to differences in the national origin mix of the immigrant flows admitted by the two countries. In effect, the point system "works" because it alters the national origin mix of immigrant flows, and not because it generates a more skilled immigrant flow from a given source country.

Kuhn describes and attempts to explain the different systems of employment protection law in Canada and the United States. He finds, in both the common law and in explicit statutes, that restrictions on employers' abilities to dismiss workers for "economic" reasons are considerably more comprehensive in Canada.

Blank and Hanratty examine the social welfare systems of the United States and Canada and how they affect the economic well-being of low-income families

in the two countries. They simulate the effect of implementing Canadian antipoverty programs in the United States and vice-versa, under a range of participation rates and assumptions about labor supply. They find dramatic differences in the impact of the two systems on poverty. If the United States adopted a transfer program with characteristics equivalent to those of the average Canadian program, the U.S. nonelderly poverty rate, now around 12 points, would decrease by three to six points; U.S. transfer expenditures of about \$36 billion would increase 200-300 percent. Single-parent families benefit the most from the Canadian transfer system. If the United States adopted the Canadian system, poverty rates for that group would decrease from 43 percent to between 2 and 16 percent.

Blackburn and Bloom attempt to measure and explain recent changes in the distributions of family income in Canada and the United States using comparable microdata for the two countries for 1979 and 1987. They find that the distributions of total family income (pretax, post-transfer) in the two countries changed in different ways in the 1980s. Average family income increased faster in Canada than in the United States, although income inequality increased unambiguously in the United States but not in Canada. For Canada, social welfare appears to have increased in terms of either the distribution of income per capita or the distribution of equivalent income. Changes in the distribution of transfer income also had important influences on the distribution of total family income in both countries. Indeed, differential changes in transfer income between the two countries accounts for most of the differential movements in their overall income distributions. Transfer income in Canada increased more rapidly than it did in the United States during the 1980s, and also became more redistributive in nature. Most notably, the shifts in transfer income left female-headed families in Canada with a higher mean income and less income inequality in 1987 than they had in 1979. Among female-headed families in the United States, income inequality increased while average income declined. Finally, increased income inequality in the United States partly reflects increased earnings inequality, which itself is associated with a widening of education-earnings differentials that occurred in the 1980s. Earnings inequality also increased in Canada in the 1980s, despite the stability of education-earnings differentials. However, the effect of this increase in earnings inequality on family income inequality appears to have been offset by the sizable growth of transfer income in Canada.

Also attending the conference were: William Alpert, Donner Foundation; David Beavis, Gordon Betcherman, Norman Leckie, and Hans Messinger, Economic Council of Canada; Brenda Cardillo, Ian Macredie, Garnett Picot, and Michael Wolfson, Statistics Canada; Geoffrey Carliner, NBER; Callum Carmichael and Thomas Ross, Carleton University; Gilles Grenier, University of Ottawa; Noah Meltz, University of Toronto; and Cheryl Milne, Laidlaw Foundation.

Strategic Factors in Nineteenth Century American Economic History

Members and distinguished guests of the NBER's Program in the Development of the American Economy met in Cambridge on March 1-3 for a conference on "Strategic Factors in Nineteenth Century American Economic History." The conference, in honor of Robert W. Fogel, founding director of the program, was organized by program codirector Claudia Goldin of Harvard University, and Hugh Rockoff of the NBER and Rutgers University.

The program was:

Clayne L. Pope, NBER and Brigham Young University, "Adult Mortality in America before 1900: A View from Family Histories"

Jenny Bourne Wahl, St. Olaf College, "Trading Quantity for Quality: Explaining the Decline in American Fertility in the Nineteenth Century"

Richard H. Steckel, NBER and Ohio State University, "The Demographic Transition in the United States: Tests of Alternative Hypotheses"

John Komlos, University of Pittsburgh, "Toward an Anthropometric History of African-Americans: The Case of the Free Blacks in Antebellum Maryland"

Stephen Crawford, Leo Burnett, Inc., Chicago, "The Slave Family: A View from the Slave Narratives"

Howard Bodenhorn, St. Lawrence University, and Hugh Rockoff, "Regional Interest Rates in Antebellum America"

Michael D. Bordo, NBER and Rutgers University, Peter Rappoport, Rutgers University, and Anna J. Schwartz, NBER, "Money versus Credit: Evidence for the National Banking Era, 1880-1914"

David W. Galenson, NBER and University of Chicago, and Clayne L. Pope, "Precedence and Wealth: Evidence from Nineteenth Century Utah"

Gerald Friedman, University of Massachusetts, Amherst, "Dividing Labor: Urban Politics and Big-City Construction in Late Nineteenth Century America"

Ann M. Carlos, University of Colorado, Boulder, and Frank Lewis, Queen's University, "The Profitability of Early Canadian Railroads: Evidence from the Grand Trunk and Great Western Railroad Companies"

Joseph D. Reid, Jr., George Mason University, and Michael Kurth, McNeese State University, "The Rise and Fall of Urban Political Patronage Machines"

Winifred Rothenberg, Tufts University, "Structural Change in the Farm Labor Force: Contract Labor in Massachusetts Agriculture, 1750-1865"

Donghyu Yang, Seoul National University, "Farm Tenancy in the Antebellum North"

Claudia Goldin, and Robert A. Margo, NBER and Vanderbilt University, "Wages, Prices, and Labor Markets before the Civil War (NBER Working Paper No. 3198)"

Kenneth L. Sokoloff, NBER and University of California, Los Angeles, and Georgia Villaflor, San Diego State University, "The Market for Manufacturing Workers in Early Industrialization: Evidence from the Northeast, 1820 to 1860"

Family histories provide researchers with a new source of data for exploring mortality in the eighteenth and nineteenth centuries, before the development of an extensive death registration system in the United States. Pope uses a sample of these histories to study adult mortality among native white Americans. He finds that twentieth century mortality patterns are fundamentally different from those of the earlier centuries. Life expectation at age 20 was virtually identical in 1780 and in 1880. But during the intervening century, life expectation actually declined and then rose. Regional life expectations converged in the nineteenth century, eliminating most of the higher relative mortality in the colonial South. Migration westward increased the risk of death, especially for women. The sex differential in mortality today, which favors women, was not consistently present until the end of the nineteenth century.

The fertility of Americans fell throughout the nineteenth century. Wahl, using new data on three linked generations, which includes information on fertility, wealth, and other demographic and socioeconomic variables, estimates that there was a trade-off between the quantity and quality of children during that period. Her results hinge entirely on the role of wealth, but it is also possible that the price of "quality" fell with the spread of publicly provided education, and that the price of "quantity" rose as married women were drawn into activities outside their homes.

In early nineteenth century America, the birth rate was higher in the West than in the East. Using a sample of 638 households matched on both the 1850 and 1860 Censuses, Steckel finds that differences in the occupational structure and in the development of financial institutions explain much of the variance in the number of children per family. The precise reason for the empirical role of the banking system is not yet clear. While banking may just be a proxy for economic development, it may be that banks enabled parents to substitute financial assets for children in their quest for old age security.

Komlos, using data on freed slaves, finds that adult African-Americans in antebellum Maryland were tall by contemporary white standards. Their nutritional status declined with the groups born in the 1830s (for males) and the 1820s (for females). The children of slaves were relatively undernourished, though. Komlos finds that the larger the per capita agricultural output of a county, the taller was its free black population. This suggests that it was a decline in available nutrients, and not an increase in the intensity of work, that led to

a reduction in height among both the black and white populations in the antebellum period.

Crawford uses slave narratives from several collections—the recollections of elderly persons—to describe the nature of slave life just prior to emancipation. About 63 percent of the slaves' earliest memory of family life was with two parents, although about one-sixth of them had a father on a neighboring farm or plantation, he learns. Most of the remainder were raised in female-headed families. As slave children grew older, they stood a higher chance of being separated from their families through sale; by age 15, about 15 percent of slave children had been sold from their parents and only about 47 percent still lived with both parents on the same or adjacent farms. Slaves living on larger plantations were much more likely to live with both parents and retain this family structure. Slave children living alone in the slave quarters lacked the protection of family, although those in female-headed families did not appear to sense any deprivation compared with those in two-parent families. These findings point to the importance of the slave family to the master, in terms of higher fertility, and to the slave, in terms of greater protection and resources. But they also reveal that other factors must have led masters to break up families through sale.

Bodenhorn and Rockoff examine short-term interest rates in various parts of the United States to ascertain whether the capital market was integrated within and across regions in the antebellum period. They find considerable evidence of an integrated short-term market, and in many cases the differentials among regions are no larger than they were at the end of the nineteenth century. Because short-term interest rates in the decades following the Civil War were less integrated across regions than they were before the war, the war must have precipitated a divergence in these rates. Further, three developments during the Civil War slowed the reintegration of a national capital market: the destruction of the southern banking system, the establishment of the national banking system, and the division of the country into two currency areas.

The national banking era, 1880–1914, was punctuated by four banking panics and frequent stock market crashes. Bordo, Rappoport, and Schwartz find that both monetary disturbances and credit rationing explain the variance of real output during that period. Turning to the institutional structure of the national banking era, they point out that bank loans secured by stock were considerably more volatile than other business loans, the principal candidates for credit rationing. When the authors account for the composition of loans, the effect of credit rationing becomes negligible, while the monetary factors remain important.

Do early settlers in rapidly developing cities and regions do better financially than those who arrive later? Galenson and Pope use data on 13 counties of Utah in 1870 and find that the impact of early arrival on household wealth is positive and substantial in 12 of the counties. The level of the relationship between

health and early arrival varies inversely with the “precedence rate” (the percentage of a population present at an earlier date) of a county. A fall in the precedence rate of one percentage point increases the ratio of the wealth of early arrivals to all others by about 13 percent.

Why was the American labor movement in the 1880s considerably more radical than its turn-of-the-century successor? According to Friedman, by the end of the nineteenth century, big-city construction workers were paid significantly more than their counterparts in smaller towns and cities, and more than workers in manufacturing. High urban construction wages were supported by relatively powerful craft unions in the largest cities. Ultimately, the strength of these unions depended on the support of political machines in many big cities. Urban political machines managed a social contract between urban capital and labor. The urban machines provided jobs on public works and supported construction craft unions in exchange for union support against labor radicalism.

Carlos and Lewis explore the profitability of Canadian railroads and the role of governmental subsidies during the first railroad boom from 1850–80. They use a complete series on expenditures and revenues for the Grand Trunk and Great Western Railway Companies to examine the ex post private profitability and the ex post social rate of return for both railroads, as well as the manner in which government subsidies influenced the financing of the Grand Trunk Railway. They find that both unaided and aided private rates of return for the companies were below the market rate. The estimated lower-bound social rate of return was above the market rate for the Great Western, but below that for the Grand Trunk. The uncertainty of the bond subsidy regime had direct implications for the failure of the Grand Trunk Railway Company.

Reid and Kurth conclude that the rise and fall of patronage machines reflects the decrease and subsequent increase in the income and homogeneity of voters in the late nineteenth century, not changes in their morality. Governments trade public largesse for votes. Political patronage can be direct (a specific amount delivered to a particular person, such as the Thanksgiving turkey) or it can be general (for example, a public good, such as a park). Direct trades are more efficient when voters are more heterogeneous and are relatively poor. The greater homogeneity and increased wealth of the electorate, not the Progressives' campaign against the excesses of the state, prompted government to abandon patronage, they find.

Farmers in eighteenth century Massachusetts hired labor primarily by the day, although the length of continuous employment was considerably longer. Contract labor—that is, labor hired by the month, the season, or the year—was rare. According to Rothenberg, the monthly and seasonal contract became more frequent in the late eighteenth century, and eclipsed the less formal day laborer arrangement at some point in the nineteenth century. Using data from farm account books of 1752–1865, she finds that as farmers began to

hire "strangers"—men from other parts, or immigrants—rather than neighbors, more formal agreements (as well as the provision of board and housing) were necessary. Further, peak-load seasonal tasks may have been smoothed by the shift in New England to livestock and hay from grains, giving more year-round work to the farmer and his sons, and less need for day laborers to help with chores. Finally, the attraction of alternative employment in the industrial sector may have been a further incentive to long-term contracts on the farm.

Yang explores the meaning and purpose of farm tenancy for the antebellum northern states. Using a sample compiled from the agricultural and population manuscript censuses of 1860, he attempts to explain the probability that a farm will be leased and the spatial variation in the tenancy rate. Tenant farms, Yang shows, may have had suboptimal labor input relative to land.

Goldin and Margo analyze data on real wages for laborers, artisans, and clerks across four regions (Northeast, North Central, South Atlantic, and South Central) from 1821–56. They find that shocks to real wages persisted even five years after an innovation, but their impact eventually vanished. The persistence of shocks was less for agricultural labor than for other occupations, less for growing regions than for more mature ones, less for unskilled than for skilled labor, and probably less before 1860 than after. Although nominal wages and prices never strayed far from each other over the long run, the persistence of shocks was considerable during 1821–56. Although the degree of unemployment in cities and industrial towns remains unknown, Goldin and Margo conclude that aggregate economic activity was severely diminished, and unemployment substantial, in the antebellum period.

Sokoloff and Villaflor observe that from 1820–60—the initial phase of industrialization—all discernible segments of the industrial labor force in the Northeast realized substantial increases in real wages. Further, wage differentials among groups narrowed over time as markets expanded. Workers benefited almost immediately from the rapid industrial expansion of the 1820s, and saw their wages grow until the late 1840s or early 1850s when heavy immigration and the spread of mechanization to previously labor-intensive industries slowed their gains. There were occasional downturns, but the difficult years were not the result of poorly functioning markets or rapid changes in technology. Sokoloff and Villaflor conclude that the chief deviations from the upward trend were attributable to supply-side shocks originating in the agricultural sector, and to immigration flows.

A volume of the same title will be published by the University of Chicago Press. In addition to the conference proceedings, it will include two appreciations of Fogel, and one paper not presented at the conference. Details of the volume's availability will be announced in the *NBER Reporter*.

Also attending the conference were: Dianne Betts, Southern Methodist University; Geoffrey Carliner, NBER; Lance E. Davis, NBER and California Institute

of Technology; J. Bradford De Long, Jerry R. Green, Zvi Griliches, and Daniel M. G. Raff, NBER and Harvard University; Stanley L. Engerman, NBER and University of Rochester; Robert E. Gallman, NBER and University of North Carolina; Farley Grubb, University of Delaware; Donald McCloskey, University of Iowa; Douglass North, Washington University; Boris Simkovich, Harvard University; Peter Temin, NBER and MIT; Larry T. Wimmer, NBER and Brigham Young University; and Robert Zevin, U.S. Trust Company.

Annual Conference on Macroeconomics

Over 100 economists participated in the NBER's Sixth Annual Conference on Macroeconomics in Cambridge on March 8–9. NBER Research Associates Olivier J. Blanchard and Stanley Fischer, both of MIT, organized the following program:

John Y. Campbell, NBER and Princeton University, and Pierre Perron, Princeton University, "Pitfalls and Opportunities: What Macroeconomists Should Know About Unit Roots"

Discussants: John H. Cochrane, NBER and University of Chicago, and Jeffrey A. Miron, NBER and Boston University

Julio J. Rotemberg, NBER and MIT, and Michael Woodford, NBER and University of Chicago, "Markups and the Business Cycle" (NBER Working Paper No. 3534, revised)

Discussants: N. Gregory Mankiw, NBER and Harvard University, and Valerie A. Ramey, University of California, San Diego

Jean Tirole, MIT, "Privatization in Eastern Europe: Incentives and the Economics of Transition"

Discussants: Alan Gelb, The World Bank, and Robert W. Vishny, NBER and University of Chicago

Robert E. Hall, NBER and Stanford University, "Recessions as Reorganizations"

Discussants: Martin N. Baily, NBER and University of Maryland, and Lawrence H. Summers, NBER and Harvard University

Stanley Fischer, "Growth, Macroeconomics, and Development"

Discussants: Xavier Sala-i-Martin, Yale University, and Anne O. Krueger, NBER and Duke University

Kenneth A. Froot, NBER and MIT, and Kenneth S. Rogoff, NBER and University of California, Berkeley, "The EMS, the EMU, and the Transition to a Common Currency"

Discussants: Rudiger Dornbusch, NBER and MIT, and Nobuhiro Kiyotaki, NBER and University of Wisconsin

During the last decade, macroeconomists have become aware of the difficulties that arise when one or more variables under study contain unit roots in their time-series representations. To deal with this problem, Campbell and Perron review the existing literature on unit roots and set guidelines for the researcher in applied macroeconomics. While they emphasize that there are serious conceptual difficulties in distinguishing unit root processes from stationary processes in finite samples, they argue that unit root econometric methods have many practical uses.

Perfectly competitive models of the effects on output and employment of variations in aggregate demand have great difficulty in accommodating the procyclicality of wages and the positive correlation among output, consumption, and hours worked. Rotemberg and Woodford suggest that these difficulties are overcome if markets are imperfectly competitive, and the markup of price over marginal cost varies over the business cycle. After reviewing three models of varying markups, they show that allowing for the differing abilities of firms to collude over the business cycle best accommodates the data.

The transfer of most state industrial property into private ownership is likely to be the most difficult element of the large-scale reform in Eastern Europe. After reviewing some of the mechanisms used in the West to promote efficiency, Tirole considers alternatives for introducing these institutions and incentive schemes in Eastern Europe. He concludes that a stock market will not provide effective incentives for managers in the introductory phase. It can serve this function only after much of the transition uncertainty is resolved. Because of the difficulty of splitting up privately held monopolies, Tirole suggests that restructuring designed to stimulate competition will be easier to implement before firms are privatized than after. Finally, special attention to government regulators is needed because the threat of capture by interest groups will be much more serious in Eastern Europe than in western economies.

Hall suggests that the proper model of the employment and wage movements over the business cycle is the intersection of a flat labor supply curve and a nearly flat labor demand curve. Labor faces a trade-off between work and productive search activities, and since this trade-off does not include diminishing returns, the labor supply schedule is flat. A flat labor demand schedule arises from strong agglomeration effects in the economy.

As the 1980s progressed, and the consequences of macroeconomic imbalances became clear, development economists and practitioners increasingly accepted the view that broad macroeconomic stability is necessary for sustained growth. However, macroeconomists, investigating the new growth theory, have largely been silent on the role of short-term macroeconomic policy on growth. Fischer presents several types of evidence suggesting that macroeconomic policies matter for growth: that is, countries that manage short-run macroeconomic policies better tend to grow faster. He

finds that inflation, the budget surplus, and the black market premium are all important determinants of the share of investment.

A number of authors have suggested an acceleration of the timetable for monetary union within the European Monetary System in order to avoid the problems of speculative attacks during the transition. Froot and Rogoff argue that speeding up the process will not by itself make the transition smoother. A central bank's interest in maintaining a long-term anti-inflationary reputation may wane as the date of union approaches, and the ability to devalue away the government's debt is especially high on the day of currency union. Froot and Rogoff suggest these as important considerations as they document the strains within the transition. Their overall assessment is that the degree of convergence of monetary policies is generally overstated, and that sharply varying debt/GNP ratios and real exchange rates provide a strong temptation for realignment.

J. Joseph Beaulieu of MIT assisted with the preparation of this article. As in previous years, the proceedings of this conference will be published by the MIT Press. The availability of the volume will be announced in the *NBER Reporter*.

InterAmerican Seminar on Economics

The NBER's Fourth Annual InterAmerican Seminar on Economics, "Growth and Trade Policies in Developing Countries," was held in Chile on March 15-16. The conference, which was cosponsored by the Pontificia Universidad Católica (PUC) in Rio de Janeiro and Santiago, was organized by NBER Research Associate Sebastian Edwards, University of California, Los Angeles; Edmar L. Bacha, PUC, Rio de Janeiro; and Felipe Larrain, PUC, Santiago. After an opening presentation by Alejandro Foxley, the Minister of Finance of Chile, the agenda was:

Sebastian Edwards, "Trade Orientation, Distortions, and Endogenous Growth in Developing Countries"
Discussants: Dominique Hachette, PUC, Santiago, and Alejandro Jadresic, Ministry of Economics, Chile

Regis Bonelli, PUC, Rio de Janeiro, "Growth and Productivity in Brazilian Industries: Impacts of Trade Orientation"

Discussant: Andrea Butelman, CIEPLAN

Nouriel Roubini, NBER and Yale University, and Xavier Sala-i-Martin, Yale University, "The Relationship Between Trade Regimes, Financial Development, and Economic Growth"

Discussants: Geoffrey Carliner, NBER, and Edmar L. Bacha

José de Gregorio, International Monetary Fund, "Economic Growth in Latin America"

Discussants: Juan Eduardo Coeymans, PUC, Santiago, and Manuel Marfan, Ministry of Finance, Chile
Juan José Echavarría, Fedesarrollo, "Commercial Policy and Industrial Productivity in Colombia"
Discussants: Pablo Gonzalez, CIEPLAN, and Wilson Perez, ECLAC

Anne O. Krueger, NBER and Duke University, and David Orsmond, Duke University, "Impact of Government on Growth and Trade"

Discussants: Jorge Desormeaux, PUC, Santiago, and José de Gregorio

Felipe Morande, ILADES-Georgetown, "The Dynamics of Real Asset Prices, the Real Exchange Rate, Trade Reforms, and Foreign Capital Inflows: Chile, 1976-89"

Discussant: Luis Felipe Lagos, PUC, Santiago

Joshua Aizenman, NBER and Dartmouth College, "Trade Reforms, Credibility, and Development"

Discussants: Fernando Coloma, PUC, Santiago, and Rodrigo Vergara, Central Bank, Chile

Ricardo Lopez-Murphy, Central Bank, Uruguay, "The Problem of Lagging Exchange Rates"

Discussants: Eduardo Aninat, Ministry of Finance, Chile, and Daniel Heymann, CEPAL

Felipe Larrain, and Jeffrey D. Sachs, NBER and Harvard University, "Contractionary Devaluation and Dynamic Adjustment of Exports and Wages"

Discussants: Albert Fishlow, University of California, Berkeley, and Joseph Ramos, Ministry of Labor, Chile

Nora Lustig, Brookings Institution, "The Incidence of Poverty in Mexico, 1984: An Empirical Analysis"

Discussants: Oscar Altamir, ECLAC, and Aristides Torche, PUC, Santiago

Sule Ozler, University of California, Los Angeles, and Dani Rodrik, NBER and Harvard University, "External Shocks, Politics, and Private Investment: Some Theory and Empirical Evidence"

Discussants: José A. Ocampo, Fedesarrollo, and Andres Velasco, Ministry of Finance, Chile

Foxley noted that the Pinochet regime in Chile doubled the money supply during its last year in power. When the current democratic government entered office, it undertook a stabilization program that slowed growth in the short run. Foxley emphasized that a return to rapid long-run growth will depend on expanding nontraditional exports and on increased investments in human capital, financed by increased taxes. He also cited the need for increasing investment, especially foreign investment, in Chile, and maintaining a competitive real exchange rate.

Edwards develops a model in which countries learn foreign technologies through international trade, called "learning by looking." He then uses several alternative measures of a country's openness to trade to estimate the effect of that openness on output growth. He finds

that the degree of openness, the rate of investment in physical capital, and political stability all raise output growth.

Bonelli studies Brazilian manufacturing industries from 1975-85 and finds that the most important factor behind output growth was the growth of the capital stock. Total factor productivity grew fastest in those industries with rapid output growth and either export expansion or import substitution. That is, productivity grew most slowly in industries in which the trade share was relatively constant.

Roubini and Sala-i-Martin develop a model in which government obtains revenue through seigniorage. The resulting inflation and financial repression lower the long-run growth rate of the economy. They find that financial repression, as measured by negative real interest rates, lowers growth in a sample of 98 countries during 1960-85. They also find that increased openness to international trade, measured in several different ways, was associated with higher GNP growth.

De Gregorio studies the determinants of growth in 12 Latin American countries from 1950-85. He finds that macroeconomic stability, with investment (physical and human), plays a crucial role in growth. To a lesser extent, growth is correlated negatively with government consumption and political instability. The terms of trade do not affect growth significantly.

Echavarría reports that total factor productivity in 1974-9 grew by 1.3 percent and 2.2 annually, respectively, for foreign and domestic manufacturing firms operating in Colombia. During 1979-87, total factor productivity fell by 3.2 percent and 2.9 percent annually for foreign and domestic firms. He estimates that increases in output, import competition, and exports raise productivity growth, while a high level of protection and industrial concentration lower it. Multinationals are more efficient than domestic firms, but the difference has been narrowing over time.

Krueger and Orsmond examine growth rates in 1976-81 for 26 developed and developing countries. They find that high levels of public sector employment tend to reduce growth, but that employment in state-owned enterprises raises growth. Both an increase in real exchange rates and a fall in the black market premium are associated with higher growth. These results are stronger for developing than for developed countries, however.

Morande examines the effect of trade reforms and macroeconomic policies on the real prices of farmland, urban housing, and shares in publicly traded firms in Chile from 1976-89. The real price index for housing more than quadrupled from early 1976 to early 1981, then fell to its earlier level, where it fluctuated for the rest of the decade. Real stock prices experienced a similar boom and bust, but then quintupled from 1985-9. Morande finds that tariff reductions and massive foreign capital inflows contributed to the boom and bust during 1976-83.

Aizenman analyzes the consequences of policy uncertainty on investment, development, and policies

themselves, in regimes undergoing trade liberalization. He shows that policy uncertainty depresses saving and growth, and operates as a subsidy on inward investment and a tax on outward investment.

Lopez-Murphy examines the design of the exchange system and the temporary overvaluation of the exchange rate in middle-income countries subject to high inflation or hyperinflation. For example, Argentina experienced a 650 percent increase in domestic prices measured in dollar terms from June 1989 to December 1990, with monthly interest rates reaching nearly 20 percent at times. Uruguay, which is very integrated with two much larger and highly unstable neighbors (Brazil and Argentina) faces great difficulty in designing its economic policy, especially its exchange rate policy.

Larrain and Sachs add wage and export-sector dynamics to a model of contractionary devaluation in which domestic aggregate demand is reduced by the devaluation while aggregate supply responds only slowly to the change in relative prices brought about by the devaluation. Their economy never returns to long-run equilibrium following a devaluation, but rather moves through successive phases of boom and bust.

Lustig uses a 1984 household survey to estimate the incidence of poverty in Mexico. After adjusting for income in kind and for underreporting, she finds that the bottom decile of households received 1.7 percent of income. Of the household heads in the poorest decile, 41 percent had no schooling and an additional 49 percent had attended but had not completed primary school. About 25 percent were agricultural employees, 42 percent were self-employed, and 10 percent had no job. Low schooling, agricultural employment, and rural residences all are highly correlated with poverty in Mexico.

Ozler and Rodrik observe that private investment in the 1990s shows different tendencies, even in countries that are superficially alike in terms of their economic problems and policies. Argentina and Brazil, for example, both have very high inflation, large debt overhangs, and severe fiscal problems. Yet in the 1980s private investment has been much more resilient in Brazil than in Argentina. Ozler and Rodrik suggest that the response of the political system to external shocks may explain these differences. Domestic politics—in the form of a distributive struggle between labor and capital—can magnify or dampen the effect of the external shock, depending on a number of structural features. In particular, a high level of urbanization magnifies the investment reduction in response to an external shock. Moreover, the provision of political rights is conducive to superior private investment behavior. Controlling for economic determinants and geographic influences, Ozler and Rodrik find that countries with more open political regimes have higher levels of private investment.

Some of these papers will be published in Spanish in *El Trimestre Económico*, and some in English in a special issue of the *Journal of Development Economics*.

Conference Calendar

Each *NBER Reporter* includes a calendar of upcoming conferences and other meetings that are of interest to large numbers of economists (especially in academia) or to smaller groups of economists concentrated in certain fields (such as labor, taxation, finance). The calendar is primarily intended to assist those who plan conferences and meetings, to avoid conflicts. **All activities listed should be considered to be "by invitation only," except where indicated otherwise in footnotes.**

Organizations wishing to have meetings listed in the Conference Calendar should send information, comparable to that given below, to Conference Calendar, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please also provide a short (fewer than fifty words) description of the meetings for use in determining whether listings are appropriate for inclusion. The deadline for receipt of material to be included in the Summer 1991 issue of the *Reporter* is June 1. If you have any questions about procedures for submitting materials for the calendar, please call Kirsten Foss Davis at (617) 868-3900.

April 30–May 2, 1991

The Establishment of a Central Bank, Centre for Economic Policy Research

May 3–4, 1991

Conference on Leading Indicators, NBER

May 7–8, 1991

Conference on Productivity in Honor of Zvi Griliches, NBER

May 10–11, 1991

Universities Research Conference: Macroeconomic Effects of Fiscal Policy, NBER

May 17, 1991

Workshop on the Economics of Health Care, NBER

May 17–19, 1991

Conference on Higher Education, NBER

May 24–25, 1991

The Privatization of Public Enterprises, Centre for Economic Policy Research

May 27–28, 1991

North–South Macroeconomic Interactions, Centre for Economic Policy Research

May 30–31, 1991

Unemployment and Wage Determination, NBER (with Centre for Economic Policy Research)

May 31–June 1, 1991

State–Federal Tax Interactions, NBER

June 13–14, 1991

Franco–American Economic Seminar, NBER

June 17–18, 1991

International Seminar on Macroeconomics, NBER

June 18–20, 1991

1991 Meetings, Society for Economic Dynamics and Control

June 18–21, 1991

Conference on Research on the Low-Income Population, Institute for Research on Poverty

June 19–21, 1991

Second Annual Asian Seminar on Economics (with Korea Development Institute), NBER

June 21–23, 1991

Labor Statistics of the Late 19th Century, NBER

June 27–July 1, 1991

North American Summer Meeting, Econometric Society*

June 29–July 3, 1991

66th Annual Conference: Challenges of the Changing Global Environment, Western Economic Association*

July 7–27, 1991

Summer Symposium of the European Science Foundation Network in Financial Markets, Centre for Economic Policy Research

July 29–August 2, 1991

Economic Transformation in Eastern Europe, Centre for Economic Policy Research

August 19–22, 1991

Joint Statistical Meetings, American Statistical Association*

August 25–29, 1991

47th Congress: Public Finance in a Changing Political Environment, International Institute of Public Finance*

September 12–13, 1991

Panel on Economic Activity: Macroeconomics, Brookings Institution

September 22–25, 1991

Annual Meeting, National Association of Business Economists*

September 26–28, 1991

International Taxation, NBER

September 27–28, 1991

Implementing Monetary Policy in Phase Two, Centre for Economic Policy Research

October 2–5, 1991

20th (biannual) Conference, Center for International Research on Economic Tendency Surveys*

October 3–6, 1991

Retrospective on the Bretton Woods System: Lessons for International Monetary Reforms, NBER

October 11, 1991

Research Meeting: Economic Fluctuations, NBER

October 11–14, 1991

International Atlantic Economic Conference, Atlantic Economic Society*

October 17–18, 1991

Economic Policy Panel, Centre for Economic Policy Research

October 25–26, 1991

Conference on Economic Growth, NBER

November 7–8, 1991

Program Meeting: Taxation, NBER

November 15, 1991

Conference on Political Economy, NBER

November 24–26, 1991

Annual Meeting, Southern Economic Association*

November 28–29, 1991

Fourth Australasian Finance and Banking Conference, University of New South Wales

December 13–14, 1991

Universities Research Conference: Economics of the Environment, NBER

December 13–15, 1991

Finance and Development in Europe, Centre for Economic Policy Research

January 3–5, 1992

Annual Meeting, American Economic Association*

January 8–11, 1992

Transition to Market Economies in Eastern Europe, NBER

January 9–10, 1992

New Growth and Development Economics, NBER (with Tokyo Center for Economic Research and Centre for Economic Policy Research)

February 7, 1992

Economic Fluctuations Research Meeting, NBER

February 12–15, 1992

U.S.–Japan Economic Forum, NBER

March 20, 1992

Conference on Foreign Direct Investment, NBER

March 26–28, 1992

Annual Meeting, Midwest Economic Association*

May 1, 1992

Conference on Aging, NBER

June 1, 1992

Third Annual Asian Seminar on Economics, NBER (with Korea Development Institute)

September 15–18, 1992

Annual Meeting, National Association of Business Economists*

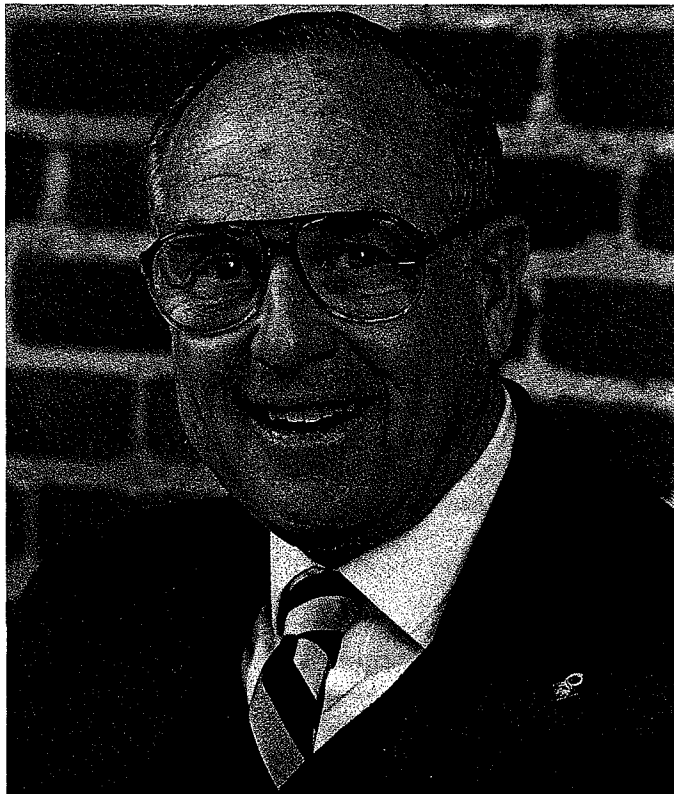
November 22–24, 1992

Annual Meeting, Southern Economic Association*

*Open conference, subject to rules of the sponsoring organization.

*Open conference, subject to rules of the sponsoring organization.

Fuchs Honored by AEA



NBER Research Associate Victor R. Fuchs, the Henry J. Kaiser, Jr. Professor at Stanford University, was elected a Distinguished Fellow of the American Economic Association at its annual meeting on December 29 in Washington, DC. Fuchs, who holds appointments in the economics department and in the medical school's department of health research and policy, was honored for his research on health and medical care, the service economy, and other empirical studies.

Economic Fluctuations Research Meeting

On February 8, seventy-four members and guests of the NBER's Program in Economic Fluctuations met at Stanford to discuss their research. NBER researchers Mark Bils, University of Chicago, and David H. Romer, University of California, Berkeley, organized the following program:

Jess Benhabib, New York University; Richard Rogerson, NBER and Stanford University; and Randall Wright, University of Pennsylvania, "Homework in Macroeconomics: Household Production and Aggregate Fluctuations" (NBER Working Paper No. 3344)

Discussant: Gary S. Becker, University of Chicago
Laurence M. Ball, NBER and Princeton University, "Credible Disinflation with Staggered Price Setting" (NBER Working Paper No. 3555)

Discussant: Robert E. Hall, NBER and Stanford University

John H. Cochrane, NBER and University of Chicago, "Univariate versus Multivariate Forecasts of GNP Growth and Stock Returns: Evidence and Implications for the Persistence of Shocks, Detrending Methods, and Tests of the Permanent Income Hypothesis" (NBER Working Paper No. 3427)

Discussant: James H. Stock, NBER and University of California, Berkeley

Garey Ramey and Valerie A. Ramey, University of California, San Diego, "Technology Commitment and the Cost of Economic Fluctuations"

Discussant: Matthew D. Shapiro, NBER and University of Michigan

J. Joseph Beaulieu, MIT; Jeffrey A. MacKie-Mason, NBER and University of Michigan; and Jeffrey A. Miron, NBER and Boston University, "Why Do Countries and Industries with Large Seasonal Cycles Also Have Large Business Cycles?" (NBER Working Paper No. 3635)

Discussant: James A. Kahn, University of Rochester
Byung-kun Rhee and Changyong Rhee, University of Rochester, "Are There Cultural Effects on Saving? Cross-Sectional Evidence"

Discussant: Stephen P. Zeldes, NBER and University of Pennsylvania

Benhabib, Rogerson, and Wright explore the implications of including home production or nonmarket production in an otherwise standard model of real business cycle fluctuations. Introducing home production significantly improves the quantitative performance of the standard model. In particular, the correlation of productivity with output is closer to the data in the model.

Ball finds, surprisingly, that a fairly quick disinflation causes a boom. The common view that staggered price setting makes disinflation costly arises from a confusion of changes in the *level* of money and changes in money growth. This suggests that rigidity in nominal prices alone does not explain why disinflation is *costly* in actual economies.

Cochrane contrasts measures of the long-run behavior of GNP based on forecasts that use GNP alone versus forecasts that use GNP and consumption. The more complex forecasts show a tendency for GNP to revert toward a trend following a shock, because consumers' forecasts of permanent income identify the "trend" in GNP. Cochrane applies the same analysis to stock prices

and dividends, and describes applications to detrending methods and tests of consumption models.

Ramey and Ramey argue that economic volatility generates errors in business planning that result in inefficiencies. They construct a general equilibrium model in which an increase in volatility leads to permanently lower output as a consequence of errors in planning. The data show a strong negative relationship between volatility and growth in the United States.

Beaulieu, MacKie-Mason, and Miron show that the standard deviation of the seasonal and nonseasonal components of aggregate variables—such as output, labor input, interest rates, and prices—are strongly, positively correlated across countries and industries. They suggest that firms endogenously choose their degree of technological flexibility as a function of the amounts of seasonal and nonseasonal variation in demand.

Do individuals in different countries have different tastes for savings? Rhee and Rhee compare the saving patterns of immigrants both according to their countries of origin and with the saving patterns of native-born citizens. Using data from the 1986 Survey of Family Expenditures in Canada, they find that the saving patterns of immigrants are similar despite countries of origin. Using the 1980-5 Consumer Expenditure Survey in the United States, though, they find that the saving rate of Asians and whites is similar, but that blacks save more than whites. Their findings provide evidence against the existence of cultural effects on savings.

Financial Markets and Monetary Economics

Over 60 members and guests of the NBER's Program in Financial Markets and Monetary Economics gathered in Cambridge on February 21-2. Program Director Benjamin M. Friedman, Harvard University, organized the following agenda:

John Y. Campbell, NBER and Princeton University, "Intertemporal Asset Pricing without Consumption"
Discussant: Stephen G. Cecchetti, NBER and Ohio State University

David H. Romer, NBER and University of California, Berkeley, "Rational Asset Price Movements without News about Fundamentals"
Discussant: Robert J. Shiller, NBER and Yale University

Grant McQueen, Brigham Young University, and V. Vance Roley, NBER and University of Washington, "Stock Prices, News, and Business Conditions" (NBER Working Paper No. 3520)
Discussant: James M. Poterba, NBER and MIT

Olivier J. Blanchard, NBER and MIT, and Philippe Weil, NBER and Harvard University, "Dynamic Efficiency and Debt Ponzi Games under Uncertainty"
Discussant: Andrew B. Abel, NBER and University of Pennsylvania

Deborah J. Lucas, MIT, and Robert J. McDonald, NBER and Northwestern University, "Bank Financing and Investment Decisions with Asymmetric Information about Loan Quality"
Discussant: Mark Gertler, NBER and New York University

George M. Constantinides, NBER and University of Chicago, and Wayne E. Ferson, University of Chicago, "Habit Persistence and Durability in Aggregate Consumption: Empirical Tests"
Discussant: John Heaton, MIT

Campbell shows that the consumption-wealth ratio depends on the elasticity of intertemporal substitution, while asset risk premiums are determined by the coefficient of relative risk aversion. Risk premiums also are related to the covariances of asset returns with the market return and with news about the discounted value of all future market returns.

Theories of asset pricing based on investor rationality do not explain the absence of any clear link between day-to-day movements in stock prices and contemporaneous news about fundamentals. Romer presents two models in which information about fundamentals is revealed by the trading process itself rather than by external news. One model is based on investor uncertainty about the quality of other investors' information; the other is based on widespread dispersion of information and small costs to trading. He uses the analysis to suggest a possible rational explanation of the October 1987 crash.

McQueen and Roley show that, after allowing for different stages of the business cycle, fundamental macroeconomic news has some effect on stock prices. In particular, the effect of news about real economic activity depends on the varying responses of expected cash flows relative to equity discount rates. When the economy is strong, for example, the stock market responds negatively to good news about real economic activity, reflecting the larger effect on discount rates relative to expected cash flows.

Blanchard and Weil ask whether governments can roll over their debt forever in dynamically efficient economies, and thus avoid the need to raise taxes. While the answer is a clear "no" under certainty, it depends, under uncertainty, on whether public debt provides intergenerational insurance. When it does not, rollover is not possible, even if the rate of return on one-period bonds is below the growth rate. When it does, debt rollover may be possible, even if the return on one-period bonds is above the growth rate.

Banks know more about the quality of their assets than outside investors do. Lucas and McDonald study the effect of this asymmetric information about loan quality on the asset and liability decisions of banks and

on the market valuation of bank liabilities. The existence of a precautionary demand for riskless securities against future liquidity needs depends both on the regulatory environment and on the informational structure. If banks are identical *ex ante*, then they prefer issuing risky debt for funding withdrawals to holding riskless securities *ex ante*. However, if banks have partial knowledge of loan quality, then high-quality banks may hold riskless securities to signal their quality, enabling them to issue risky debt at a lower interest rate. The authors show that banks with higher asset quality hold more cash and securities.

Habit persistence in consumption preferences and durability of consumption goods both imply time-non-separability in the derived utility for consumption expenditures. Constantinides and Ferson use monthly, quarterly, and annual data and find that habit persistence dominates the effect of durability.

Productivity Group Meets

Over 40 members and guests of the NBER's Program in Productivity met in Cambridge on March 15. Research Associate Ernst R. Berndt, MIT, organized the following program:

W. Erwin Diewert, NBER and University of British Columbia, and Anne-Marie Smith, University of British Columbia, "Productivity Measurement for a Distribution Firm"

Discussant: James A. Levinsohn, NBER and Stanford University

Ernst R. Berndt; Zvi Griliches, NBER and Harvard University; and Joshua G. Rosett, NBER and University of Illinois, Urbana-Champaign, "Price Indexes for Pharmaceutical Preparations: Additional Findings"

Discussant: Robert A. Gaddie, Bureau of Labor Statistics

Robert C. Feenstra, NBER and University of California, Davis, "New Goods and Index Numbers: U.S. Import Prices"

Discussant: Zvi Griliches

Diewert and Smith report that the quarterly rate of change in total factor productivity for a large appliance parts distributorship in Western Canada was 9.4 percent. This firm kept detailed inventory transaction information on 76,000 inventory items for 21 consecutive months. This result differs from the observed macro-economic performance of inventories to sales, which, according to Blinder and Maccini (1991), has not changed in the past 40 years. The authors speculate that the inconsistent results may be the result of a large increase in the *number* of separate commodities sold relative to the constant dollar quantity of sales.

Berndt, Griliches, and Rosett examine price growth for prescription pharmaceuticals and compare their findings to Producer Price Indexes (PPIs). They use product-level monthly revenue and quantity figures from two large pharmaceutical producers. At the therapeutic-class level for 1984-9, there is a wide range of discrepancies among the index growth rates, as the companies' indexes for anti-arthritics grow roughly three times faster than the corresponding PPI. For anti-infectives, the PPI grows more than twice as quickly as the companies' indexes. They confirm the result for anti-infectives using similar data covering a large fraction of revenues in that same therapeutic class.

Feenstra measures the price index for six disaggregate U.S. imports that have been supplied from many new countries over the past several decades. He finds that by incorporating the new supplying countries, the price index for developing countries is significantly lower than would be measured otherwise.

Meeting of Labor Studies Program

Over 40 members and guests of the NBER's Program in Labor Studies met in Cambridge on March 22. Program Director Richard B. Freeman, Harvard University, organized the following agenda:

Steve Davis, University of Chicago, and John C. Haltiwanger, University of Maryland, "Wage Dispersion Between and Within U.S. Manufacturing"

Robert Gibbons, NBER and MIT, and Joseph Farrell, University of California, Berkeley, "Bargaining Power and Voice in Organizations"

Harold Alderman, International Food Policy Research Institute; Jere R. Behrman, University of Pennsylvania; and David Ross and Richard Sabot, Williams College, "The Gender Gap in Human Capital Accumulation in a Poor Rural Economy"

Jonathan S. Leonard, NBER and University of California, Berkeley, and Mark Van Audenrode, University of California, Berkeley, "Corporatism Run Amok: Job Stability and Industrial Policy in Belgium and the United States"

Davis and Haltiwanger find that over half of the variation in wages in U.S. manufacturing, and almost half of the increase in that variation from 1975-86, comes from differences in *average* wages across plants. Their primary data source, the Longitudinal Research Datafile (LRD), contains observations on more than 300,000 plants in 1963, 1967, 1972, 1977, and 1982 and 50,000-70,000 plants during the intercensus years since 1972. Combining plant-level wage observations in the LRD with wage observations on individual workers in the

Current Population Survey, they conclude that decreasing unionization and increasing trade did not cause the increase in wage dispersion.

Gibbons and Farrell consider an organization in which one member has information that another needs to make a decision. If the decisionmaker has all the bargaining power, then the informed party remains silent, even though the decisionmaker then acts inefficiently. Giving bargaining power to the informed party can induce communication and can be efficient.

In most developing countries, girls receive less schooling than boys. Alderman, Behrman, Ross, and Sabot find a gender gap in cognitive achievement among 20–24-year-olds in Pakistan that amounts to over 75 percent of male test scores. Most of the explanations for this gap emphasize demand: parental biases; differences in expected returns resulting from labor market discrimination; or gender gaps in school quality. The authors find that while these demand effects are important, school availability accounts for nearly half of the gender gap in cognitive achievement.

Leonard and Van Audenrode explain high and persistent unemployment in Europe by the negative interaction among a number of distinct and often overlooked policies. For example, industrial policy taxes growing firms in order to subsidize failing firms. This helps to explain the lower rates of job creation and job destruction, and the lower rate of employment growth, in Europe compared to the United States. Minimum wages, unemployment benefits, and a centralized bargaining system through which wages are extended by law to all private employers, also limit the growth of low-wage employers, and result in unemployment.

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been relatively moderate over the last 20 years or so because of increased entry into the labor market by natives.

Abowd is a research associate in, and Freeman is director of, the NBER's Program in Labor Studies. Abowd is also a professor of labor economics and management at Cornell University. Freeman is a professor of economics at Harvard University.

Fifty Years of Economic Measurement

Fifty Years of Economic Measurement: The Jubilee of the Conference on Research in Income and Wealth (CRIW), edited by Ernst R. Berndt and Jack E. Triplett, is available from the University of Chicago Press for \$65. This volume commemorates the 50th anniversary of the NBER's CRIW, which brings together government and academic economists in an attempt to improve economic measurement.

Among the topics discussed in the book are the measurement of: prices and output; major productive inputs; and saving. It also describes the use of economic data in policy analysis and regulation. This volume is likely to be a valuable resource for scholars and graduate students.

Berndt is a research associate in the NBER's Program in Productivity and a professor at MIT's Sloan School of Management. Triplett is chief economist at the Bureau of Economic Analysis (U.S. Department of Commerce).

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Immigration, Trade, and the Labor Market

Immigration, Trade, and the Labor Market, edited by John M. Abowd and Richard B. Freeman, is available from the University of Chicago Press for \$49.95. This NBER Project Report focuses on the growing internationalization of the American labor market that began in the 1970s and 1980s.

Among the interesting findings of this project are: 1) Immigration into an area does not discernibly reduce the wages and employment of low-skilled native workers in that area. But increased imports reduce the pay and employment of workers in competing domestic industries. 2) There are far fewer illegal immigrants in the United States than has been reported in the media. Further, the immigrant share of labor force growth has

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Historical Factors in Long-Run Growth

Seasonality in Nineteenth-Century Labor Markets

Stanley L. Engerman and Claudia Goldin
Historical Working Paper No. 20
January 1991
JEL No. 040

In 19th-century America, most employment, particularly in agriculture, was highly seasonal. Thus, the movement of labor from outdoors to indoors must have increased labor hours and days per year, thereby resulting in higher national income and greater economic growth. We provide the means to understand two additional dimensions to the decrease in seasonal employment. The first is the reduction in seasonality within each of the sectors. The second is the possibility that employment in the two sectors dovetailed, and that peak-load demands in agriculture were met by the release of labor from manufacturing enterprises.

We find an increase to the 1880s, and a subsequent decrease, in the number of farm laborers per farm and in the harvest premium paid to farm laborers; this suggests that, within agriculture, peak-load employment was reduced. We also find a distinct seasonal pattern to manufacturing employment in 1900, with decreases in both summer and winter, hinting that industrial workers may have found summer employment in nearby farming communities. But we conclude, for various reasons, that there was little dovetailing of agricultural and industrial employment in the 19th century. Seasonality was reduced during the 19th century largely because sectoral shifts transferred laborers from agriculture to manufacturing, and because the influence of climate was reduced within each sector.

A Home of One's Own: Aging and Homeownership in the United States in the Late Nineteenth and Early Twentieth Centuries

Allen C. Goodman and Michael R. Haines
Historical Working Paper No. 21
February 1991
JEL No. 042

As U.S. society became more urban and less agricultural, one of the principal types of wealth accumulation

was real property, especially in the form of homes. At present, almost two-thirds of all American households reside in owner-occupied structures. This paper explores the phenomenon for the late nineteenth and early twentieth centuries, considering property accumulation over the life span.

Our central concern is age patterns of homeownership for urban and rural nonfarm households. We use microsamples of the 1865 New York state census and the 1900 U.S. Census, microdata for the 6809 worker families in the 1889/90 U.S. Commissioner of Labor Survey, and published data from the 1890 and 1930 U.S. Censuses, to describe the incidence of homeownership by age of household head. We find that the level of the ownership curve (by age) has risen over time, and its shape has changed. Differences by region and by rural versus urban residence existed. From the late nineteenth century to circa 1930, differentials between native and foreign-born whites narrowed, but differentials by race (black versus white) persisted.

Precedence and Wealth: Evidence from Nineteenth-Century Utah

David W. Galenson and Clayne L. Pope
Historical Working Paper No. 22
February 1991
JEL No. 042

Earlier research has established a strong positive relationship between a household's wealth and its duration in the local economy. This paper explores the possible connection between the magnitude of this wealth-duration relationship and the community's precedence rate—that is, the percentage of households in a given year (in this case, 1870) who were present in the same locale in an earlier year (1860).

We hypothesize that a low precedence rate will be associated with a high return to the household's duration in the local economy, controlling for the size of the local population. We test this hypothesis and tentatively confirm it for the counties of Utah in 1870. We also find that a low precedence rate is associated with increased inequality of wealth.

Long-Term Changes in U.S. Agricultural Output per Worker, 1800 to 1900

Thomas Weiss
Historical Working Paper No. 23
February 1991
JEL Nos. 040, 226

The nineteenth century was a period of expansion and transformation in American agriculture. Yet we still do not know the exact pace and timing of agricultural productivity change.

The traditional view is that output and productivity increased steadily, accelerating continually over the period. The Civil War was probably a convenient turning point, and perhaps had even greater consequences.

More recently, there have been doubts about this picture of steady and accelerating success. The extant

statistics on farm output and labor force indicate that the period before the Civil War had the superior record, and that there was particularly rapid productivity growth between 1820 and 1840.

This paper presents new estimates of agricultural output per worker, based on revised statistics of the farm labor force and farm gross product. These new figures paint a picture of agricultural progress more like the traditional view. Farm productivity grew noticeably faster after the Civil War than before, and important changes appear to have occurred during the Civil War decade.

NBER Working Papers

The Incidence of Mandated Employer-Provided Insurance: Lessons from Workers' Compensation Insurance

Jonathan Gruber and Alan B. Krueger

Working Paper No. 3557

December 1990

JEL No. 822

Workers' compensation insurance provides cash payments and medical benefits to workers who incur a work-related injury or illness. Many features of the workers' compensation program parallel features of proposed mandated employer-paid health insurance plans. This paper empirically examines the incidence of the workers' compensation program to infer the likely consequences of mandated health insurance proposals. In certain industries, such as trucking and carpentry, the costs of workers' compensation insurance are quite large, and costs vary tremendously within states over time, and across states at a moment in time.

We use this variation to identify the incidence of the program. Empirical analysis of two datasets suggests that changes in employers' costs of workers' compensation insurance largely are shifted to employees in the form of lower wages. In addition, higher insurance costs have a negative but statistically insignificant effect on employment. The implied elasticity of labor demand is about $-.50$.

Three Models of Retirement: Computational Complexity versus Predictive Validity

Robin L. Lumsdaine, James H. Stock, and David A. Wise

Working Paper No. 3558

December 1990

JEL Nos. 210, 918

Empirical analysis often raises questions of approximation of underlying individual behavior. Closer approximation may require more complex statistical specifications. But more complex specifications may presume a computational facility that is beyond the grasp of most real people and, therefore, less consistent with the actual rules that govern their behavior. Thus, the issue is not only whether more complex models are worth the effort, but also whether they are better.

We compare the in-sample and out-of-sample predictive performance of three models of retirement—"option value," dynamic programming, and probit—to determine which of the retirement rules most closely matches retirement behavior in a large firm. The primary measure of predictive validity is the correspondence between the model's predictions and actual retirement under the firm's temporary "early retirement window plan." The "option value" and dynamic programming models are considerably more successful than the less complex probit model in approximating the rules that individuals use to make retirement decisions, but the more complex dynamic programming rule approximates behavior no better than the simpler option value rule.

Approaches to Efficient Capital Taxation: Leveling the Playing Field versus Living by the Golden Rule

Lawrence H. Goulder and Philippe Thalmann

Working Paper No. 3559

December 1990

JEL No. 320

This paper explores the efficiency gains from the Tax Reform Act of 1986 and prospective tax reforms, separating out the intersectoral and intertemporal efficiency consequences. To assess these effects, we employ a general equilibrium model that considers the effects of taxes on the allocation of capital across industries, assets, sectors, and time.

We find that the 1986 tax reform yielded only a small improvement in the intersectoral allocation of capital because the beneficial effects from its more uniform treatment of capital within the business sector are largely offset by adverse effects stemming from increased tax disparities between the business and housing sectors. The intertemporal efficiency effects of the reform, in contrast, are significant and negative. Hence, the overall impact of the reform on efficiency is negative as well.

Our results indicate that the economic margins offering the greatest scope for efficiency gains are different from those that received the most attention under the 1986 tax reform. While much of the 1986 reform concentrated on reducing tax disparities within the business sector, much larger efficiency gains would result from reducing tax disparities between the business and housing sectors and from general reductions in effective marginal tax rates on capital.

Individual Precautions to Prevent Theft: Private versus Socially Optimal Behavior

Steven Shavell

Working Paper No. 3560

December 1990

JEL Nos. 022, 916

I examine a model in which individuals take precautions that reduce the amount stolen if thieves enter

their homes. The motive of individuals acting alone to take these precautions may include the diversion of theft to others, but it does not take into account general deterrence. For this and other reasons, the level of precautions exercised by individuals acting alone may differ from the level that is collectively optimal and also from the level that is socially optimal (which reflects effort devoted to theft).

Soft Budget Constraints, Taxes, and the Incentive to Cooperate

Joshua Aizenman

Working Paper No. 3561

December 1990

JEL No. 400

This paper considers an economy in which the macroeconomic equilibrium is the result of the conduct of an administration consisting of a large number of decisionmakers whose horizon is uncertain because it is determined endogenously by their behavior. In the short run, limited monitoring enables each decisionmaker to behave opportunistically, abusing the official budget constraint and generating a degree of softness in the budget. The uncertainty has two dimensions: temporal, relating to the detection possibility facing the opportunistic decisionmaker; and intertemporal, relating to the survival probability of the administration. I assume that the survival probability of the administration decreases with such signals as inflation, tax rates, and the like. In such a system, the public imposes a degree of discipline on the policymakers by its option to replace the administration, and the administration imposes discipline on the policymakers by monitoring their effective expenditure. I characterize the equilibrium, identifying conditions that yield limited cooperation. I show that adverse shocks (such as lower tax collections, lower international transfers, higher real interest rates, and so forth) or a shorter horizon (because of greater instability) will tend to reduce cooperation among policymakers and will increase the inflation rate and the use of discretionary taxes.

What Has Foreign Exchange Market Intervention Since the Plaza Agreement Accomplished?

Michael D. Bordo and Anna J. Schwartz

Working Paper No. 3562

December 1990

JEL Nos. 311, 431

We review the conduct and scale of official intervention by monetary authorities in the United States, Japan, and West Germany since the Plaza Agreement. Relative to trading volume and the stock of internationally traded assets denominated in foreign currencies, intervention is small-scale and sporadic, hence limited at best to transitory effects. Intervention does not appear to reduce volatility of daily exchange rates. Monetary authorities gamble that they will not suffer losses on their foreign currency holdings. Evidence in favor of sterilized

foreign exchange market intervention as a way of conveying information to the private sector is far from convincing. Since changes in relative monetary growth rates are sufficient to alter bilateral exchange rates, monetary authorities can achieve their exchange rate preferences with domestic monetary policy, but at the cost of possible distortionary effects on monetary growth rates, domestic interest rates, and international capital flows.

Lecture Notes on Economic Growth I: Introduction to the Literature and Neoclassical Models

Xavier Sala-i-Martin

Working Paper No. 3563

December 1990

JEL No. 111

This paper surveys the literature on economic growth. In the introduction, I analyze the main differences between exogenous and endogenous growth models using fixed saving rate analysis. I argue that in order to have endogenous growth, there must be constant returns to the factors that can be accumulated. I then develop a graphic tool to show that changes in the saving rate have different effects on long-run growth in the two kinds of models. Only endogenous growth models are affected by shifts in the saving rate. Finally, I explore two versions of the Ramsey-Cass-Koopmans neoclassical model in which savings are determined optimally: one with exogenous productivity growth, and one without.

Lecture Notes on Economic Growth II: Five Prototype Models of Endogenous Growth

Xavier Sala-i-Martin

Working Paper No. 3564

December 1990

JEL No. 111

This paper explores the five simplest models of endogenous growth. I start with the AK model (Rebelo [1990]) and argue that all endogenous growth models can be viewed as variations or microfoundations of it. Then I examine the Barro (1990) model of government spending and growth. Next I look at the Arrow-Shepherski-Romer model of learning-by-doing and externalities. Then I consider the Lucas (1988) model of human capital accumulation. Finally, I present a simple model of R and D and growth.

A Signaling Theory of Unemployment

Ching-to Albert Ma and Andrew Weiss

Working Paper No. 3565

December 1990

This paper presents a signaling explanation for unemployment. The basic idea is that employment at an

unskilled job may be regarded as a bad signal. Therefore, good workers who are likely to qualify for employment at a skilled job in the future are better off being unemployed than accepting an unskilled job.

We present conditions under which all equilibriums satisfying the Cho-Kreps intuitive criterion involve unemployment. However, there are always budget-balancing wage subsidies and taxes that will eliminate unemployment. Also, for any unemployment equilibrium, there are always either a set of Pareto-improving wage taxes and subsidies, or conditions under which there can be a set of Pareto-improving wage taxes and subsidies.

Tastes and Technology in a Two-Country Model of the Business Cycle: Explaining International Comovements

Alan C. Stockman and Linda L. Tesar

Working Paper No. 3566

December 1990

This paper considers the international transmission of business cycles by developing a two-country, real business cycle model and confronting it with a broad set of empirical observations. These observations include variances and covariances of output, labor, consumption, employment, and investment in traded and nontraded sectors of the economy; cross-country correlations of output and consumption; and correlations between quantities and relative prices.

We find that technology shocks, as measured by observed total factor productivity (by sector), must be supplemented by other sources of disturbances to explain certain features of the data. We call these other disturbances "taste shocks," although they may stand in for some other shocks. In particular, it is difficult to explain the observed comovements of the relative price of nontraded to traded goods with the relative consumption of those goods without invoking something like taste shocks. Our model is roughly consistent with a broad set of observations, although the correlation of nontraded sector output, with its relative price and the variance of the balance of trade, is puzzling.

Quality-Adjusted Cost Functions

Paul J. Gertler and Donald M. Waldman

Working Paper No. 3567

December 1990

JEL No. 910

We propose a simple method for estimating cost functions in the presence of endogenous and unobserved quality. To identify the model, we use the theory of production, the equilibrium conditions implied by optimizing behavior, and exogenous influences on product demand. One important advantage of our method is that there are minimal data requirements beyond what is necessary for standard cost function estimation, and the data usually are readily available. Specifically, we need exogenous information that influences the demand for the firm's product.

We apply our method to the nursing home industry. Estimating a translog cost function that ignores quality results in seriously misleading estimates of marginal cost and economies of scale. In particular, while estimating a quality-exogenous cost function reports economies of scale, estimating a quality-adjusted cost function reveals diseconomies of scale for high-quality nursing homes, constant returns to scale for average-quality homes, and economies of scale for low-quality homes.

A Microeconomic Model of Capital Utilization and Retirement

Sanghamitra Das

Working Paper No. 3568

December 1990

JEL Nos. 212, 631

This paper presents a microeconomic model of capital utilization and retirement. By solving a discrete-choice, stochastic dynamic programming model, I estimate a firm's discrete decision problem with regard to an existing piece of capital in the U.S. cement industry: whether to operate, hold idle, or retire it. I then use the estimates to simulate the effects of changes in product and input prices and in the size and age of capital on a firm's propensity to operate, hold idle, and retire capital.

Theory and Practice of Commercial Policy: 1945-90

Anne O. Krueger

Working Paper No. 3569

December 1990

JEL No. 112

This paper examines and contrasts the evolution of thought regarding protectionist trade policies in developed and developing countries. In the developing countries, distrust of markets and a belief in the infant industry argument led to highly protectionist trade regimes. The consequences were so negative that thinking about interventions has changed markedly. I then examine the lessons from this experience for the policy implications of the "new trade theory."

Exchange Rate Volatility in Integrating Capital Markets

Giancarlo Corsetti and Vittorio U. Grilli

Working Paper No. 3570

December 1990

JEL No. 431

This paper investigates the relationship between international capital liberalization and exchange rate volatility. While the effects of a liberalization of capital controls on the transaction volume in the foreign exchange market theoretically are unambiguous, the effects on the volatility of exchange rates can have either

sign. On one hand, liberalization leads to increasing uncertainty economywide and for specific investors. On the other hand, the augmented number of participants in the market should reduce exchange rate fluctuations. The uncertainty effects should dominate in the short run, while the increase in the number of traders should make the market thicker and tend to reduce volatility in the longer run. For a sample of countries that have liberalized capital controls in the last 15 years, we find, structural breaks in the process generating exchange rate volatility have occurred very close to the time when liberalization measures were implemented. Our results also suggest an increase in volatility after the structural breakpoint.

The Effect of Age at School Entry on Educational Attainment: An Application of Instrumental Variables with Moments from Two Samples

Joshua D. Angrist and Alan B. Krueger

Working Paper No. 3571

December 1990

JEL Nos. 912, 824

This paper tests the hypothesis that compulsory school attendance laws, which typically require school attendance until a specified birthday, induce a relationship between years of schooling and age at school entry. Variation in age at school start, created by children's birthdates, provides a natural experiment for estimating the effects of age at school entry.

Because no large dataset has information on both age at school entry and educational attainment, we use an instrumentals variables estimator with data derived from the 1960 and 1980 Censuses to test the age-at-entry/compulsory schooling model. In our application, dummies for quarter of birth are used to link the 1960 Census, from which age at school entry can be derived for one cohort of students, to the 1980 Census, which contains educational attainment for the same cohort of students. Our results suggest that roughly 10 percent of students were constrained to stay in school by compulsory schooling laws.

Does Compulsory School Attendance Affect Schooling and Earnings?

Joshua D. Angrist and Alan B. Krueger

Working Paper No. 3572

December 1990

JEL No. 912

This paper shows that individuals' season of birth is related to educational attainment because of the combined effects of policies on age at school start and laws governing compulsory school attendance. In most school districts, individuals born in the beginning of the year start school slightly older, and therefore are eligible to drop out of school after completing fewer years, than individuals born near the end of the year. Our estimates suggest that as many as 25 percent of potential dropouts remain in school because of compulsory schooling laws.

We estimate the impact of compulsory schooling on earnings by using quarter of birth as an instrumental variable for education in an earnings equation. This provides a valid identification strategy, because date of birth is unlikely to be correlated with omitted determinants of earnings. The instrumental variables estimate of the rate of return to education is remarkably close to the ordinary least squares estimate, suggesting that there is little ability bias in conventional estimates of the return to education. The results also imply that individuals who are compelled by compulsory schooling laws to attend school longer than they desire reap a substantial return for their extra schooling.

The Assimilation of Immigrants in the U.S. Labor Market

Robert J. LaLonde and Robert H. Topel

Working Paper No. 3573

December 1990

This paper reassesses the evidence on the assimilation, and the changing labor market skills, of immigrants to the United States. We find strong evidence of labor market assimilation for most immigrant groups. For Asian and Mexican immigrants, the first ten years of experience in the United States raises earnings by more than 20 percent. Further, this estimate may understate the actual rate of assimilation because of the sharp decline in the relative wages of unskilled U.S. workers. We also find little evidence of declining immigrant "quality" within ethnic groups. The diminished labor market skills of new immigrants result entirely from changes in the immigrants' countries of origin.

A Multicountry Comparison of Term Structure Forecasts at Long Horizons

Philippe Jorion and Frederic S. Mishkin

Working Paper No. 3574

January 1991

JEL No. 310

Using a newly constructed dataset for one- to five-year interest rates from Britain, West Germany, and Switzerland, this paper extends previous work on the information in the term structure at longer maturities to countries other than the United States. Even with wide differences in inflation processes across these countries, there is strong evidence that the term structure has significant forecasting ability for future changes in inflation, particularly at long maturities. On the other hand, the ability of the term structure to forecast future changes in one-year interest rates is somewhat weaker; only at the very longest horizon (five years) is there significant forecasting ability for interest rate changes.

National Origin and the Skills of Immigrants in the Postwar Period

George J. Borjas

Working Paper No. 3575

January 1991

JEL No. 800

The postwar period witnessed major changes in U.S. immigration policy and in economic and political con-

ditions in many of the source countries. As a result, the size, origin, and skill composition of immigrant flows changed substantially. This paper uses the Public Use Samples of the five decennial Censuses between 1940 and 1980 to document the extent of these changes. The empirical analysis yields two substantive results. First, almost all of the measures of skills or labor market success available in the data document a steady deterioration in the skills and labor market performance of successive waves of immigrants over the postwar period, with this trend accelerating since 1960. Second, a single factor, the changing national origin mix of the immigrant flow, is almost entirely responsible for this trend.

Stochastic Devaluation Risk and the Empirical Fit of Target Zone Models

Giuseppe Bertola and Lars E. O. Svensson

Working Paper No. 3576

January 1991

This paper proposes a tractable and realistic nonlinear model of exchange rate dynamics and argues that its predictions are consistent with available empirical evidence on exchange rate and interest differential behavior and real-life target zones. In our model, the exchange rate fluctuates between given boundaries for random lengths of time, and jumps discretely when devaluations occur. We allow for stochastic variability in the likelihood and size of devaluations, and we provide explicit solutions for the stochastic processes followed by the exchange rate and by the expected rate of depreciation. The model produces realistic patterns of covariation between exchange rates and interest rate differentials and provides interesting interpretations of available empirical evidence. We also specify how to infer devaluation risk from target zone data.

Learning by Doing and the Dynamic Effects of International Trade

Alwyn Young

Working Paper No. 3577

January 1991

JEL Nos. 111, 411

Using an endogenous growth model in which learning by doing, although bounded in each good, exhibits spillovers across goods, this paper investigates the dynamic effects of international trade. Examining a less developed country (LDC) and a developed country (DC), the latter distinguished by a higher initial level of knowledge, under autarky and free trade, I find that the LDC (DC) experiences rates of technical progress and GDP growth under free trade that are less than or equal (greater than or equal) to those enjoyed under autarky. Unless the LDC's population is several orders of magnitude greater than that of the DC, and the initial technical gap between the two economies is not large, the LDC will be unable to catch up with its trading partner. Hence, in terms of technical progress and growth, the LDC experiences dynamic losses from trade, while the DC experiences dynamic gains. However, since technical progress abroad can improve welfare at home,

LDC consumers may enjoy higher intertemporal utility along the free trade path. As long as DC consumers' economy is not overtaken by the LDC, they will enjoy more rapid technical progress and the traditional static gains from trade and hence will experience an unambiguous improvement in intertemporal welfare.

Is the Gasoline Tax Regressive?

James M. Poterba

Working Paper No. 3578

January 1991

JEL Nos. 323, 723

Claims of the regressivity of gasoline taxes typically rely on annual surveys of consumer income and expenditures that show that gasoline expenditures are a larger fraction of income for very low-income households than for middle- or high-income households. This paper argues that annual *expenditure* is a more reliable indicator of household well-being than annual income. It uses data from the Consumer Expenditure Survey to reassess the claim that gasoline taxes are regressive by computing the share of total expenditures that high-spending and low-spending households devote to retail gasoline purchases. This alternative approach shows that low-expenditure households devote a *smaller* share of their budget to gasoline than do their counterparts in the middle of the expenditure distribution. Although households in the top 5 percent of the total spending distribution spend less on gasoline than those who are less well-off, the share of expenditure devoted to gasoline is much more stable across the population than the ratio of gasoline outlays to current income. Thus the gasoline tax appears far less regressive than conventional analyses suggest.

Is Europe an Optimum-Currency Area?

Barry J. Eichengreen

Working Paper No. 3579

January 1991

JEL No. 400

An optimum-currency area is an economic unit composed of regions affected symmetrically by disturbances and between which labor and other factors of production flow freely. The symmetrical nature of disturbances and the high degree of factor mobility make it optimal to forsake nominal exchange rate changes as an instrument of adjustment and to reap the reduction in transactions costs associated with a common currency. This paper assesses labor mobility and the incidence of shocks in Europe by comparing them with comparable measures for Canada and the United States.

Real exchange rates, a standard measure of the extent of asymmetrical disturbances, remain considerably more variable in Europe than within the United States. Real securities prices, a measure of the incentive to reallocate productive capital across regions, appear considerably more variable between Paris and Dusseldorf than between Toronto and Montreal. A variety of measures suggests that labor mobility and the speed of labor market adjustment remain lower in Europe than in the United States. Thus, Europe remains further than the currency unions of North America from the ideal of an optimum currency area.

Alternative Approaches to Macroeconomics: Methodological Issues and the New Keynesian Economics

Joseph E. Stiglitz

Working Paper No. 3580

January 1991

JEL No. 023

While recent alternative approaches to macroeconomics have all begun with the presumption that macroeconomic behavior ought to be derived from microeconomic foundations, they have differed in their views of the appropriate microfoundations. This paper explores some of the key methodological issues, including: the use of representative agent models; choices in parameterization; problems in aggregation and modeling adjustment processes and speeds; the imposition of ad hoc assumptions, such as that of instantaneous market clearing; and alternative approaches to validation of proposed theories.

The paper summarizes the basic questions with which macroeconomic theory should be concerned. Focusing on the labor market, it explains why New Keynesian theories provide a better explanation of the observed phenomena than alternatives do.

Human Capital, Technology, and the Wage Structure: What Do Time Series Show?

Jacob A. Mincer

Working Paper No. 3581

January 1991

JEL No. 800

The major purpose of this study is to detect the effects of technologically based changes in demand for human capital on the educational and experience wage structure in annual Current Population Survey data for 1963 to 1987.

I find that year-to-year educational wage differentials are tracked quite closely by relative supplies of young graduates, and by indexes of relative demand, such as R and D expenditures per worker, and ratios of services to goods employment. Of these, R and D indexes account for most of the explanatory power. Indexes of (Jorgenson type) productivity growth and of international competition are significant as alternatives, but have less explanatory power.

Further, the observed steepening of experience profiles of wages is explained in part by changes in relative demographic supplies (cohort effects), and in part by the growing profitability of human capital that extends to what is acquired on the job. Evidence appears in the significance of profitability variables, or in demand factors underlying them, given the relative demographic supplies in the wage profile equations.

Assessing the Productivity of Information Technology Equipment in U.S. Manufacturing Industries

Ernst R. Berndt and Catherine J. Morrison

Working Paper No. 3582

January 1991

JEL No. 226

This paper reports the results of an empirical assess-

ment of the cost-reducing impacts of recent dramatic increases in stocks of high tech office and information technology equipment(0). We use annual data from various two-digit U.S. manufacturing industries for 1952-86.

While there are exceptions, on balance we find that in 1986, estimated marginal benefits of investments in this 0 are less than marginal costs, implying overinvestment in 0. The sign of the estimated elasticity of demand for labor with respect to changes in the stock of 0 is evenly divided in 14 industries. Whether positive or negative, though, this elasticity increases in absolute magnitude in all industries over time, indicating ever greater impacts of 0 on the demand of aggregate labor. Finally, our estimates of the elasticity of technical progress with respect to 0 are very small, implying that increases in 0 have only a small impact on technical progress.

Should the Holding Period Matter for the Intertemporal Consumption-Based CAPM?

Karen K. Lewis

Working Paper No. 3583

January 1991

JEL No. 310

Empirical studies of the restrictions implied by the intertemporal capital asset pricing model (CAPM) across different asset markets have found conflicting evidence. In general, restrictions from this model have been rejected over short holding periods, but not over longer holding periods, such as a quarter. This paper asks whether an auxiliary assumption implicit in these tests could be responsible for the observed pattern of rejections. The auxiliary assumption requires that covariances of returns with consumption move in constant proportion over time.

The paper first describes how this condition may break down within the context of a general equilibrium pricing relationship. Then I test the condition empirically using data on foreign exchange, bonds, and equity returns. Interestingly, the pattern of consumption covariances in foreign exchange and bonds indeed matches the pattern of rejection in the intertemporal asset pricing relationship.

Price-Cost Margins, Exports, and Productivity Growth with an Application to Canadian Industries

Jeffrey I. Bernstein

Working Paper No. 3584

January 1991

JEL Nos. 611, 212

I estimate a model for oligopolistic industries producing multiple outputs in short-run equilibrium. Outputs are sold domestically and exported, while capital is treated as a quasi-fixed factor. I apply the model to

the Canadian nonelectrical machinery, electrical products, and chemical products industries.

The results show significant oligopoly power in each of the industries, and that the degree of this power differs between the domestic and export markets.

Total factor productivity is decomposed. Price-cost margins exert little influence, but the rate of technological change, returns to scale, and the rate of capital adjustment determine productivity growth.

From Inertia to Megainflation: Brazil in the 1980s

Eliana A. Cardoso

Working Paper No. 3585

January 1991

This paper discusses the acceleration of inflation in Brazil. In the early 1980s, the Brazilian inflation rate increased largely because of the balance-of-payments crisis and because of large depreciations in the cruzeiro. The Cruzado Plan failed to stop inflation because of an extremely loose monetary policy coupled with a lack of fiscal austerity. Repeated price controls have increased the variability of inflation. More recently the decline in tax collections and the growth of interest payments on a ballooning domestic debt have built up a massive fiscal problem. Flight from money has further aggravated Brazilian inflation.

I use two steps to explain the Brazilian inflationary process: the analysis of price freezes in the context of sustained fiscal imbalance; and research on the consequences of different fiscal deficit financing forms. I simulate the paths of inflation and real cash balances in response to different shocks, and I focus on the effects of controls that impose a temporary reduction of the inflation rate under different choices for monetary and fiscal policies. My model of an open economy in which agents can hold money, domestic bonds, and inventories of goods clarifies the linkage between Brazil's growing inability to finance the public sector deficit externally after 1982 and the acceleration of inflation.

Precautionary Motives for Holding Assets

Miles S. Kimball

Working Paper No. 3586

January 1991

JEL Nos. 311, 023, 026

At least three types of precautionary motives are directly relevant to an agent's demand for assets: The precautionary saving motive, or prudence, can cause an agent to respond to a risk by accumulating more wealth. The desire to moderate total exposure to risk, or temperance, can cause an agent to respond to an unavoidable risk by reducing exposure to other risks, even when the other risks are statistically independent of the first. The precautionary demand for liquidity can cause an agent to respond to a risk by holding more money.

Employer Size and Dual Labor Markets

James B. Rebitzer

Working Paper No. 3587

January 1991

JEL No. 820

Recently developed models of effort regulation argue that labor markets are segmented because of differences in the technology of supervision across firms. Primary jobs pay more than market-clearing wages because these jobs are difficult to monitor. In contrast, secondary jobs pose no monitoring difficulties and therefore pay a market-clearing wage. If, as the literature suggests, increases in employer size make supervision more difficult, we should observe that wages increase with employer size in primary jobs but not in secondary jobs.

We test this hypothesis using a switching regression model. We find evidence of an employer size-wage effect in both primary and secondary labor markets. However, consistent with the prediction of models of effort control, the size effect on wages is considerably larger in primary than in secondary jobs.

Equilibrium in Competitive Insurance Markets with Moral Hazard

Richard J. Arnott and Joseph E. Stiglitz

Working Paper No. 3588

January 1991

JEL No. 020

This paper examines the existence and nature of competitive equilibrium with moral hazard. The more insurance an individual has, the less care he will take. Consequently, insurance firms attempt to restrict their clients' aggregate purchases of insurance. If individuals' aggregate insurance purchases are observable, then each firm will ration the amount of insurance its clients can purchase and will insist that they purchase no insurance from other firms.

This paper focuses on the alternative situation, in which firms cannot observe their clients' aggregate insurance purchases. We show that firms will still attempt to restrict their clients' aggregate purchases, but now they must do so indirectly. One possibility is that all firms sell only policies with a sufficiently large amount of coverage that individuals choose to purchase insurance only from only one firm. Another possibility is that each firm offer a *latent policy* in addition to its regular policy. Latent policies are not purchased in equilibrium, but serve to restrict entry. If an entering firm offers a supplementary policy, an individual will purchase not only this policy plus his previous policy, but also the latent policy. The latent policy is designed so that the individual reduces effort by enough to render any entering policy unprofitable.

Generational Accounts—A Meaningful Alternative to Deficit Accounting

Alan J. Auerbach, Jagadeesh Gokhale, and Laurence J. Kotlikoff

Working Paper No. 3589

January 1991

JEL No. 320

This paper presents a set of generational accounts (GAs) that can be used to assess the fiscal burden that current generations place on future generations. The GAs indicate the net present value of what current and future generations are projected to pay to the government now and in the future.

The generational accounting system represents an alternative to using the federal budget to gauge intergenerational policy. From a theoretical perspective, the measured deficit does not need to bear a relationship to the underlying intergenerational stance of fiscal policy.

Within the range of reasonable growth and interest rate assumptions, the difference between age zero and future generations in GAs ranges from 17 to 24 percent. This means that if the fiscal burden on current generations is not increased relative to that projected from current policy (ignoring the recently enacted federal budget), and if future generations are treated equally (except for an adjustment for growth), then the fiscal burden facing all future generations over their lifetimes will be 17 to 24 percent larger than what faced newborns in 1989. The newly enacted budget, if it sticks, will reduce the fiscal burden on future generations significantly.

International Accounting Diversity: Does It Impact Market Participants?

Frederick D. S. Choi and Richard M. Levich

Working Paper No. 3590

January 1991

JEL Nos. 440, 540

While many indicators point to the globalization of capital markets, one barrier may persist—international accounting diversity. Even though coordination of many national policies is gaining favor, the measurement and disclosure principles that underlie financial statements largely remain nationalistic.

This paper analyzes the channels through which accounting diversity affects financial statements. Accounting differences may affect cash flows and thus may have a direct impact on valuation. Accounting differences also may affect balance sheet items and measures of capital adequacy or creditworthiness that indirectly influence managerial decisions and firm valuation.

In our survey of the international capital market, accounting diversity is a problem that affects the capital market decisions of roughly one-half of the participants. Thus, we cannot rule out the possibility that international accounting diversity is a barrier that may affect the pricing of securities and the composition of international portfolios. On the other hand, roughly one-half of the participants in this study found what they described as effective ways of coping with diversity. These coping mechanisms may be useful for other investors and issuers in making their capital market decisions.

Volatility Tests and Efficient Markets: A Review Essay

John M. Cochrane

Working Paper No. 3591

January 1991

This essay asks what volatility tests tell us about the data, and what implications we should derive from such tests. I argue that volatility tests do not tell us that "prices are too volatile," which implies that "markets are inefficient." Rather, they tell us that "(discounted) returns are forecastable," implying that "current discount rate models leave a residual."

I also argue that the discount rate residuals documented by volatility tests (and equivalent return forecasting regressions, or Euler equation tests) suggest rational business-cycle-induced movements in the discount rate rather than "fads" or other inefficiencies.

The Changing Fortunes of FHA's Mutual Mortgage Insurance Fund and the Legislative Response

Patric H. Hendershott and James A. Waddell

Working Paper No. 3592

January 1991

JEL Nos. 315, 323

The 1980s was a bad decade for FHA's Mutual Mortgage Insurance (MMI) program, the mainstay of FHA's single-family mortgage insurance. While the MMI fund is required by statute to be actuarially sound, the fund lost close to \$6 billion, and its economic value declined from 5.3 percent of insurance-in-force to under 1 percent. This study documents the decline in the soundness of the MMI fund in the 1980s and describes the legislation enacted in October 1990 to shore up the fund.

The Effects of Pensions and Retirement Policies on Retirement in Higher Education

Alan S. Gustman and Thomas L. Steinmeier

Working Paper No. 3593

January 1991

JEL Nos. 820, 912, 918

We estimate a structural retirement model using data for tenured, male faculty employed in the 1970s at 26 high-quality private colleges and universities. Simulations of raising and then abolishing the mandatory retirement age suggest very large increases in full-time work by faculty members in their late 60s and early 70s. Simulations also suggest that early retirement incentive programs would offset only a small fraction of the increase in work resulting from changes in mandatory retirement, and that rents created by these programs exceed savings from induced early retirements, with salaries of replacements further adding to costs.

International Trade with Endogenous Technological Change

Luis A. Rivera-Batiz and Paul M. Romer

Working Paper No. 3594

January 1991

JEL Nos. 110, 410

To explain why trade restrictions sometimes speed up and sometimes slow down worldwide growth, we exploit an analogy with the theory of consumer behavior. Substitution effects make demand curves slope down, but income effects can either increase or decrease the slope, and sometimes can overwhelm the substitution effect. We decompose changes in the worldwide growth rate into two effects (integration and redundancy) that unambiguously slow growth down, and a third effect (allocation) that can either speed it up or slow it down.

We study two types of trade restrictions to illustrate the use of this decomposition. The first is across-the-board restrictions on traded goods in an otherwise perfect market. The second is selective protection of knowledge-intensive goods in a world with imperfect intellectual property rights. In both examples, we show that for trade between similar regions, such as Europe and North America, the first two effects dominate; starting from free trade, restrictions unambiguously reduce worldwide growth.

Money, Interest, and Prices

Stanley Fischer

Working Paper No. 3595

January 1991

Twenty-five years after the publication of the second edition of Don Patinkin's *Money, Interest, and Prices*, this paper describes and evaluates the contributions to monetary and macroeconomic theory made in the book. Its first accomplishment was to settle definitively many issues, such as the valid and invalid dichotomies between real and nominal magnitudes; Say's identity; the nature of the Keynesian system; and the requirements for the neutrality of money, which had been disputed for decades. It also opened the road to the future by developing macroeconomic models from a well-specified microeconomic foundation. In so doing, it established the base on which subsequent equilibrium macroeconomics was built. Beyond that, in Chapter XII, Patinkin pioneered the development of disequilibrium analysis by presenting a fully articulated model that makes the key distinction between nominal and effective demands, and using it to explain price and quantity adjustments in conditions of unemployment.

Macroeconomic Aspects of German Unification

Hans-Werner Sinn

Working Paper No. 3596

January 1991

This paper comments on the economic effects of the German unification. Apart from discussing the unifica-

tion in an international perspective, it analyzes the distributional consequences and points to structural adjustment problems, and emphasizes the distinction between the frequently cited money overhang and the real asset overhang characterizing Communist countries. I argue that the unification paid too little attention to the latter, endowing East Germans with insufficient claims on state-owned enterprises. The centralized privatization of state-owned enterprises, which bypasses the East German population, is a major obstacle to quick recovery. I discuss an alternative privatization procedure.

Alexander Hamilton's Market-Based Debt-Reduction Plan

Peter M. Garber

Working Paper No. 3597

January 1991

In 1790, Alexander Hamilton, the first Secretary of the Treasury of the United States, initiated a program to refund the U.S. debt. Debt that had sold at 275 percent discount two years earlier would be refunded at par into new debt of the federal government. All foreign indebtedness would be repaid.

I show that Hamilton's actual refunding policy did not differ from what was envisioned under the recent Brady plan. The bond package for which the old debt was exchanged had a market value well below par. Thus, a large part of the face value of the debt effectively was written off. I compare the Hamilton restructuring package to the recent Mexican restructuring package to find points of similarity with the Brady plan.

How Regional Differences in Taxes and Public Goods Distort Life-Cycle Location Choices

Laurence J. Kotlikoff and Bernd Raffelhueschen

Working Paper No. 3598

January 1991

JEL No. 324

Locational choice is one of the fundamental exercises of consumer sovereignty. When regions (or localities within regions) specify different tax rates, or supply different amounts of public goods, they distort individuals' choices about location.

This paper models and measures the location distortion for the United States and New England. In our overlapping-generations model, agents at each point in their life span choose where to locate, taking into account their preferences, each region's wage, consumption, and personal capital income taxes, and each region's supply of public goods.

Our findings suggest that regional fiscal differences are important in the location choices of 3-4 percent of Americans. For these Americans, the distortion of location choice is equivalent to roughly 0.5 percent of their lifetime consumption.

For Americans on the whole, however, the location distortion induced by U.S. regional fiscal differences is quite small, simply because the differences in tax rates and per capita levels of expenditures on public goods across regions are not large enough to induce most Americans to move. We conclude, though, that location distortions are an increasing function of regional differences in tax rates and levels of expenditure on public goods. Indeed, a doubling of the scale of public finances across all U.S. states would lead roughly to a quadrupling of the location distortion.

Is Inequality Harmful for Growth?

Theory and Evidence

Torsten Persson and Guido Tabellini

Working Paper No. 3599

January 1991

JEL Nos. 023, 110, 400

We suggest that inequality is harmful for growth. In a society in which distributional conflict is important, political decisions likely produce economic policies that allow private individuals to appropriate fewer returns to activities that promote growth, such as accumulation of capital and productive knowledge.

We first formulate a theoretical model that formally captures this idea. The model has a politico-economic equilibrium, which determines a sequence of growth rates depending on structural parameters, political institutions, and initial conditions. We then confront the testable empirical implications with two sets of data. The first dataset pools historical evidence—which goes back to the mid-19th century—from the United States and eight European countries. The second dataset contains postwar evidence from a broad cross-section of developed and less developed countries. In both samples, we find a statistically significant and quantitatively important negative relationship between inequality and growth. After a comprehensive sensitivity analysis, we conclude that our findings are not distorted by measurement error, reverse causation, heteroscedasticity, or other econometric problems.

Trade Reforms, Credibility, and Development

Joshua Aizenman

Working Paper No. 3600

January 1991

JEL No. 400

This paper analyzes the role of investment policies in regimes that are undergoing trade liberalization but have policymakers whose credibility is uncertain. I consider an economy that produces exportable and importable goods. The economy is liberalized, and tariffs are eliminated. The public views the credibility of reform as questionable, and expects that reversal of the policy is possible. The policymaker sets policies and public investment so as to maximize the expected utility of a risk-averse representative agent. I identify

the need to tax private investment in the importable sector, and to subsidize private investment in the outward-oriented sector. I show that the signaling effect of public investment may generate a positive externality for public investment in the outward sector, and a negative externality for public investment in the inward-oriented activity. I demonstrate that the elimination of sectoral private investment policies calls for a rise in the public/private capital ratio in the outward-oriented activities, and a drop in that ratio in the inward-oriented activities. In the presence of an external credit ceiling, a higher degree of risk aversion increases the magnitude (without changing the nature) of the policies.

Target Zones Big and Small

Francisco Delgado and Bernard Dumas

Working Paper No. 3601

January 1991

JEL No. 432

Using different assumptions about the underlying monetary shocks, we study target zones of various widths and their effect on such variables as the interest differential. The stochastic disturbances we assume are successively a nonzero mean random walk and a mean reverting process. We use the latter to incorporate the "leaning against the wind" policy (intramarginal intervention) that is prevalent in the European Monetary System.

Intertemporal Labor Supply: An Assessment

David Card

Working Paper No. 3602

January 1991

JEL Nos. 810, 130

The life-cycle labor supply model has been proposed as an explanation for various dimensions of labor supply, including movements over the business cycle, changes with age, and within-person variation over time. According to the model, all of these elements are tied together by a combination of intertemporal substitution effects and wealth effects. This paper assesses the model's ability to explain the main components of labor supply, focusing on microeconomic evidence for men.

Destabilizing Effects of Exchange Rate Escape Clauses

Maurice Obstfeld

Working Paper No. 3603

January 1991

JEL No. 431

This paper studies the merits of policy rules with escape clauses, analyzing, as an example, fixed exchange rate systems that allow member countries the freedom to realign in periods of stress. This example is

motivated by the debate within the European Monetary System (EMS) over how quickly to move from the current regime of national currencies, linked by pegged but adjustable exchange rates, to a single European currency.

The main point of the paper is that, while well-designed rules with escape clauses can raise society's welfare in principle, limited credibility makes it difficult for governments to implement such rules in practice. An EMS-type institution—which presumably imposes a political cost on policymakers who realign—may lead to an optimal escape-clause equilibrium, but may just as well lead to alternative equilibriums far inferior to an irrevocably fixed exchange rate. Countries can suffer periods in which no realignment occurs, yet unemployment, real wages, and ex post real interest rates remain persistently and suboptimally high.

Government Revenue from Financial Repression

Martha de Melo and Alberto Giovannini

Working Paper No. 3604

January 1991

JEL Nos. 112, 121, 313, 323, 431

This paper analyzes the theoretical underpinnings and the relevance of the phenomenon of financial repression from the perspective of public finance. The analysis explicitly accounts for the interaction between capital controls and financial repression. The proposed empirical estimate of the revenue from financial repression is based on the difference between the domestic and the foreign cost of government borrowing. We also discuss the correlations of the revenue from financial repression with inflation, exchange rates, and per capita income.

Reconciling the Pattern of Trade with the Pattern of Migration

James E. Rauch

Working Paper No. 3605

January 1991

JEL Nos. 411, 823

Empirical studies consistently have found that countries with an abundance of skilled labor tend to export manufactured goods that make intensive use of skilled labor. Yet these countries also have higher wages for skilled workers, causing them to be net importers through migration of skilled labor from countries with an abundance of unskilled labor (the "brain drain"). A new explanation for this combination of comparative and absolute advantage in countries with an abundance of skilled labor is: if only skilled (educated) individuals can become managers, then given the same underlying distribution of managerial talent, the country that has less skilled labor must use a less talented manager at the margin in order to employ its work force fully. This

causes wages for unskilled workers and skilled individuals who choose to become employees to be lower in the country with an abundance of unskilled labor, while incomes of skilled individuals talented enough to become managers are lower (for a given level of talent) in the country with an abundance of skilled labor.

What are the consequences of the resulting migration of unskilled and skilled employees and managers? There are several surprises: for example, migration of unskilled labor to the country abundant in skilled labor leads to a fall in the wages of both unskilled and skilled workers there and a rise in the wages of both unskilled and skilled workers in the country of origin.

Agricultural Productivity, Comparative Advantage, and Economic Growth

Kiminori Matsuyama

Working Paper No. 3606

January 1991

JEL Nos. 023, 110, 410

This paper addresses the role of agricultural productivity in economic development in a two-sector model of endogenous growth in which: 1) preferences are nonhomothetic and the income elasticity of demand for the agricultural good is less than one; and 2) the engine of growth is learning-by-doing in the manufacturing sector. For the case of a closed economy, the model predicts a *positive* link between agricultural productivity and economic growth. Thus it provides a formalization of the conventional wisdom, which asserts that agricultural revolution is a precondition for industrial revolution. For the open-economy case, however, the model predicts a *negative* link; that is, an economy with a relatively unproductive agricultural sector experiences faster and accelerating growth. This result suggests that the openness of an economy should be an important factor when planning development strategy and predicting growth performance.

Cities in Space: Three Simple Models

Paul R. Krugman

Working Paper No. 3607

January 1991

JEL Nos. 411, 731, 941

Urban agglomerations arise at least in part out of the interaction between economies of scale in production and effects of market size. This paper develops a simple spatial framework to develop illustrative models of the determinants of urban location, of the number and size of cities, and of the degree of urbanization. A central theme is the probable existence of multiple equilibriums, and the dependence of the range of potential outcomes on a few key parameters.

The Fertility of Immigrant Women: Evidence from High-Fertility Source Countries

Francine D. Blau

Working Paper No. 3608

January 1991

JEL No. 840

Using data from the 1970 and 1980 Censuses, I examine the fertility of immigrant women from the Middle East, Asia, Latin America, and the Caribbean, where fertility rates averaged more than 5.5 children per woman during the period of immigration to the United States. Perhaps the most interesting finding of this study is that immigrants from these, on average, high-fertility source countries have very similar unadjusted fertility to native born women. The small differential between immigrants and natives appears to reflect the selectivity of immigrants as a low-fertility group both relative to source country populations and to native born women with similar personal characteristics (a relatively high-fertility group in the United States).

Relative to that of natives in the 1970 cross-section, immigrant fertility is also depressed by the tendency of immigration to disrupt fertility. Tracking synthetic cohorts across the 1970 and 1980 Censuses, I find that immigrant fertility, especially for the most recent cohort of immigrants in 1970, increased relative to otherwise similar natives over the decade. Despite this increase in relative fertility, the fertility of these immigrants remained below that of natives with similar personal characteristics in 1980.

One interesting trend is that recent arrivals had higher adjusted fertility relative to both natives and longer-term immigrants in 1980 than in 1970. In part this represents the impact of declining birthrates in the United States over this period, while fertility rates in source countries remained fairly constant on average.

Investor Diversification and International Equity Markets

Kenneth R. French and James M. Poterba

Working Paper No. 3609

January 1991

JEL Nos. 521, 313

The benefits of international diversification have been recognized for decades. In spite of this, most investors hold nearly all of their wealth in domestic assets. In this paper, we construct new estimates of the international equity portfolio holdings of investors in the United States, Japan, and Britain. More than 98 percent of the equity portfolio of Japanese investors is held domestically; the analogous percentages are 94 percent for the United States, and 82 percent for Britain. We use a simple model of investor preferences and behavior to show that current portfolio patterns imply that investors in each nation expect returns in their domestic equity market to be several hundred basis points higher than returns in other markets. This lack of diversification appears to be the result of investor choices rather than institutional constraints.

New Goods and Index Numbers: U.S. Import Prices

Robert C. Feenstra

Working Paper No. 3610

February 1991

JEL Nos. 420, 227

Researchers who construct index numbers frequently face the problem of new (or disappearing) goods, for which the price and quantity are not available in some periods. In theory, the correct way to handle a new good is to treat its price before it appears as equal to the reservation price (that is, where demand is zero). In practice, this method can be difficult to implement. However, if the underlying aggregator function has constant elasticity of substitution, then the reservation price is infinity, and the corresponding price index takes on a very sensible form.

I apply this formula to measure the price index for six disaggregated U.S. imports that have been supplied by many new countries over the past several decades. I find that by incorporating the new supplying countries, the price index for developing countries is significantly lower than would be measured otherwise.

A Model of the Political Economy of the United States

Alberto Alesina, John Londregan,

and Howard Rosenthal

Working Paper No. 3611

February 1991

JEL Nos. 025, 310

We develop and test a model of joint determination of the rate of economic growth and the result of U.S. presidential and congressional elections. In our model, economic agents and voters have rational expectations. Economic policy varies as a function of control of the White House and the two-party shares in Congress. Politics affects growth through unanticipated policy shifts following the outcome of presidential elections. The economy influences elections as voters use past realizations of growth to make rational inferences about the "competency" level of the incumbent administration. Elections also are influenced by voters who use their midterm congressional votes to moderate the policies of the incumbent administration.

We use the theoretical model to generate a recursive system of equations in which the dependent variables are the growth rate and the vote shares in presidential and congressional elections. The theory implies several restrictions on the equations. Tests of the restrictions generally support the model; however, the results support the traditional view of naive retrospective voting as well as the "rational" retrospective posited in the model.

Was There a Bubble in the 1929 Stock Market?

Peter Rappoport and Eugene N. White

Working Paper No. 3612

February 1991

JEL Nos. 313, 042

Standard tests find that there are no bubbles in the stock price data for the last 100 years. Historical accounts focusing on briefer periods, in contrast, point to the stock market of 1928-9 as a classic example of a bubble.

While previous studies have restricted their attention to the joint behavior of stock prices and dividends over a century, this paper uses the behavior of the premiums demanded on loans collateralized by the purchase of stocks to evaluate the claim that the boom and crash of 1929 represented a bubble. We develop a model that permits us to extract an estimate of the path of the bubble and its probability of bursting in any period. We then demonstrate that the premium behaves as would be expected in the presence of a bubble in stock prices. We also find that our estimate of the bubble's path has explanatory power when added to the standard cointegrating regressions of stock prices and dividends, in spite of the fact that our stock price and dividend series are cointegrated.

Speculative Behavior in the Stock Markets: Evidence from the United States and Japan

Fumiko Kon-Ya, Robert J. Shiller, and Yoshiro Tsutsui

Working Paper No. 3613

February 1991

There have been enormous differences of opinion between U.S. and Japanese institutional investors about the outlook for stock prices. Differences across the two countries in average one-year-ahead forecasts for the Japanese stock market have been as great as 20 percentage points.

In the past two years, most Japanese and U.S. institutional investors have expected a reversal of trends in the stock market and have advised an investing strategy that depended on getting out of (or into) the market before an anticipated turnaround.

These results, obtained from a number of questionnaires in 1989 and 1990, help explain the relative lack of portfolio diversification across countries, and show the short-term nature of speculative behavior.

Internal Currency Markets and Production in the Soviet Union

Linda S. Goldberg and Il'dar Karimov

Working Paper No. 3614

February 1991

JEL Nos. 430, 431, 432, 124

This paper considers the impact of macroeconomic and microeconomic policy tools on enterprise activi-

ties in an economy in the process of economic reform. Assuming a dual exchange rate regime and the type of increased enterprise autonomy introduced as components of partial economic reform in the Soviet Union, policy changes induce shifts in production and in hard currency allocation decisions.

This paper considers the implications for: the supply of hard currency to internal auctions or interbank markets; the free internal price of foreign exchange; export volumes; the trade balance; the supply of goods available for internal consumption; and open and hidden inflation. The concentration of market power of producers in domestic industries, and the design of currency auctions or interbank markets are key determinants, respectively, of the magnitude and direction of the enterprise responses to policy changes and external shocks.

Host Country Benefits of Foreign Investment

Magnus Blomström

Working Paper No. 3615

February 1991

JEL Nos. 440, 620

This paper reviews the empirical evidence on the very different conclusions that can be drawn about productivity spillovers of foreign direct investment. It explains the concept of host country spillover benefits; describes the various forms these benefits can take, both within and between industries; and summarizes the evidence regarding the relative magnitudes of the various forms of spillovers. Moreover, the paper discusses host country policy measures that can accelerate both the multinational corporation affiliates' technology imports and the diffusion of their technology in the host economies.

Capital Formation in Latin America

Eliana A. Cardoso

Working Paper No. 3616

February 1991

This paper studies investment in Latin America and explores the relationships of investment to growth, exchange rates, and the terms of trade. I address the theoretical issue of the relationship between the real exchange rate and the real price of capital with a model of a small open economy with four assets. I then discuss the dynamics of both the real price of capital and the real exchange rate in response to different shocks, including a change in monetary policy, an increase in external interest rates, and a deterioration of the terms of trade. In the model (with a nominal exchange rate rule fixed by the central bank), a deterioration in the terms of trade leads to an immediate decline in the real price of capital, followed by a depreciating real exchange rate while the real price of capital recovers slowly.

The paper explores the determinants of investment in Latin America. The regressions use quadrennial panel data for 1970–85 in Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela. Together, these six countries account for 86 percent of the total GDP of the region. The decline in private investment shares in Latin America during the 1980s seems to result from the deterioration in the terms of trade, from the decline in growth (resulting from adjustment programs designed to reduce current account deficits), from a reduction in complementary public investment, from increased macroeconomic instability, and from a large stock of foreign debt. The real exchange rate and the real rate of depreciation have no significant role in the determination of private investment.

Window Dressing by Pension Fund Managers

Josef Lakonishok, Andrei Shleifer, Richard Thaler, and Robert W. Vishny

Working Paper No. 3617

February 1991

JEL Nos. 313, 521

This paper takes a first look at investment strategies of managers of 769 pension funds, with total assets of \$129 billion at the end of 1989. The data show that managers of these funds tend to oversell stocks that have performed poorly. Relative sales of losers accelerate in the fourth quarter, when funds' portfolios are examined closely by the sponsors. This result supports the view that fund managers "window dress" their portfolios to impress sponsors, and suggests that managers are evaluated on their individual stock selections and not just on aggregate portfolio performance.

Asset Sales and Debt Capacity

Andrei Shleifer and Robert W. Vishny

Working Paper No. 3618

February 1991

JEL Nos. 313, 521

We explore the link between asset sales and debt capacity. Asset sales are a common way for firms to raise cash, and so present an alternative to security issues for firms near financial distress. We argue that liquid assets—those that can be resold at attractive terms—are good candidates for debt finance because financial distress for firms with such assets is relatively inexpensive. We apply this logic to explain variation in debt capacity across industries and over the business cycle, as well as to the rise in U.S. corporate leverage in the 1980s.

Tax Policy and Business Fixed Investment in the United States

Alan J. Auerbach and Kevin Hassett

Working Paper No. 3619

February 1991

JEL Nos. 320, 520

This paper derives and estimates models of nonresidential investment behavior in which current and fu-

ture tax conditions directly affect the incentive to invest. The estimates suggest that taxes have played an independent role in affecting postwar U.S. investment behavior, particularly for investment in machinery and equipment.

In addition, we develop a method for assessing the impact of tax policy on the volatility of investment when such policy is endogenous. Illustrative calculations using this technique, based on our empirical estimates, suggest that tax policy has not stabilized investment in equipment or nonresidential structures during the sample period.

Reducing the Risk of Economic Crisis

Martin Feldstein

Working Paper No. 3620

February 1991

JEL No. 310

This paper examines the four most important potential economic crises that the United States faced in the 1980s—the debt crisis in developing countries; the 1987 stock market crash; failures of savings and loan institutions; and commercial bank failures—in order to see what lessons can be drawn, individually and collectively, from these experiences.

The Genesis of Inflation and the Costs of Disinflation

Laurence M. Ball

Working Paper No. 3621

February 1991

JEL Nos. 134, 023

This paper asks how high inflation occurs and why it is costly to eliminate. Specifically, I discuss: the roles of price rigidity and credibility problems in explaining the costs of disinflation; the puzzle of persistent inflation triggered by onetime macroeconomic shocks; and the case for returning to adaptive expectations in theories of inflation.

Quality and Trade

Kevin M. Murphy and Andrei Shleifer

Working Paper No. 3622

February 1991

JEL No. 411

We present a model in which similar countries trade more with each other than with very different countries. That is because countries with high human capital have a comparative advantage in producing high-quality goods, but are also rich enough to want to consume high-quality goods. As a result, countries choose trading partners at a similar level of development, producing products of similar quality. Our model helps to explain the observed trade patterns and sheds light on comparisons of international income. It also helps to explain the recent concerns of Eastern European countries that they have "nothing to sell" to the West.

Foreign Direct Investment in the United States and U.S. Trade

Robert E. Lipsey

Working Paper No. 3623

February 1991

JEL Nos. 420, 440

Foreign-owned manufacturing firms' shares of U.S. trade grew from almost nothing in the 1960s to 7 or 8 percent of trade in manufactured goods by the 1980s. Little has changed in the past decade, except for fluctuations related to changing U.S. exchange rates. Foreign-owned firms are less export-oriented than U.S. parent companies, overall and in the same industries, and are more dependent on imports, relative to their sales.

The foreign affiliates' comparative advantage relative to U.S. parent firms and U.S. firms in general is concentrated in chemicals and metals industries. Foreign-owned firms in machinery and transport equipment do relatively little exporting from the United States in comparison with U.S.-owned firms.

The trade of the foreign-owned firms, as measured by exports/sales and imports/sales ratios and by export/import ratios, fluctuates more than that of U.S. firms. In particular, foreign affiliates seem to be more responsive than U.S. parents to changes in exchange rates, shifting their production between sales in the United States and exports, and their inputs between U.S. production and imports, as the value of the dollar rises and falls.

Updated Estimates of the Impact of Prenatal Care on Birthweight Outcomes by Race

**Richard G. Frank, Catherine A. Jackson,
David S. Salkever, and Donna M. Strobino**

Working Paper No. 3624

February 1991

JEL No. 913

This paper estimates a quasi-structural birthweight production function using data on counties for 1975-84. The analysis focuses on the effects of initiation of prenatal care in the first trimester, controlling for use of abortion services, cigarette smoking, birth order, and income. We use a fixed-effects model to control for unmeasured differences in health endowments across counties. Our results indicate that initiation of prenatal care early in the first trimester leads to a reduction in low birthweight for both blacks and whites. Differences in use of prenatal care by race explain only a small part of the black-white differences in the fraction of low-birthweight births.

Product Demand, Cost of Production, and the Social Rate of Return to R and D

Jeffrey I. Bernstein and M. Ishaq Nadiri

Working Paper No. 3625

February 1991

JEL Nos. 621, 212

This paper develops and estimates a model of production with endogenous technological change. Tech-

nological change arises from R and D capital accumulation decisions. These decisions respond to market and government incentives and generate R and D capital spillovers.

We estimate a spillover network of senders and receivers. The network shows that each receiving industry is affected by a distinct set of R and D sources, and each sending industry affects a unique set of receivers. For the receivers, spillovers generally expand product markets, lower product prices, and increase production costs and input demands. For the sources, significant R and D spillovers cause the social rates of return to R and D capital to be substantially above the private returns.

Recent U.S. Behavior and the Tax Reform Act of 1986: A Disaggregate View

Alan J. Auerbach and Kevin Hassett

Working Paper No. 3626

February 1991

JEL Nos. 320, 520

The Tax Reform Act of 1986 was expected to cause an overall decline in business fixed investment and a shift in the composition of investment away from machinery and equipment, which previously had received an investment tax credit. Yet neither investment relative to GNP nor investment in equipment relative to total investment declined during 1987-9. Our analysis of investment at the level of individual industries and assets helps to reconcile the recent pattern of investment and the predicted effects of the Tax Reform Act.

We find that the trend toward investment in equipment has fallen short of what would have been expected on the basis of nontax factors alone. Using a new technique to identify the impact of taxation on investment, we confirm the importance of tax policy using the cross-section pattern of equipment investment since 1986.

Internal Quota Allocation Schemes and the Costs of the MFA

Irene Trela and John Whalley

Working Paper No. 3627

February 1991

This paper suggests that schemes used within developing countries to allocate textile export quotas among domestic producers typically have more severe negative effects on the economic performance of developing countries than the Multifiber Arrangement (MFA) export quotas themselves. We summarize allocation schemes in 17 countries, highlighting common "lock-in" and "rent dissipation" effects of such schemes. We then use a global general equilibrium model to evaluate the effects of MFA removal with and without these additional effects.

Our results indicate that gains to developing countries from an MFA removal are larger, and by significant orders of magnitude (we suggest a factor of eight), when internal quota allocation schemes also are included. Removing the negative effects of quota allocation schemes thus seems to clearly dominate traditional access benefits to developing countries from MFA removal.

Decomposing the Welfare Costs of Capital Tax Distortions: The Importance of Risk

Bob Hamilton, Jack Mintz, and John Whalley

Working Paper No. 3628

February 1991

This paper analyzes the implications of alternative risk assumptions for estimates of the distorting effects of the corporate tax in Canada. We decompose these distortions into three broad categories: interasset distortions; interindustry distortions; and intertemporal distortions. We use estimates of marginal effective corporate tax prices in a multi-asset general equilibrium model to evaluate the costs of the various distortions, with marginal effective tax rates calculated under alternative risk assumptions. Our results indicate that assessments of the relative importance of these distortions are sensitive to alternative risk assumptions used in calculations of marginal tax rates. The paper also explores the sensitivity of results to key elasticity parameters in the model.

Multiple Equilibriums and Persistence in Aggregate Fluctuations

Steven N. Durlauf

Working Paper No. 3629

February 1991

JEL Nos. 023, 111, 131

This paper explores the impact of incomplete markets and strong complementarities on the time-series properties of aggregate activity. I consider an economy consisting of a large number of industries whose production functions both are nonconvex and exhibit localized technological complementarities. The productivity of each industry at a given time is determined by the production decisions of technologically similar industries one period earlier. No markets exist to coordinate production decisions. This implies that aggregate output dynamics for the model are quite different from those predicted by the associated Arrow-Debreu economy. First, multiple stochastic equilibriums exist in aggregate activity. These equilibriums are distinguished by differences in the mean and variance of output. Second, output movements are persistent as aggregate productivity shocks affect real activity indefinitely by shifting the economy across equilibriums. As a result, the model can exhibit periods of boom and depression.

Lump Sums, Profit-Sharing, and Labor Costs in the Union Sector

Linda A. Bell and David Neumark

Working Paper No. 3630

February 1991

JEL Nos. 824, 831, 832

This paper documents the increase in the use of lump-sum payments and profit-sharing plans in union contracts in the 1980s, and evaluates the extent to which these innovations may have contributed to moderation in the growth of labor costs and increased pay flexibility. We find that lump-sum and profit-sharing arrangements reduced labor cost growth at both the aggregate and firm level. But the evidence linking these plans to flexibility in labor costs is mixed; although the evidence suggests that profit-sharing plans may be associated with greater flexibility at the firm level, there is no evidence that lump-sum plans increase flexibility at either the firm or the aggregate level.

Habit Persistence and Durability in Aggregate Consumption: Empirical Tests

George M. Constantinides and Wayne E. Ferson

Working Paper No. 3631

February 1991

JEL No. 313

Habit persistence in consumption preferences and durability of consumption goods are two hypotheses that imply time-nonseparability in the derived utility for consumption expenditures. We study a simple model with both effects, in which lagged consumption expenditures enter the Euler equation. Habit persistence implies that the coefficients on the lagged expenditures are negative, while durability implies that they are positive. If both effects are present, then estimating the sign of the coefficients tells which of the two effects is dominant.

Earlier empirical work on monthly data supported the durability of consumption expenditures. We estimate and test the Euler equation using monthly, quarterly, and annual data and find that habit persistence dominates the effect of durability.

Is the Fisher Effect for Real? A Reexamination of the Relationship Between Inflation and Interest Rates

Frederic S. Mishkin

Working Paper No. 3632

February 1991

JEL No. 310

In the so-called Fisher effect, movements in short-term interest rates primarily reflect fluctuations in expected inflation. The basic puzzle about this effect is why it occurs strongly only for certain periods. This paper resolves the puzzle by reexamining the relationship between inflation and interest rates using modern time-series techniques. Since both the level of inflation and interest rates may contain stochastic trends, the apparent ability of short-term interest rates to forecast inflation in the postwar United States may be spurious. However, there is evidence of a long-run Fisher effect, in which inflation and interest rates trend together when they exhibit trends at all.

Asset Returns and Intertemporal Preferences

Shmuel Kandel and Robert F. Stambaugh

Working Paper No. 3633

February 1991

JEL No. 313

We use a representative-agent model with time-varying moments of consumption growth to analyze implications about means and volatilities of asset returns, as well as about the predictability of those returns for various investment horizons. Although risk aversion is important in determining the means of equity returns and interest rates, we find, implications about the volatility and the predictability of equity returns are affected primarily by intertemporal substitution. Lower elasticities of intertemporal substitution are associated with greater variance in the temporary component of equity prices.

Decoupling Liability: Optimal Incentives for Care and Litigation

Yeon-Koo Che and A. Mitchell Polinsky

Working Paper No. 3634

February 1991

JEL Nos. 026, 619

A "decoupled" liability system is one in which the award to the plaintiff differs from the payment by the defendant. The optimal system of decoupling makes the defendant's payment as high as possible. Such a policy allows the award to the plaintiff to be lowered, thereby reducing the plaintiff's incentive to sue—and hence lowering litigation costs—without sacrificing the defendant's incentive to exercise care. The optimal award to the plaintiff may be less than or greater than the optimal payment by the defendant. The possibility of an out-of-court settlement does not affect these results qualitatively. If the settlement can be monitored, it may be desirable to decouple it as well.

Why Do Countries and Industries with Large Seasonal Cycles

Also Have Large Business Cycles

J. Joseph Beaulieu, Jeffrey K. MacKie-Mason,

and Jeffrey A. Miron

Working Paper No. 3635

February 1991

JEL No. 131

We show that there is a strong, positive correlation across countries and industries between the standard deviation of the seasonal component and the standard deviation of the nonseasonal component of such aggregate variables as output, labor input, interest rates, and prices. After documenting this stylized fact, we discuss possible explanations and develop a model that generates our empirical finding. The main feature of the model is that firms endogenously choose their degree of technological flexibility as a function of the amounts of seasonal and nonseasonal variation in demand. Although this model is intended to be illustrative, we find evidence supporting one of its key empirical implications.

Currency Substitution and the Fluctuations of Foreign Exchange Reserves with Credibly Fixed Exchange Rates

Alberto Giovannini

Working Paper No. 3636

February 1991

JEL Nos. 431, 432

This paper studies the fluctuations of foreign exchange reserves under a regime of credibly fixed exchange rates. I consider a variety of assumptions about the determinants of money demand and currency substitution.

Persistent Differences in National Productivity Growth Rates with Common Technology and Free Capital Mobility: The Roles of Private Thrift, Public Debt, Capital Taxation, and Policy Toward Human Capital Formation

Willem H. Buiter and Kenneth M. Kletzer

Working Paper No. 3637

February 1991

This paper develops a two-country endogenous growth model to investigate possible causes for the existence and persistence of differentials in productivity growth among nations despite a common technology, constant returns to scale, and perfect international capital mobility. The source of productivity (growth) differentials in the model is the existence of a nontraded capital good (human capital) whose augmentation requires a nontraded current input (time spent by the young in education rather than leisure).

We consider the influence on productivity growth differentials of private thrift, public debt, the taxation of capital and savings, and of policy toward human capital formation.

Shareholder Trading Practices and Corporate Investment Horizons

Kenneth A. Froot, Andre F. Perold,

and Jeremy C. Stein

Working Paper No. 3638

March 1991

We investigate how shareholder trading processes might be linked to corporate investment horizons. *Excess volatility*, which occurs when stock prices react not only to news about economic fundamentals but also to trades based on nonfundamental factors, could lead to a higher cost of capital, and thereby could reduce long-term corporate investment.

Second, an *information gap* between management and outside shareholders would not maximize both short-run and long-run stock prices. Management might be able to raise current stock prices by under-

taking certain actions that would reduce long-run value. In such a case, management would face the dilemma of which shareholders to please: those who do not plan to hold the stock for the long run versus those who do. As shareholder horizons shorten, it could become more difficult to focus exclusively on maximizing long-run value.

With respect to excess volatility, we conclude that neither changes in trading practices nor differences in trading practices across countries contribute significantly to any underinvestment problem. There is no evidence to indicate that measures to reduce trading volume (such as transactions taxes) would lower stock price volatility in a way that would stimulate investment.

With respect to the information gap, we find "circumstantial" evidence consistent with certain preconditions for underinvestment. However, this is not evidence of underinvestment itself. In addition, many of the forces that can lead to underinvestment—such as hostile takeovers—are related to other, positive aspects of economic performance. Therefore, policy responses involve a difficult set of trade-offs.

Nursing Home Discharges and Exhaustion of Medicare Benefits

Alan M. Garber and Thomas E. MaCurdy

Working Paper No. 3639

March 1991

JEL Nos. 913, 211

The price sensitivity of demand for nursing home care is of considerable policy interest. Standard methods for measuring price responsiveness are difficult to apply to nursing home care, since accurate price information usually is unavailable and prices may reflect unmeasured characteristics of quality.

We estimate price sensitivity by exploiting the dynamic price variation implicit in Medicare payment rules for nursing home care. We determine whether the hazard rate for nursing home discharge shifts in response to the price changes that occur when Medicare coverage diminishes or ends. Our findings provide strong evidence that the duration of nursing home admissions is sensitive to price.

Actual and Warranted Relations Between Asset Prices

Andrea E. Beltratti and Robert J. Shiller

Working Paper No. 3640

March 1991

JEL No. 313

Efficient markets models assert that the price of each asset is equal to the optimal forecast of its ex post (or fundamental) value. The models do not imply that the covariances between prices equal the corresponding covariances of ex post values. We present bounds for covariances and correlations of prices based on the covariance of ex post values, and show how such bounds can be tightened using information about forecasting variables.

We examine the historical covariance between the U.S. and U.K. stock markets from 1919–89. The bounds on the covariance include the actual correlation.

The Invisible Hand and Modern Welfare Economics

Joseph E. Stiglitz

Working Paper No. 3641

March 1991

JEL No. 024

This paper reviews and puts into perspective recent work that reassesses the First and Second Fundamental Theorems of Welfare Economics. It assesses the implications of the Greenwald–Stiglitz Theorem that establishes the (constrained) Pareto inefficiency of market economies with imperfect information and incomplete markets as well as recent work on endogenous technological change. I also discuss the information-theoretic limitations to the Second Fundamental Theorem, including the inability to separate out issues of equity and efficiency. The final sections of the paper consider the consequences of these problems for economic organization, economic policy, and the role of ideology in the belief in the Invisible Hand.

Price Equilibrium, Efficiency, and Decentralizability in Insurance Markets

Richard L. Arnott and Joseph E. Stiglitz

Working Paper No. 3642

March 1991

JEL No. 020

In this paper, we investigate the descriptive and normative properties of competitive equilibrium with moral hazard when firms offer "price contracts" that allow clients to purchase as much insurance as they wish at the quoted prices. We show that a price equilibrium always exists and is one of three types: 1) zero profit price equilibrium—zero profit, zero effort, full insurance; 2) positive profit price equilibrium—positive profit, positive effort, partial insurance; or 3) zero insurance price equilibrium—zero insurance, zero profit, positive effort.

We also demonstrate circumstances under which the linear taxation of price insurance allows decentralization of the social optimum (conditional on the unobservability of effort), and when it does not, whether at least it improves utility.

Measuring Risk Aversion from Excess Returns on a Stock Index

Ray Chou, Robert F. Engle III, and Alex Kane

Working Paper No. 3643

March 1991

JEL No. 311

We distinguish the measure of risk aversion from the slope coefficient in the linear relationship between the mean excess return on a stock index and its variance. Even when risk aversion is constant, the slope coefficient can vary significantly with the relative share of stocks in the risky wealth portfolio, and with the beta of unobserved wealth on stocks.

We introduce a statistical model that decomposes the predictable component in stock returns into two parts: the time-varying price of volatility, and the time-varying volatility of returns. We find that the ratio of corporate profit over national income, and the inflation rate, are important forces in the dynamics of stock price volatility.

**Exchange Rate Volatility
and International Prices**
Robert C. Feenstra and Jon D. Kendall
Working Paper No. 3644
March 1991
JEL No. 431

We examine how exchange rate volatility affects exporters' pricing decisions in the presence of optimal forward covering. Then we are able to derive an expression for the risk premium in the foreign exchange market, which we estimate to obtain the time-dependent variance of the exchange rate. Our theory implies a connection between the estimated risk premium and the influence of exchange rate volatility on export prices. In particular, we argue that if there is no risk premium, then exchange rate variance can have only a negative impact on export prices. In the presence of a risk premium, however, the effect of exchange rate variance on export prices is ambiguous and may be statistically insignificant with aggregate data. Our results are supported by data on aggregate U.S. imports and exchange rates of the dollar against the pound, yen, and mark.

**The Enforceability of Private Money
Contracts, Market Efficiency,
and Technological Change**
Gary Gorton
Working Paper No. 3645
March 1991
JEL Nos. 042, 314

The period prior to the U.S. Civil War saw the introduction and rapid diffusion of the railroad. It was also the Free Banking Era (1838-63) during which some states allowed relatively free entry into banking. Banks in all states issued distinct private monies, called bank notes, which circulated at discounts from face value in secondary markets in other states.

This paper proposes a pricing model for bank notes. Then, using a newly discovered dataset of monthly bank note prices for all banks in North America, it studies the secondary market for privately issued bank notes during the American Free Banking Era, 1838-59. To test the model, I construct the durations and costs of trips from Philadelphia to other locations from pre-Civil War travelers' guides, in order to measure improvements resulting from the diffusion of the railroad during this period. My results suggest that the note market priced risk accurately. Systematic wildcat banking was not possible. The transportation costs of note redemption explain only part of bank note discount variation. Bank default risk was priced differentially and such risk premiums varied cyclically.

**Why Are Prices Sticky? Preliminary
Results from an Interview Study**
Alan S. Blinder
Working Paper No. 3646
March 1991
JEL Nos. 023, 134

This paper reports preliminary results of a large research project on business pricing that is underway. The idea is to use interviews with actual price setters to

assess the validity of a dozen theories of price stickiness. The paper defends rather unorthodox (for economists) methodology; briefly describes the research design; and presents a few results based on the first 72 interviews (out of a projected 200). This sample suggests that the median firm changes its price annually, and that price adjustments typically lag three to four months behind shocks to demand or cost.

**Work Incentives and the Demand
for Primary and Contingent Labor**
James B. Rebitzer and Lowell J. Taylor
Working Paper No. 3647
March 1991
JEL No. 821

This paper presents an incentive-based dual labor market model, emphasizing three of its implications. First, in equilibrium there is an excess supply of workers to primary jobs. Second, when demand is uncertain, firms may choose a mix of primary and contingent workers to perform the same job, even when these workers are perfect substitutes in production. Third, firms prefer to hire into primary jobs workers with strong job attachment and preferences for long work hours.

We argue that industries with high proportions of part-time workers will tend to have large concentrations of contingent workers. The wages and benefits of full-time workers are reduced significantly in industries with large concentrations of part-time workers, it appears.

**Efficient and Inefficient Employment
Outcomes: A Study Based on
Canadian Contract Data**
Louis N. Christofides and Andrew J. Oswald
Working Paper No. 3648
March 1991
JEL No. 800

This paper estimates employment equations based on the traditional labor demand model and on modern efficient bargain theory. We use data drawn from wage contracts signed in the Canadian private unionized sector between 1978 and 1984. Contrary to predictions of the model, the alternative wage rate is consistently significant and has the negative coefficient predicted by efficient bargain theory. These results are sensitive to the assumed market structure and to the introduction of alternative wage and unemployment insurance variables.

**Tax Policy to Combat Global Warming:
On Designing a Carbon Tax**
James M. Poterba
Working Paper No. 3649
March 1991
JEL Nos. 323, 722

This paper develops several points concerning the design and implementation of a carbon tax. First, if implemented without any offsetting changes in transfer programs, the carbon tax would be regressive. This regressivity could be offset with changes in either the di-

rect tax system or transfers. Second, the production and consumption distortions associated with low carbon taxes, on the order of \$5/ton of carbon, are relatively small: less than \$1 billion per year for the United States. However, stabilizing carbon emissions at their 1988 levels by the year 2000 would require a carbon tax of 10 to 20 times this size. It would more than triple the producer price of coal and nearly double the producer prices of petroleum and natural gas, with much more significant effects on private efficiency. Third, a central issue in carbon tax design is harmonization with other fiscal instruments designed to reduce greenhouse warming. Ensuring comparability between tax rates on chlorofluorocarbons and on fossil fuels is particularly important to avoid unnecessary distortions in production or consumption decisions.

Externalities, Incentives, and Failure to Achieve National Objectives in Decentralized Economies

Joshua Aizenman and Peter Isard

Working Paper No. 3650

March 1991

JEL No. 400

This paper asks why decentralized economies often fail to achieve national objectives in the presence of externalities. We use a two-period, open-economy framework in which the central government allocates its tax revenues among a large number of individual decision-makers (for example, provincial authorities, or managers of state enterprises). The central government has only limited monitoring capacity, which gives individual decisionmakers the opportunity to spend more than the incomes they are officially allocated.

Our analysis suggests that adverse macroeconomic shocks reduce the likelihood that decentralized decisionmakers will behave in a manner that limits spending and inflation to national objectives. We demonstrate this for declines in the current or expected future levels of domestic output, for a rise in foreign interest rates, and for a reduction in the quantity of external credit.

Next we demonstrate that debt relief can promote a shift in the composition of spending toward the types of productive investments that generate positive externalities. This is not only because debt relief that expands the availability of current resources has positive direct income effects, but also because debt relief can promote a shift from opportunistic behavior to cooperation among individual decisionmakers.

Stochastic Equilibrium and Exchange Rate Determination in a Small Open Economy with Risk-Averse Optimizing Agents

Earl L. Grinols and Stephen J. Turnovsky

Working Paper No. 3651

March 1991

JEL No. 431

We construct a stochastic general equilibrium model of a small open economy consisting of risk-averse optimizing agents. The processes describing the rate of

monetary growth, government expenditure, private production, and the foreign price level are exogenous, determining all asset risks and returns, and the equilibrium processes describing the domestic inflation rate and the exchange rate. We then consider: 1) the effects of the means and variances of policy shocks on the equilibrium; 2) the determinants of the foreign exchange risk premium; and 3) the relationship between net export instability and economic growth.

Information, Finance, and Markets: The Architecture of Allocative Mechanisms

Bruce C. Greenwald and Joseph E. Stiglitz

Working Paper No. 3652

March 1991

While bankers and businessmen have long recognized the importance of finance, financial constraints, and financial institutions, these factors have played a secondary role in neoclassical economic theory. This paper identifies the economic functions with which financial institutions have been concerned, the central problems that they face, and the alternative ways by which these problems can be and have been addressed. We stress the importance of limited liability and the legal environment. The final section explores the relationship among information-based finance constraints, the evolution of the firm, and the growth of the economy.

The Staying Power of Leveraged Buyouts

Steven N. Kaplan

Working Paper No. 3653

March 1991

This paper documents the organizational status over time of 183 leveraged buyouts (LBOs) completed between 1979 and 1986. As of August 1990, 63 percent of the LBOs were privately owned, 14 percent were independent public companies, and 23 percent were owned by other public companies. As time since the LBO increased, the percentage of LBOs that returned to public ownership increased. The (unconditional) median time that LBOs remain private equals 6.7 years. This suggests that the majority of LBO organizations are neither short-lived nor permanent. In addition, the moderate fraction of LBO assets owned by other (potentially related) companies implies that asset sales play a role in, but are not the primary force in, motivating LBO transactions.

Debt Concentration and Secondary Market Prices: A Theoretical and Empirical Analysis

Raquel Fernandez and Sule Ozler

Working Paper No. 3654

March 1991

JEL No. 433

In the context of a model that distinguishes between banks in large money centers and smaller regional

banks, we show that the percentage of a country's debt held by the large banks affects the secondary market price of that country's debt: the higher the concentration of the debt, the higher the secondary market price. We also show that the free trade of debt in the secondary market does not necessarily imply that the entire stock of debt eventually will be owned by the large banks. Our analysis incorporates a number of determinants of secondary market prices. Among these are variables associated with a country's economic performance, regulatory structure in the creditor's country, and the concentration of debt in the hands of the largest U.S. banks. We find that concentration has a positive effect on secondary market prices.

The Effect of the New Minimum Wage Law in a Low-Wage Labor Market

Lawrence F. Katz and Alan B. Krueger

Working Paper No. 3655

March 1991

After nearly a decade without change, legislation that affected the federal minimum wage in two significant ways took effect on April 1, 1990: 1) the minimum hourly wage was increased from \$3.35 to \$3.80; and 2) employers were enabled to pay a subminimum wage to teenage workers for up to six months. This paper examines the effect of these changes in the minimum wage law in a low-wage labor market using data from a survey of 167 fast food restaurants in Texas. We draw three main conclusions. First, less than 2 percent of fast food restaurants have taken advantage of the youth subminimum, even though 73 percent of the sampled restaurants paid a starting wage of less than \$3.80 before the new minimum wage took effect. Second, a sizable minority of fast food restaurants increased wages for workers by an amount exceeding that necessary to comply with the higher minimum wage. Third, the majority of fast food restaurants in Texas were directly affected by the increase in the minimum wage did not report that they attempted to offset their mandated wage increase by cutting fringe benefits or reducing employment.

International VAT Harmonization: Economic Effects

Jacob A. Frenkel, Assaf Razin, and Steven Symansky

Working Paper No. 3656

March 1991

JEL No. 430

This paper highlights macroeconomic issues pertinent to understanding the international and domestic effects of international value-added tax (VAT) harmonization. It outlines elements of the policies of VAT harmonization envisaged for the Europe of 1992, and develops a basic tax model that is suitable for the analysis of the incentive effects of various tax policies and

their welfare implications. The model emphasizes the effects of changes in the time profile of the various taxes on the intertemporal allocations of savings, investment, and labor. Dynamic simulations reveal that the macroeconomic and welfare implications of VAT harmonization depend critically on the tax system and on the degree of substitution governing temporal and intertemporal allocations. In this context, we consider several forms of income (cash flow, labor income, and capital income taxes) as well as tax systems embodying various saving and investment incentives. The simulations also reveal the potential conflicts of interest, within each country and between countries, that can arise from VAT harmonization.

Testing the Imports-as-Market-Discipline Hypothesis

James A. Levinsohn

Working Paper No. 3657

March 1991

JEL No. 420

My "imports-as-market-discipline hypothesis" states that international competition forces domestic firms to behave more competitively. To test this hypothesis, I construct a simple static oligopoly model, use panel data from Turkish manufacturing firms during a dramatic trade liberalization, and look for changes in price-marginal cost markups as trade policy shifts. In all five industries where the hypothesis is relevant, markups change in the direction predicted by the theory. These changes are statistically significant in all but one of the industries.

Fiscal Deficits, Public Debt, and Government Solvency: Evidence from OECD Countries

Giancarlo Corsetti and Nouriel Roubini

Working Paper No. 3658

March 1991

JEL Nos. 321, 322, 431

This paper discusses different empirical tests of public sector solvency and applies them to a sample of 18 OECD countries. These tests develop from the idea of verifying whether the intertemporal budget constraint of the public sector would be satisfied if the fiscal and financial policy in the sample been pursued indefinitely and if the relevant macro and structural features of the economy were stable over time.

If the empirical evidence does not support solvency, then a change either in the policy or in the relevant macro and structural variables (growth, inflation, interest rates, demographic factors) must occur at some point in the future. Among the G-7 countries, public sector solvency seems to be a serious issue in Italy, but not in Germany and Japan. The evidence for the United States is mixed. There are also problems of sustainability of the current path of fiscal policies in Belgium, Ireland, the Netherlands, and Greece.

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