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Program Report

Financial Markets and Monetary Economics

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The October 1987 stock market crash, more than any other single event within recent years, has stimulated an extraordinary profusion of research on securities pricing by members of the NBER's Program in Financial Markets and Monetary Economics since the activities of this program were last summarized in the *NBER Reporter*.[1] To be sure, ever since the program's inception in the 1970s, many of its members had taken the pricing of securities and other speculative assets as a principal focus of their research. But in the same way that the Federal Reserve System's adoption of new monetary policy procedures in October 1979 became the practical impetus for much of the research done within the program during the early 1980s, the fact of the stock market crash and the need for greater understanding of its broader implications spurred a great deal of the program's research activity in the later years of the decade. At the same time, work has continued on other traditional areas of research interest, including (among others) the role of market imperfections in affecting how financial markets influence nonfinancial economic activity, implications of the special problems associated with debts issued by governments, and, of course, the conduct and effects of monetary policy.

This issue of the *Reporter* highlights the Bureau's Program in Financial Markets and Monetary Economics. Next, Alberto F. Alesina describes his research in political economy. After the quarterly Economic Outlook Survey are 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.

Efficient Markets?

Perhaps the most immediate question posed by the stock market crash is whether the market is "efficient" in the conventional sense that securities prices, at any time, discount all information then available about subsequent cash flows that the owners of securities will receive. Because the market received no obvious new information in the days immediately preceding October 19, 1987, it is not surprising that several researchers have challenged the notion that the stock market is efficient in the usual sense. Robert Shiller, for example, in a series of papers using survey data to extend a line of research he had initiated some years earlier, has sought to establish the role of psychological "fads and fashions," rather than fundamentals of expected

cash flows and discount rates, in affecting market prices. The results of a survey questionnaire that Shiller distributed immediately after the crash confirmed the absence of "news" as a major element in investors' decisions and pointed instead to factors related to a group psychology.[2] A similar survey that Shiller conducted in Japan suggested that the fall in Japanese stock prices primarily reflected the collapse of U.S. stock prices.[3] A further survey directed this time at the market for newly issued securities supported familiar claims of inefficiencies in the form of systematic underpricing of initial public offerings.[4]

Statistically based tests of market efficiency, including several based on novel statistic methods, have led to more mixed results. For example, Andrew Lo and Craig MacKinlay found that the variance of stock price data sampled at any specific observation interval does not correspond with the variance of prices sampled at different observational intervals in the way that market efficiency implies.[5] In further work, they showed that the fact that not all securities trade simultaneously can be an important part of this discrepancy, and they examined circumstances under which "contrarian" trading strategies (which many representations of *in*efficient markets suggest) can be profitable.[6]

In the same vein, Bruce Lehmann found a systematic tendency for stocks that had *out*performed the overall market in one week to *under*perform in the subsequent week, and vice-versa. This phenomenon again indicated market inefficiency and the potential profitability of contrarian trading strategies.[7] John Campbell and Robert Shiller showed that the optimal predictor of future aggregate stock dividends is not just the current level of stock prices, as would be implied by standard notions of efficient markets, but a weighted average of the current price level and a moving average of earn-

[2] R. J. Shiller, "Investor Behavior in the October 1987 Stock Market Crash: Survey Evidence," NBER Working Paper No. 2446, November 1987.

[3] R. J. Shiller, Y. Tsutusi, and F. Konya, "Investor Behavior in the 1987 Stock Market Crash: The Case of Japan," NBER Working Paper No. 2684, August 1988.

[4] R. J. Shiller, "Initial Public Offerings: Investor Behavior and Underpricing," NBER Working Paper No. 2806, December 1988.

[5] A. W. Lo and A. C. MacKinlay, "Stock Market Prices Do Not Follow Random Walks: Evidence from a Simple Specification Test," NBER Reprint No. 1180, May 1989.

[6] A. W. Lo and A. C. MacKinlay, "An Econometric Analysis of Nonsynchronous Trading," NBER Working Paper No. 2960, May 1989, and "When Are Contrarian Profits Due to Stock Market Overreaction?" NBER Working Paper No. 2977, May 1989.

[7] B. N. Lehmann, "Fads, Martingales, and Market Efficiency," NBER Working Paper No. 2533, March 1988.

ings.[8] James Poterba and Lawrence Summers showed that high (or low) stock returns in one time period tend to be followed by high (or low) returns for a short time thereafter, but after a while returns change direction. This "mean reversion" in stock prices also contradicts conventional market efficiency.[9] Gregory Mankiw, David Romer, and Matthew Shapiro found similar evidence contradicting market efficiency, although less strongly than in the case of prior researchers' work.[10]

Explaining Observed Market Movements

Finding market inefficiency is one thing. Explaining it is something else. In a series of papers, Bradford De Long, Andrei Shleifer, and Lawrence Summers have suggested that observed deviations from market efficiency, including in particular the mean reversion phenomenon, are caused by the actions of "noise traders" who act on beliefs not grounded in securities fundamentals. In one paper, these authors showed that noise traders with erroneous beliefs not only can significantly affect market prices, but also can earn systematically *higher* returns than other investors.[11] In an extension of this work, they showed that such noise traders therefore not only can survive in the market but also can even come to dominate it eventually. Hence their research effectively rebuts the conventional efficient-markets presumption that such investors, if they existed, would decline in importance over time. These authors also found that the effects of noise traders' actions are not necessarily damped out by the contrary actions of "rational" investors. In a further paper, they also showed that the added market risk created by noise traders can reduce an economy's capital stock, and its consumption level—perhaps by large amounts—if the current empirical evidence on the extent of market inefficiency is correct.[12]

Not all explanations for observed market price movements are inconsistent with efficient markets, of course. For example, Fischer Black and Alan Marcus have each, independently, shown ways in which stock prices can exhibit mean reverting behavior even if markets are efficient.[13] Charles Nelson has argued that the empirical evidence supporting mean reversion in U.S. stock return data is weaker than other researchers have suggested.[14] Similarly, Kenneth Froot and Maurice Obstfeld have shown that some aspects of the observed behavior of stock prices that may appear to be evidence of irrationality among investors may actually be caused by a "bubble" phenomenon, which can arise even if all investors behave rationally.[15] Philippe Weil has shown that "bubbles" caused by the behavior of rational investors are not one-sided, but can either raise or lower a stock's price.[16] In other work, Weil and Alberto Giovannini have suggested that some apparent contradictions in the pricing of stocks and other securities may be attributed to economists' (artificially) assuming that investors' willingness to substitute returns received at one time for returns received at a later time is fundamentally determined by their willingness to bear risk at any specific point of time. In separate work, however, Weil showed that relaxing this assumption still does not explain observed pricing patterns.[17]

Among attempts to reconcile observed patterns of stock returns with standard notions of efficient markets, the line of research that has attracted the most attention within the program is one emphasizing that market risk changes systematically over time. In a series of papers, William Schwert has documented and analyzed the changes in the volatility of U.S. stock prices that have taken place over various time periods. In two papers, Schwert related changes in monthly stock price volatility since the early nineteenth century to such basic factors as business cycle developments, firms' leverage

[8]J. Y. Campbell and R. J. Shiller, "Stock Prices, Earnings, and Expected Dividends," NBER Reprint No. 1170, April 1989.

[9]J. M. Poterba and L. H. Summers, "Mean Reversion in Stock Prices: Evidence and Implications," NBER Reprint Paper No. 1233, July 1989.

[10]N. G. Mankiw, D. H. Romer, and M. D. Shapiro, "Stock Market Forecastability and Volatility: A Statistical Appraisal," NBER Working Paper No. 3154, October 1989.

[11]J. B. De Long, A. Shleifer, L. H. Summers, and R. J. Waldemann, "The Survival of Noise Traders in Financial Markets," NBER Working Paper No. 2715, September 1988, and "Positive Feedback Investment Strategies and Destabilizing Rational Speculation," NBER Reprint No. 1330, December 1989.

[12]J. B. De Long, A. Shleifer, L. H. Summers, and R. J. Waldemann, "The Size and Incidence of the Losses from Noise Trading," NBER Working Paper No. 2875, March 1989.

[13]F. Black, "Mean Reversion and Consumption Smoothing," NBER Working Paper No. 2946, April 1989; and A. J. Marcus, "An Equilibrium Theory of Excess Volatility and Mean Reversion in Stock Market Prices," NBER Working Paper No. 3106, September 1989.

[14]M. J. Kim, C. R. Nelson, and R. Startz, "Mean Reversion in Stock Prices? A Reappraisal of the Empirical Evidence," NBER Working Paper No. 2795, December 1988.

[15]K. A. Froot and M. Obstfeld, "Intrinsic Bubbles: The Case of Stock Prices," NBER Working Paper No. 3091, September 1989.

[16]P. Weil, "On the Possibility of Price-Decreasing Bubbles," NBER Working Paper No. 2821, January 1989.

[17]A. Giovannini and P. Weil, "Risk Aversion and Intertemporal Substitution in the Capital Asset Pricing Model," NBER Working Paper No. 2824, January 1989; and P. Weil, "The Equity Premium Puzzle and the Risk-Free Rate Puzzle," NBER Working Paper No. 2829, January 1989.

(which turned out not to matter much), profitability, default risk, and even occasional financial crises.[18] In another paper, he used *daily* data since 1885 to show that the dramatic jump in stock return volatility at the time of the October 1987 crash and the rapid subsequent decline in volatility were exceptional compared to prior U.S. history.[19] And in a paper that is likely to prove especially useful to other researchers in the field, Schwert also has provided monthly indexes of U.S. stock prices since 1802.[20]

Devising and estimating statistical representations of systematic changes over time in the volatility of returns on stocks and other assets is an important step in determining whether these changes can plausibly explain observed patterns of returns in markets dominated by risk-averse investors. Several researchers have modeled changing volatility using a statistical procedure originally designed by Robert Engle for describing time-varying variances and covariances. For example, Kenneth Froot and Jeffrey Frankel used Engle's procedure and an alternative to test the efficiency of the stock market. They found that their models do help to explain observed market returns.[21] Benjamin Friedman showed that both Engle's procedure and a simpler alternative implied large and rapid changes over time in the volatility of returns on both stocks and bonds.[22] William Schwert compared several different models of stock return volatility, and found that patterns of change over time exhibit important nonlinearities not captured by Engle's procedure.[23]

At the same time, other researchers have argued in favor of market efficiency on the grounds of volatility changes represented in other ways. Charles Nelson, for example, showed that if the volatility of stock returns depends on some specific variable known to investors, then the resulting price movements are consistent with equilibrium asset pricing theory.[24] Stephen Cecchetti showed that the degree of mean reversion observed in U.S. stock prices also could be consistent with equilibrium market outcomes.[25]

Financial Market Imperfections

Deviations from the perfect capital markets of the textbooks are interesting not just for what they imply about asset prices and returns but also because of their implications for nonfinancial economic activity. At the most fundamental level, Joseph Stiglitz has written a series of papers showing that financial market imperfections arising from asymmetries in the information available in the economy can, in principle, shape such prominent features of the economy as business cycles, productivity, real interest rates, and the role of money.[26] In closely related work, Stiglitz has elaborated the important role that banks play as a result of these imperfections.[27] In a similar vein, Ben Bernanke and Mark Gertler have examined ways in which information symmetries give rise to a relationship between an economy's financial structure (for example, how leveraged are firms?) and its nonfinancial performance. Their work raises the possibility that excessive financial fragility may impair—perhaps severely—the economy's ability to produce and distribute ordinary goods and services.[28]

In several studies, Glenn Hubbard has attempted to find evidence for, and to quantify, the effects of financial market imperfections on nonfinancial activity. In one paper, Hubbard showed that consumers' short-run willingness to adjust their spending in response to temporary tax changes is very sensitive to the importance of borrowing restrictions in the economy.[29] In

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[18]G. W. Schwert, "Why Does Stock Market Volatility Change Over Time?" NBER Working Paper No. 2798, December 1988.

[19]G. W. Schwert, "Stock Volatility and the Crash of '87," NBER Working Paper No. 2954, May 1989.

[20]G. W. Schwert, "Index of U.S. Stock Prices from 1802 to 1987," NBER Working Paper No. 2985, May 1989.

[21]C. M. Engel, J. A. Frankel, K. A. Froot, and A. Rodriguez, "Conditional Mean-Variance Efficiency of the U.S. Stock Market," NBER Working Paper No. 2890, March 1989.

[22]B. M. Friedman and K. N. Kuttner, "Time-Varying Risk Perceptions and the Pricing of Risky Assets," NBER Working Paper No. 2694, August 1988.

[23]A. R. Pagan and G. W. Schwert, "Alternative Models for Conditional Stock Volatility," NBER Working Paper No. 2955, May 1989.

[24]C. R. Nelson, R. Startz, and C. M. Turner, "A Markov Model of Heteroskedasticity, Risk, and Learning in the Stock Market," NBER Working Paper No. 2818, January 1989.

[25]S. G. Cecchetti, P. Lam, and N. C. Mark, "Mean Reversion in Equilibrium Asset Prices," NBER Working Paper No. 2762, November 1988.

[26]B. C. Greenwald and J. E. Stiglitz, "Financial Market Imperfections and Business Cycles," NBER Working Paper No. 2494, January 1988, and "Financial Market Imperfections and Productivity Growth," NBER Working Paper No. 2945, April 1989; and J. E. Stiglitz, "Money, Credit, and Business Fluctuations," NBER Working Paper No. 2823, January 1989.

[27]J. E. Stiglitz and A. Weiss, "Banks as Social Accountants and Screening Devices for the Allocation of Credit," NBER Working Paper No. 2710, October 1988.

[28]B. S. Bernanke and M. Gertler, "Financial Fragility and Economic Performance," NBER Working Paper No. 2318, July 1987; and M. Gertler, "Financial Capacity, Reliquification, and Production in an Economy with Long-Term Financial Arrangements," NBER Working Paper No. 2763, November 1988.

[29]R. G. Hubbard and K. L. Judd, "Finite Lifetimes, Borrowing Constraints, and Short-Run Fiscal Policy," NBER Working Paper No. 2158, February 1987.

another paper, he used panel data on individual U.S. manufacturing firms to show that investment spending is especially sensitive to cash flow among those firms that, on other grounds, are most likely to face financing constraints.[30] In further work, Hubbard and Mark Gertler found evidence supporting the familiar idea that financial imperfections have a greater effect on firms' investment spending during recessions than when times are prosperous. Their work also suggested that the usual inverse relationship between firms' size and the variability of their sales may be caused by financial constraints rather than by technological factors (as is often assumed).[31] In work examining the role of financial market imperfections in a comparative setting, Fumio Hayashi, Takatoshi Ito, and Joel Slemrod showed that the larger down payment requirement for home purchases in Japan than the United States not only leads Japanese families to save more than their U.S. counterparts at early ages but also explains part (though certainly not all) of the higher *aggregate* savings rate in Japan.[32]

Sovereign Debt

Several researchers in the program have devoted substantial effort to investigating the special implications of debts issued by government borrowers, which have the ability either to default unilaterally on their obligations or at least to erode the real value of those obligations by pursuing an inflationary monetary policy. In a series of papers, Herschel Grossman has examined the particular relationships connecting debt issues and inflation. In two papers, Grossman showed that under appropriate conditions reputation effects (by which a default would render future borrowing more costly) restrain a government from inflating away its debts. Grossman also indicated features likely to distinguish governments that will want to continue issuing nominal obligations from those that will not.[33] In related work, he showed that analogous reputational effects influence the willingness of a sovereign government to default on, or inflate away, debts it has is-

sued abroad to finance its defense spending.[34] As a specific example, Grossman showed that the desire to maintain a trustworthy reputation for repaying war debts apparently was an important factor leading to deflationary postwar monetary policies in both the United States and the United Kingdom up until World War II, but not thereafter.[35]

In a further series of papers, Alberto Alesina and Guido Tabellini have examined the specific aspects of government debt problems that arise when governments are elected democratically. In two of their papers, they showed that because a government can use high debt levels to constrain the policies pursued by its successors, countries in which different political parties disagree sharply over spending priorities are likely to exhibit a bias toward government deficits.[36] In another paper, Alesina and Tabellini showed that political uncertainty in a setting of disagreement over distributional policies provides incentives for over-accumulation of external debt by government as well as incentives for external capital flight by private investors.[37] Alesina and Allan Drazen showed that when taxes raised to narrow a government's budget deficit have significant distributional implications (as is often the practical case), and when different parties have conflicting distributional goals, a "war of attrition" results, in which neither group concedes and the deficit remains large.[38] Kenneth Rogoff has analyzed the familiar tendency of governments to step up spending prior to elections, concluding that efforts to mitigate the resulting "political business cycle" may actually prove counterproductive in either or both of two ways.[39]

Monetary Policy

During the last three years, as always, problems of monetary policy have also been a principal focus of research by many memners of the program. The specific monetary policy issue that has attracted the great-

[30]S. Fazzari, R. G. Hubbard, and B. C. Petersen, "Financing Constraints and Corporate Investment," NBER Reprint No. 1069, November 1988, and NBER Reprint No. 1193, May 1989.

[31]M. Gertler and R. G. Hubbard, "Financial Factors in Business Fluctuations," NBER Reprint No. 1251, August 1989.

[32]F. Hayashi, T. Ito, and J. B. Slemrod, "Housing Finance Imperfections, Taxation, and Private Saving: A Comparative Simulation Analysis of the United States and Japan," NBER Reprint No. 1112, February 1989.

[33]H. I. Grossman and J. B. Van Huyck, "Nominally Denominated Sovereign Debt, Risk Shifting, and Reputation," NBER Working Paper No. 2259, May 1987; and H. I. Grossman, "A Generic Model of Monetary Policy, Inflation, and Reputation," NBER Working Paper No. 2239, May 1987.

[34]H. I. Grossman, "Lending to an Insecure Sovereign," NBER Working Paper No. 2443, November 1987.

[35]H. I. Grossman, "The Political Economy of War Debts and Inflation," NBER Working Paper No. 2743, October 1988.

[36]A. Alesina and G. Tabellini, "A Positive Theory of Fiscal Deficits and Government in a Democracy," NBER Working Paper No. 2308, July 1987, and "Voting on the Budget Deficit," NBER Working Paper No. 2759, November 1988.

[37]A. Alesina and G. Tabellini, "External Debt, Capital Flight, and Political Risk," NBER Working Paper No. 2610, June 1988.

[38]A. Alesina and A. Drazen, "Why Are Stabilizations Delayed?" NBER Working Paper No. 3053, August 1989.

[39]K. Rogoff, "Equilibrium Political Budget Cycles," NBER Working Paper No. 2428, November 1987.

est attention during this period has been the apparent breakdown of the relationships connecting growth of the familiar monetary aggregates (M1, M2, et cetera) to the growth of either income or prices, and the consequent need to devise ways of conducting policy capable of supplementing money growth targets, or even replacing them altogether. As is almost always the case in work on this particular subject, different researchers have reached disparate conclusions. James Stock and Mark Watson, using a new statistical test that they devised, showed that movements in the M1 stock did have predictive content for subsequent movements of real output in U.S. data through the mid-1980s.[40] Benjamin Friedman found the opposite result, either by extending the sample further into the 1980s or by allowing for the relationship between the commercial paper rate and the Treasury bill rate. He reached similar negative conclusions about the broader monetary aggregates, as well as a credit aggregate.[41] By contrast, Robert Rasche concluded that the demand for money (again M1) had behaved in a stable fashion throughout the post World War II period and, in a further paper, even during the Great Depression.[42] Michael Bordo, using data for Canada, Norway, Sweden, and the United Kingdom, found that changes in the money–income ratio are predictable on the basis of familiar macroeconomic variables, like income and interest rates, together with a number of institutional factors.

Loss of confidence in the reliability of money–income and money–price relationships, both within the Federal Reserve System and elsewhere, has prompted a widespread search for alternative indicators on which to base monetary policy actions. Frederic Mishkin, in a series of papers, has investigated the indicator properties of one specific set of variables sometimes suggested in this context by Federal Reserve officials: the term structure of interest rates. Using U.S. data, Mishkin showed that although relationships among the interest rates on short-term Treasury bills of different maturities do not contain information about subsequent price inflation, relationships between the interest rates on short-term bills and long-term bonds do contain such infor-

mation.[43] In an extension of this work, Mishkin found that in France, Germany, and the United Kingdom, even the short end of the term structure contained inflation-predictive content, while other countries resembled the United States in this respect.[44] In a further paper, he found that movements in commodity futures prices (another potential indicator variable occasionally suggested by Federal Reserve officials) are not helpful in the effort to disentangle whatever separate information the observed term structure of interest rates may contain about likely future movements of inflation and real interest rates.[45]

Finally, the issue of general principles for the conduct of monetary policy once again prompted substantial research within the program. Bennett McCallum investigated the advantages of a flexible formula for setting the growth of the monetary base.[46] Robert Barro examined the implications of rules for targeting nominal interest rates.[47] Michael Bordo and Anna Schwartz drew on the U.K. experience to study the conduct of monetary policy under money growth targets. They concluded that by not allowing "base drift" (that is, by adjusting money growth in each period to offset any failure to achieve the prior period's target), the Bank of England could have halved the variability of U.K. inflation.[48] Carl Walsh, studying the U.S. experience under monetary targeting during 1976–84, concluded that induced policy responses to underlying shocks to aggregate demand and supply contributed to U.S. inflation during this period.[49] And on the poten-

[40] J. H. Stock and M. W. Watson, "Interpreting the Evidence on Money–Income Causality," NBER Working Paper No. 2228, April 1987.

[41] B. M. Friedman, "Monetary Policy without Quantity Variables," NBER Reprint No. 1182, May 1989; and B. M. Friedman and K. N. Kuttner, "Money, Income, and Prices after the 1980s," NBER Working Paper No. 2852, February 1989.

[42] D. Hoffman and R. H. Rasche, "Long-Run Income and Interest Elasticities of Money Demand in the United States," NBER Working Paper No. 2949, April 1989, and "The Demand for Money in the United States during the Great Depression: Estimates and Comparison with the Postwar Experience," NBER Working Paper No. 3217, December 1989.

[43] F. S. Mishkin, "What Does the Term Structure Tell Us about Future Inflation?" NBER Working Paper No. 2626, June 1988, and "The Information in the Longer Maturity Term Structure about Future Inflation," NBER Working Paper No. 3126, September 1989.

[44] F. S. Mishkin, "A Multi-Country Study of the Information in the Term Structure about Future Inflation," NBER Working Paper No. 3125, September 1989.

[45] F. S. Mishkin, "Can Futures Market Data Be Used to Understand the Behavior of Real Interest Rates?" NBER Working Paper No. 2400, October 1987.

[46] B. T. McCallum, "Targets, Indicators, and Instruments of Monetary Policy," NBER Working Paper No. 3047, July 1989, and "Could a Monetary Base Rule Have Prevented the Great Depression?" NBER Working Paper No. 3162, November 1989.

[47] R. J. Barro, "Interest Rate Targeting," NBER Reprint No. 1279, September 1989.

[48] M. D. Bordo, E. U. Choudhri, and A. J. Schwartz, "Money Stock Targeting, Base Drift, and Price-Level Predictability: Lessons from the U.K. Experience," NBER Working Paper No. 2825, January 1989.

[49] C. E. Walsh, "The Impact of Money Targeting in the United States, 1976-1984," NBER Working Paper No. 2384, September 1987.

tially important question of what happens when the central bank changes from one way of conducting policy to another, Gregory Mankiw and Jeffrey Miron studied the much earlier U.S. experience, at the time the Federal Reserve System was established, and concluded from changes in interest rate behavior that (at least on that occasion) market participants quickly understood and adapted to the change in monetary policy regime.[50]

[50]N. G. Mankiw, J. A. Miron, and D. A. Weil, "The Adjustment of Expectations to a Change in Regime: A Study of the Founding of the Federal Reserve," NBER Reprint No. 915, October 1987.

Research Summaries

Political Economy

Alberto F. Alesina

Economists usually look at how policy should be conducted in a world free of institutions in which a benevolent social planner maximizes society's welfare. Such normative models are essential for understanding the benchmark case of a planner who faces a "representative individual"; however, they do not fully explain the many apparent departures from first-best policies in the real world.

My research focuses on positive aspects of economic policy and, more specifically, on the interaction between politics and macroeconomics. It recognizes first that there are no neutral social planners; politicians respond to ideological and opportunistic incentives and pressures and are constrained by the institutions in which they operate. Second, individuals and groups have conflicting policy preferences, in particular because of the distributional consequences of different policies. Economic policies emerge from the resolution of these conflicts of interests through the political process.

Political Business Cycles

In a 1987 paper, I consider the consequences for business cycles of electoral uncertainty.[1] I develop a

[1]A. F. Alesina, "Macroeconomic Policy in a Two-Party System as a Repeated Game," Quarterly Journal of Economics 102 (August 1987), pp. 651-678.

model in which two political parties with different preferences for inflation and unemployment alternate in office. Economic agents are rational and are aware of the differences in the policy preferences of the two parties, but they cannot anticipate post-election policy perfectly, since they are not certain about which party will be elected.

Because of this uncertainty, the rate of inflation in the post-electoral period cannot be anticipated perfectly before elections. If nominal contracts must be signed, and they are not synchronized perfectly with the elections, then the model predicts the level of economic activity will deviate from its "natural" level after the elections. When the unemployment-averse party (left) is elected, there will be rapid growth and rising inflation. After expectations adjust to the new government, economic activity returns to its natural level. Inflation remains high, because an unemployment-averse government finds it difficult to commit credibly to a policy of low inflation. The opposite outcome will occur when the inflation-averse party (right) is elected. After an early downturn, economic activity returns to its natural level with low inflation. Thus, the implications of this model are quite difficult from the traditional business cycle model, in which every government has the same opportunistic preferences and creates rapid growth before each election.

My empirical research on the United States has supported my 1987 model.[2] Two other papers show that this correlation between elections and economic fluctuations is common in many other OECD democracies as well.[3] In particular, the pattern is stronger in countries in which political changes between right and left are relatively unambiguous, as opposed to countries with large center–left coalition governments with frequent early elections and coalition collapses.

An important question raised by these findings is why political parties remain polarized, rather than converging to the preferences of the median voter. In a series of papers, I address the issue of the degree of policy convergence in a two-party election.[4] These

[2]A. F. Alesina and J. D. Sachs, "Political Parties and the Business Cycle in the United States, 1948-84," NBER Working Paper No. 1940, June 1986, and Journal of Money, Credit and Banking 20, 1 (February 1988), pp. 63-82; and A. F. Alesina, "Macroeconomics and Politics," in S. Fischer, ed., NBER Macroeconomics Annual 1988, Vol. 3. Cambridge, MA: The MIT Press, 1988, pp. 13-52.

[3]A. F. Alesina, "Politics and Business Cycles in Industrial Democracies," Economic Policy 8, pp. 59-78; and A. F. Alesina and N. Roubini, "Political Cycles: Evidence from OECD Economies," manuscript, 1990.

[4]A. F. Alesina, "Credibility and Policy Convergence in a Two-Party System with Rational Voters," American Economic Review 78, 4 (September 1988), pp. 796-806; A. F. Alesina and S. Spear, "An Overlapping-Generations Model of Political Competition," NBER Working Paper No. 2354, August 1987, and Journal of Public Economics 37 (December 1988), pp. 359-379; and A. F. Alesina and A. Cukierman, "The Politics of Ambiguity," NBER Working Paper No. 2468, December 1987.

papers develop electoral models in which two parties face each other in a series of elections. Both parties want to win per se, but they have different preferences over policies. In general, the parties will have to trade off between the ideologically preferred policies and more "moderate" policies that will increase their chances of electoral victory.

The credibility of pre-electoral policy announcements also becomes an important issue. Politicians face different incentives before and after elections. Before, they want to appeal to the largest possible electorate, and thus they would like to converge toward the median voter preferences. Once in office, though, they may feel freer to pursue their ideological objectives. The behavior of policymakers once in office may be affected by reputational considerations, too: fear of losing "reputation" in the eyes of the voters may constrain the policies each government chooses. In general, reputational considerations will reduce but not eliminate the political polarization in two-party systems.

Divided Government and the Mid-Term Voting Cycle

In American elections, the party holding the presidency always loses seats in mid-term congressional elections relative to those won in the previous presidential election year. This sometimes leads to a "divided government" in which the president's party does not have a majority in the House and/or in the Senate. In a recent paper with Howard Rosenthal, I suggest that voters choosing between two relatively polarized parties opt to counterbalance the president by leaning toward the other party in the legislative elections.[5] In this way, voters in the middle of the political spectrum can bring about "moderate" policy outcomes.

Part of this balancing also occurs in the congressional election held at the same time as the presidential election, but the voters have a second chance to moderate in mid-term elections. In mid-term, the voters already know who is in the White House and can choose the optimal amount of balancing; in presidential election years, on the contrary, the congressional vote is cast under uncertainty about which party will win the presidency.

In a related paper, Rosenthal and I develop a macroeconomic model in which the two parties differ in their evaluation of the relative costs of inflation and unemployment.[6] A newly elected Democratic administration follows expansionary policies leading to a temporary high growth rate. In mid-term congressional

elections, the voters fear excessive inflation and react by turning toward the Republican Party, which gains representation.

The opposite occurs if the Republican candidate wins the presidential elections. This model, which performs quite well on postwar U.S. data, implies correlations between macroeconomic variables and voting behavior that are quite different from those of the traditional economic model of voting; in that model, voters simply reward the incumbent if the economy is doing well before the elections. Our approach also explains why traditional voting models do not perform as well for congressional elections as they do for presidential elections. More generally, our model suggests that voter myopia does not explain observed voting patterns in the United States.

The Political Economy of Public Debt

In the last two decades, many industrial nations have experienced large increases in government debt. In several countries (such as Belgium, Italy, and Ireland) the debt-to-GNP ratio is around 100 percent. In the United States, the debt-to-GNP ratio rose sharply in the 1980s after a steady decline beginning after World War II. In two papers, Guido Tabellini and I ask why so many governments have been prone to peacetime deficits. We also explore the wide variance of debt levels in different countries with relatively similar economic conditions.[7]

We model government debt as the legacy that each government leaves to its successors. In a polarized political system, each government may be replaced by an opponent with very different preferences regarding the desired distribution of the tax burden, and the level of and the composition of spending. By manipulating the size of government debt, each government can affect the state of the economy and thus the set of policy options available to its successors. This strategic interaction of the current government, supported by the majority of voters, with future governments, possibly supported by different majorities, may lead to deficits in excess of the first-best optimum.

One crucial testable implication of this view is that deficits should be higher in countries and time periods with greater political polarization; that is, when the ideological distance between alternating governments is wide. A second implication is that when the current government is not likely to win the next election, deficits should be higher; the party in power has a stronger incentive to overspend and manipulate the budget to influence the choices of future governments.

In LDCs, political polarization and uncertainty may lead to accumulation of public external debt and pri-

[5]A. F. Alesina and H. Rosenthal, "Moderating Elections," NBER Working Paper No. 3072, August 1989.

[6]A. F. Alesina and H. Rosenthal, "Ideological Cycles in Congressional Elections and the Macroeconomy," NBER Working Paper No. 2706, September 1988, and American Political Science Review, (June 1989).

[7]A. F. Alesina and G. Tabellini, "A Positive Model of Budget Deficits and Government Debt," NBER Working Paper No. 2308, July 1987, and Review of Economic Studies, forthcoming, and "Voting on the Budget Deficit," NBER Working Paper No. 2759, November 1988, and American Economic Review, forthcoming.

vate external assets (capital flight) at the same time.[8] Suppose that a government allied to business interests is in office. External public borrowing occurs as a way of financing redistribution toward the groups supporting the government. The burden of the debt is left to future governments, which may be of the type supported by different groups, such as the "workers." At the same time, the possibility of a change in regime in favor of the workers' party interests implies a risk of expropriatory taxes on capital: this political risk leads to capital flight. We show that the parties supporting the interests of the capital owners and the workers would follow different policies regarding the imposition of capital controls and the choice between debt default and fiscal adjustment. The empirical evidence of several indebted LDCs is consistent with the predictions of this model.

Delayed Stabilizations

Countries often delay the adoption of stabilization programs, even when they are unavoidable given the suboptimality and/or instability of current policies. Delays are particularly inefficient when, as is often the case, the lengthier wait will increase the cost of the stabilization. For instance, explosive budget deficits financed by inflation (degenerating into hyperinflations) often are allowed to continue for prolonged periods, even though it is well understood that sooner or later taxes will have to be raised to eliminate the deficit. Sometimes it appears that "things have to get worse before they get better."

Allan Drazen and I explain delays in the adoption of stabilization programs as the result of distributional conflicts over the allocation of the fiscal burden.[9] Delays occur because different groups attempt to shelter themselves from the burden of taxation: each group, by opposing stabilization programs unfavorable to them, hopes that in the future other groups will bear a higher share of the burden. We model the stabilization process as a "war of attrition" in which each group tries to wait out the other. The more the expected distribution of the burden of taxation after the stabilization, the longer stabilizations will tend to be delayed. An uneven distribution of the tax burden is more likely in politically polarized countries.

Delays also hinge on the uncertainty about which group has sufficient economic and political resources to oppose policies unfavorable to them. When this uncertainty is removed and a group is forced to "give in," stabilizations occur: the political consolidation of the "winners" leads to the imposition of a disproportionate burden of taxation on the "losers" of the war of attrition.

In an earlier paper, I study several interwar episodes of debt adjustment policies in more detail.[10] These episodes also suggest a war of attrition. In France, Germany, and Italy, all of which experienced a period of extreme political instability and fragmentation after World War I, the fiscal adjustment was delayed, leading to bursts of inflation. In these countries, stabilization policies were implemented only when a political consolidation occurred. On the contrary, in interwar England, the relatively stable political situation with the Conservative Party in control led to an immediate postwar fiscal stabilization.

This research on "delays" is applicable to more than simply stabilization. It suggests a general politicoeconomic explanation of why efficient policies are postponed, even if everybody knows that sooner or later they will have to be adopted, and even if the more time is wasted, the higher the aggregate costs of the policy will be.

In summary, I believe that the development and testing of positive models of policy, with particular attention to political and distribitional aspects, is crucial. First, these models help us to understand empirical observations that are clearly inconsistent with models based on the social planner assumption. Second, they provide insights on how to set up institutions and policy rules to achieve the best outcome, given the policymakers' ideological and opportunistic incentives, and given the underlying conflicts of interest of different individuals.

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[10]A. F. Alesina, "The End of Large Public Debts," in F. Giavazzi and Spaventa, eds., Surviving with a High Public Debt: The Italian Experience, Cambridge, England: Cambridge University Press, 1988.

Economic Outlook Survey

This quarter's survey will be the last to be published by the NBER. When this effort began in 1968, it was the only survey of economic forecasters available. At that time it was unique in offering the economics profession a summary of the views of a large number of forecasters. During the past 22 years, other surveys have been developed, and now the time has come to end the NBER survey.

The Bureau thanks Victor Zarnowitz for many

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[8]A. F. Alesina and G. Tabellini, "External Debt, Capital Flight, and Political Risk," NBER Working Paper No. 2610, June 1988, and Journal of International Economics, (November 1989).

[9]A. F. Alesina and A Drazen, "Why Are Stabilizations Delayed?" NBER Working Paper No. 3053, August 1989.

First Quarter 1990

Victor Zarnowitz

According to the March survey of 14 professional forecasters taken by the NBER and the American Statistical Association, real GNP will grow 1.7 percent this year. Inflation, as measured by the rise in consumer prices, will be 4.3 percent. In December 1989 the group forecasted 1.9 percent growth in the nation's output in 1989–90 and 4.2 percent growth in consumer price inflation. In 1988–9 real GNP increased 3 percent, and the consumer price index (CPI) was 4.8 percent.

From Sluggish to Moderate Growth

In 1990:1 real GNP is predicted to rise 1.2 percent at an annual rate, which is considerably lower than the 1.8 percent median forecast from the previous survey. However, growth is expected to return to the 1.8–3 percent range in the four quarters ahead (1990:2–1991:1). Between 1990:1 and 1991:1 total output is expected to gain 2.3 percent.

Expectations of growth have been revised downward slightly for 1989–90 and upward for 1990–1. The following table shows the percentage distribution of forecasts of growth in real GNP.

Percentage Change in Real GNP	1989–90 December 1989 Survey	1989–90 March 1990 Survey	1990–1 March 1990 Survey
4 percent or more	7	3	7
2–3.9 percent	33	30	46
0.1–1.9 percent	50	55	38
Negative	10	12	9

Reduced Chances of a Recession

The estimated probabilities of a recession decreased significantly between the last two surveys.

Mean Probability of a Decline in Real GNP	December 1989 Survey	March 1990 Survey
1990:1	30	20
1990:2	26	22
1990:3	20	16
1990:4	16	16
1991:1	n.a.	17

Unemployment to Change Little

The civilian unemployment rate is expected to average 5.4 percent in 1990:1 and 5.5 percent in each of the next four quarters and for 1990 as a whole. The individual forecasts range from 5.3 to 5.8 percent.

Inflation Forecasts Somewhat Higher

The GNP implicit price deflator (IPD) is predicted to rise at annual rates of 3.4–4.6 percent in the five quarters 1989:1–1990:1, 3 percent for 1989–90, and 4 percent in 1990:1–1991:1. In 1988–89, IPD increased 4.1 percent.

Forecasts of inflation for 1989–90 in terms of the IPD were revised upward slightly from the previous survey and there was a small upward shift in expectations for 1990 and 1991.

Percentage Change in IPD	1989–90 December 1989 Survey	1989–90 March 1990 Survey	1990–1 March 1990 Survey
8 percent or more	1	1	2
6.0–7.9 percent	6	6	8
4.0–5.9 percent	42	51	52
Less than 4 percent	50	42	38

The CPI is expected to increase 4.9 percent (annual rate) in 1990:1 and 4.1–4.4 percent in the next four quarters.

Interest Forecasts Also Raised

According to the median forecasts for 1990:1–1991:1, the three-month Treasury bill rate will move in the narrow range of 7.6–7.8 percent. The corresponding forecasts through the fourth quarter of 1990 were 7.1–7.5 percent in December 1989. The annual median interest rate for 1990 is expected to be 7.6 percent, up from 7.4 percent in the previous survey.

The yield in new high-grade corporate bonds is predicted to average 9.2–9.4 percent quarterly and 9.3 percent for 1990 on the whole. These figures are consider-

Projections of GNP and Other Economic Indicators, 1990–91

	Annual		
	1989 Actual	1990 Forecast	Percent Change 1989 to 1990
1. Gross National Product ($ billions)	5233.2	5535.0	5.8
2. GNP Implicit Price Deflator (1982 = 100)	126.3	131.1	3.8
3. GNP in Constant Dollars (billions of 1982 dollars)	4142.6	4215.0	1.7[1]
4. Unemployment Rate (percent)	5.3	5.5	0.2
5. Corporate Profits After Taxes ($ billions)	158.2	150.1	–5.1
6. Nonresidential Fixed Investment (billions of 1982 dollars)	511.1	523.5	2.4
7. New Private Housing Units Started (annual rate, millions)	1.4	1.4	0.7[2]
8. Change in Business Inventories (billions of 1982 dollars)	24.5	21.0	–3.5[3]
9. Treasury Bill Rate (3-month, percent)	8.1	7.6	–0.5[1]
10. Consumer Price Index (annual rate)	4.8	4.3	–0.5[1]

	Quarterly							
	1989 Q4 Actual	Q1	1990 Q2	Q3	Q4	1991 Q1	Percent Change Q4 89 to Q4 90	Q1 90 to Q1 91
		Forecast						
1. Gross National Product ($ billions)	5337.0	5404.0	5478.7	5560.0	5658.0	5750.0	6.0	6.4
2. GNP Implicit Price Deflator (1982 = 100)	128.0	129.3	130.4	131.8	133.0	134.5	3.9	4.1
3. GNP in Constant Dollars (billions of 1982 dollars)	4168.1	4181.1	4200.0	4222.6	4254.0	4276.0	2.1	2.3
4. Unemployment Rate (percent)	5.3	5.4	5.5	5.5	5.5	5.5	0.2[1]	0.1[1]
5. Corporate Profits After Taxes ($ billions)	147.4	149.0	146.5	150.9	156.0	158.0	5.9	6.0
6. Nonresidential Fixed Investment (billions of 1982 dollars)	514.0	517.0	520.9	523.5	529.0	530.7	2.9	2.6
7. New Private Housing Units Started (annual rate, millions)	1.3	1.4	1.4	1.4	1.4	1.4	3.5[2]	2.2[2]
8. Change in Business Inventories (billions of 1982 dollars)	32.6	18.0	19.0	21.0	21.0	25.0	–11.6[3]	7.0[3]
9. Treasury Bill Rate (3-month, percent)	7.6	7.7	7.7	7.7	7.6	7.8	0.0[1]	0.1[1]
10. Consumer Price Index (annual rate)	3.8	4.9	4.2	4.1	4.4	4.4	0.6[1]	–0.4[1]

SOURCE: The National Bureau of Economic Research and American Statistical Association, Business Outlook Survey, March 1990. The figures on each line are medians of fourteen individual forecasts.

[1] Change in rate, in percentage points.
[2] Possible discrepancies in percentage changes are caused by rounding.
[3] Change in billions of dollars.

ably higher than their counterparts of three months ago, which ranged between 8.7 and 8.9 percent.

Small Gains in Real Consumption and Housing

Forecasts of real personal consumption expenditures on the whole are unchanged, indicating growth of about 2.1 percent in both 1989–90 and 1990:1–1991:1. Forecasts of housing starts, like those from the previous survey, show a small rise of only 1.4 percent in 1989–90. Between 1990:1 and 1991:1 the group's predictions imply an increase in housing starts of 2.2 percent. Real residential investment is expected to be almost unchanged in 1989–90, but to gain 2.7 percent between 1990:1 and 1991:1.

Weaker Business Investment

Nonresidential investment (in constant dollars) is predicted to rise 2.4 percent in 1989–90 (less than the 2.7 percent projected in December 1989) and 2.6 percent in 1990:1–1991:1. The range of the individual forecasts for 1990 is 1.2–3.9 percent. Business inventory investment is still generally predicted to remain positive, but most respondents expect it to be mildly lower in 1990 than in 1989. The quarterly figures show quite a bit of velocity and dispersion.

Little Change in the Forecasts of Industrial Production, Net Exports, and Profits

Output of manufacturing, mining, and utilities is

forecast to gain 1.8 percent in 1989-90 (an upward revision from the December survey) and 2.2 percent in 1990:1-1991:1. It is expected to fall in 1990:1 and to resume growth in the 2.0-2.8 percent range thereafter.

Net exports of goods and services in billions of 1982 dollars are expected to average -53.5 in 1990 as compared with an estimated -56.3 in 1989. This forecast is only slightly more pessimistic than the last survey.

Corporate profits after taxes are expected to decline 5 percent in 1989-90 but to gain 6 percent between 1990:1 and 1991:1.

Expectations of Government Spending, and Major Assumptions

Federal government purchases of goods and services in constant dollars are expected to decline 0.6 percent in 1989-90, state and local purchases to rise 2.3 percent.

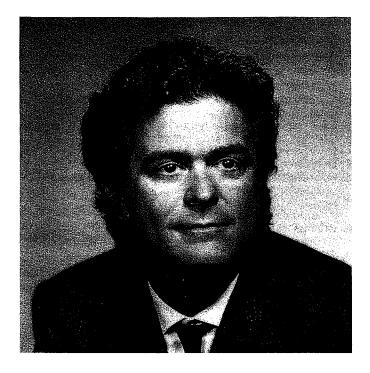Most respondents assume no significant changes in tax policy; a few assume some tax increases in 1991.

Reductions in defense outlays of up to 5 percent in 1990 and as much as 7-10 percent in 1991 are anticipated by several forecasters.

The growth rates in monetary aggregates are assumed to vary between 3 percent and 8 percent for M1 and between 5 percent and 9 percent for M2.

Most respondents assume that energy prices will be firmer. The quoted prices of oil are $19-22/bbl.

Several respondents assume higher real exports and export prices and stable imports. More participants expect the dollar to decline than to be flat or stronger.

Born in Italy, Alesina received a degree in economics from Università Bocconi (Milan) in 1981 and a Ph.D. in economics from Harvard University in 1986. He was a post-doctoral fellow, and then an assistant professor of economics and political economy, at Carnegie-Mellon University until 1988, when he became an assistant professor of economics and government at Harvard.

Alesina teaches political economics and macroeconomic theory. He is an associate editor of *Economics and Politics,* and his research has been published in a number of journals and in the NBER's Working Paper Series.

Alesina is 32 and single. His hobbies include traveling, going to movies, listening to music, and playing tennis. Also, "when I find time off from my skiing season, I enjoy writing about economics," he says.

Conferences

NBER Profile

Alberto F. Alesina

Alberto F. Alesina is a 1989-90 NBER Olin Fellow and a faculty research fellow in the NBER's Program in Financial Markets and Monetary Economics.

The Economics of Art Museums

The NBER held a conference on "The Economics of Art Museums" on December 1-2, 1989 in Boston. Organized by NBER President Martin Feldstein, the conference brought together a group of academic economists with 30 distinguished individuals from leading American art museums, private foundations, govern-

ment agencies, and art auction houses. The four main areas of discussion were: The Museum Collection; Museum Finances; Governments and Art Museums; and The Museum and the Public. The discussion on each topic was launched by prepared statements from three or four speakers. In addition, six economists prepared nontechnical background papers.

The background papers were:

Richard N. Rosett, NBER and Washington University, "Art Museums in the United States: A Financial Portrait"

Peter Temin, NBER and MIT, "An Economic History of American Art Museums"

Robert C. Blattberg and Cynthia J. Broderick, University of Chicago, "Marketing of Art Museums"

Don Fullerton, NBER and University of Virginia, "Tax Policy toward Art Museums"

Charles T. Clotfelter, NBER and Duke University, "Government Policy and Art Museums in the United States"

Rosemary Clarke, University of Birmingham, England, "Government Policy toward Art Museums in the United Kingdom"

The discussions were initiated by the following panels:

The Museum Collection
Theodore Stebbins, Jr., Museum of Fine Arts, Boston
Julia Brown Turrell, Des Moines Art Center
John Walsh, J. Paul Getty Museum

Museum Finances
Harry S. Parker, III, Fine Arts Museums of San Francisco
Thomas Krens, Guggenheim Museum
William H. Luers, Metropolitan Museum of Art
Neil Rudenstine, Andrew W. Mellon Foundation

Governments and Art Museums
Andrew Oliver, Jr., National Endowment for the Arts
Anne Hawley, Isabella Stewart Gardner Museum
Sir John Hale, Museums and Galleries Commission of the United Kingdom

The Museum and the Public
Anne d'Harnoncourt, Philadelphia Museum of Art
Paul J. DiMaggio, Yale University
Marilyn Perry, Samuel H. Kress Foundation
James N. Wood, Art Institute of Chicago

Overview
J. Carter Brown, National Gallery of Art
Richard Oldenburg, Museum of Modern Art
Harold Williams, J. Paul Getty Trust
Roger G. Kennedy, National Museum of American History

Rosett surveys the financial condition of art museums and of changes in their funding, based on the annual financial survey of members of the Association of Art Museum Directors. He finds that museums with diversified revenue sources are able to achieve more stable growth than those that rely on only one or two sources. Temin discusses the contrast between the value of the art owned by museums and those museums' continual state of financial crisis. The key to this paradox, he concludes, is the strict separation of museums' acquisitions budgets from their operating budgets; he considers the reasons for, and the effects of, this separation.

Blattberg and Broderick examine ways in which museums can appeal to new audiences while still attracting their traditional audiences. Fullerton analyzes the effect of federal tax policy on the incentives for individuals and corporations to donate money and art to museums. He finds in particular that the reduction of tax rates in the 1986 Tax Reform Act may have decreased gifts to art museums by as much as 24 percent.

Complementing Fullerton's analysis of the *implicit* subsidy to art museums in the tax provisions for charitable contributions, Clotfelter evaluates *explicit* government support of museums. Direct grants have been much smaller than the revenue lost because of the tax treatment of charitable gifts. The decisions about government funding are quite decentralized, apparently in an attempt to ensure that there is no government imposition of artistic values. Clarke concludes that, in contrast with the American system, British support for art museums is mostly through direct subsidies rather than through tax concessions for private donations.

Stebbins expresses concern that a recent emphasis on temporary exhibits has distracted museum staffs from their most important mission: the care of the permanent collection. All four panelists in this session discuss the damaging effects of higher prices and reduced philanthropy on museums' efforts to augment their collections. They also raise the question of the appropriate role of deaccessioning in the acquisition process (that is, selling works of art to raise money to buy other works). Recognizing that the slowing of the pace of museum acquisitions is unlikely to be reversed, Cantor and Walsh encourage museums to find new ways to use their permanent collections to improve visitors' experiences.

Rudenstine argues that the increase in art museum audiences during the last two decades has enabled museums to increase sharply their physical plant and staff. Thus, the significant decline in the fraction of operating expenses that can be supported by endowment income and government grants is caused primarily by the rise in the overall amount of operating expenses. Neither Krens nor Rudenstine feels that this greater dependence on earned income could be reversed, nor that earned income would continue to grow at the recent high rate. Parker discusses the problem of volatility in art museum budgets that is created by relying on special exhibitions for revenue. Luers argues that an increased emphasis in museums on raising revenue, and the enhanced management and financial structure that accompany it, can create a tension

between the essential purpose of a museum and its administration.

Oliver begins by exploring the goals of the National Endowment for the Arts: to promote excellence and diversity in the arts, and to bring the arts to the broadest possible audience. He then discusses the relationship of those goals to the recent debate over funding for controversial projects. Hawley describes the struggle of the Massachusetts cultural community to preserve the state's Council on the Arts and Humanities last year at a time when lawmakers fought to eliminate it. She notes that the defense of the Council focused on the contribution of the arts to the state economy and to children's education, not to any intrinsic value of the arts. Hale raises the questions of how leaders in the art world can encourage both politicians and the general public to take more pleasure in art museums.

DiMaggio emphasizes that a museum serves several publics, including patrons, visitors, and potential visitors who might come if the museum were different in some way. Museums serve these publics in a number of ways, with certain "submuseums" focused on providing personal contact with patrons, marketing the museum to increase visitor attendance, and reaching out in an attempt to educate the nonvisitors. The allocation of museum resources among these missions is shaped by the museum's financial and political environment and has shifted over time away from patrons and toward marketing to a broader public. Wood describes the economic problems facing museums as simply the surface of a more fundamental debate about whether museums should view the public as "consumers," so that museum attendance is the appropriate measure of success, or as individuals to be educated and helped to develop a critical appreciation of art. Perry and d'Harnoncourt consider whether museums should focus on "education" or "entertainment," and whether these goals are contradictory or complementary. They also discuss the appropriate roles of special exhibitions and permanent collections in attracting the public.

In the final session, Brown, Oldenburg, Williams, and Kennedy consider ways in which museums could evolve in order to deal better with their financial problems, while still recognizing that economics is not an end in itself for museums. This would require careful consideration of the mission of art museums. The speakers emphasize the importance to museums of encouraging education in the arts for children, and of educating the public more generally on the value of a visual heritage to society.

Also attending the conference were: Alberta Arthurs, Rockefeller Foundation; Edgar Peters Bowron; Harvard University Art Museums; Geoffrey Carliner, NBER; Douglas W. Elmendorf, Harvard University; Bruce Evans, Dayton Art Institute; Ross Farrar, Palmer & Dodge; Millicent Hall Gaudieri, Association of Art Museum Directors; Gail Harrity, Guggenheim Museum; Ashton Hawkins, Metropolitan Museum of Art; Martin Shubik, Yale University; and Peter Sutton, Museum of Fine Arts, Boston.

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 as an NBER conference volume.

Labor Markets in the 1990s

Over 100 economists met in Cambridge on December 8 and 9 for an NBER-sponsored Universities Research Conference on "Labor Markets in the 1990s." The conference program, organized by NBER Research Associate Robert H. Topel of the University of Chicago, was:

Thomas E. MaCurdy, NBER and Stanford University, and Thomas A. Mroz, University of North Carolina, "Macroeconomic Explanations of the Changes in Wage Patterns in the United States: Evidence from Birth-Cohort Wage Profiles"
Discussants: James P. Smith, Rand Corporation, and Frank Stafford, University of Michigan

John Bauer, East-West Population Institute and University of Hawaii, and Chung H. Lee, University of Hawaii, "Economic Development and Labor Market Segmentation: The Case of Korea"
Discussants: Kevin Lang, NBER and Boston University, and Charles C. Brown, NBER and University of Michigan

Lisa M. Lynch, NBER and MIT, "Private Sector Training and the Earnings of Young Workers"
Discussants: Edward P. Lazear, NBER and University of Chicago, and Peter Kuhn, McMaster University

Christopher J. Ruhm, Boston University, "Advance Notice and Postdisplacement Joblessness"
Discussants: Andrew J. Oswald, NBER and Dartmouth College, and Lori Kletzer, Williams College and Brookings Institution

Jonathan S. Leonard, NBER and University of California at Berkeley, "Career Paths of Executives and Managers"
Discussants: Aloysius Siow, University of Toronto, and Sherwin Rosen, NBER and University of Chicago

Steve J. Davis, University of Chicago, and John C. Haltiwanger, University of Maryland, "The Distribution of Employees by Establishment Size: Patterns of Change and Comovement in the United States, 1962-85"
Discussants: Mark Roberts, Pennsylvania State University, and John M. Abowd, NBER and Cornell University

Michael P. Keane, University of Minnesota, "Sectorial Shift Theories of Unemployment: Evidence from Panel Data"

Discussants: Lawrence F. Katz, NBER and Harvard University, and Kenneth McLaughlin, University of Rochester

Stephen G. Bronars, University of California at Santa Barbara, and Donald R. Deere, Texas A&M University, "Union Organizing Activity and Union Coverage, 1973–88"

Discussants: Richard B. Freeman, NBER and Harvard University, and Janet Currie, University of California at Los Angeles

Chinhui Juhn, University of Chicago; Kevin M. Murphy, NBER and University of Chicago; and Brooks Pierce, Texas A&M University, "Wage Inequality and the Rise in Returns to Skill"

Discussants: Daniel S. Hamermesh, NBER and Michigan State University, and David Card, NBER and Princeton University

Using data from the Panel Survey of Income Dynamics, MaCurdy and Mroz find a declining trend in real wages that began in the early 1970s. This decline in real wages was an economywide phenomenon that affected all birth cohorts, not just the baby-boom group.

Bauer and Lee examine the evolution of the Korean labor market during the country's rapid economic development and industrialization. They analyze trends in employment and earnings differentials by industry, firm size, and gender. They also discuss some of the major policy and environmental changes that affected the Korean labor market during the 1970s and 1980s. They show, for example, that firms with 5–99 workers accounted for nearly 70 percent of manufacturing employment growth between 1980 and 1985, up from 35 percent in 1975–80.

Lynch studies the effect of personal characteristics, including training, on wages and the wage growth of young workers. In particular, she compares rates of return to company-provided training, training received outside the firm, and schooling. Finally, she investigates the portability of company training from employer to employer and the existence of differentials in the returns to training by union status, race, and gender.

Ruhm finds that written notification of permanent layoffs and plant closings is associated with a small increase in the probability of the released worker eventually having a job, but it does not decrease average time out of work. For married persons, household heads, and workers residing in local labor markets with high unemployment rates, or those terminating jobs as the result of plant closings, notice significantly reduces the length of unemployment. However, Ruhm finds that previous research overstates the beneficial effects of mandatory advance notice because it fails to distinguish between written notification, verbal warnings, and expectations of job loss in the absence of any announcement.

Who reaches the top of the ladder in U.S. corporations? Leonard finds that initial signals become less important as a cohort ages and idiosyncratic information becomes available. He also finds that managers with the most unusual pay given their background are more likely to leave the firm. Within firms, pay adjusts in a staggered process, and there is some evidence of profit-sharing over long periods. While long-term incentives and bonus pay are nearly universally adopted by major firms, bonus pay is a trivial proportion of total compensation and is rarely found below the top levels. The top levels of major U.S. corporations are surprisingly open to outsiders, and these new entrants enjoy greater success than those who do not move.

Davis and Haltiwanger find that the average establishment in the private sector grew by 29 percent from 1962 to 1973, and by a further 10 percent from 1974 to 1985. In contrast, the size of the firm that a representative individual works in fell by roughly 40 percent between 1968 and 1985. Since the late 1960s there has been a dramatic shift away from the share of employees in both large (250+ employees) and small (1–19 employees) establishments. At the same time, the average size of establishments in goods-producing industries has declined, but in service industries it has risen. Davis and Haltiwanger also find that changes in the employee size distribution explain only a small fraction of the decline in private sector union density over the past 20 years.

Keane examines the response of real wages and employment in a particular sector to real shocks. He finds that real oil price shocks have strong effects on relative wages in the sector with the greatest relative wage increase.

Bronars and Deere estimate that only about 13 percent of the observed decline in the private sector unionization rate between 1973 and 1988 was caused by the drop in successful union organizing during this period. The primary reason for the large decrease in unionization (from about 25 percent of private sector employment to about 12 percent) appears to be the shrinkage in size and/or number of existing union establishments, especially during the 1980s. Finally, they report that if recent trends continue, the private sector unionization rate could well fall below 5 percent by the year 2000.

Juhn, Murphy, and Pierce document a very large increase in wage inequality for males over the past 25 years. For example, between 1963 and 1987, average weekly wages for workers at the bottom of the earnings ladder rose by less that 5 percent, while wages for those at the highest earning levels rose by more than 35 percent. The trend toward increased wage inequality is apparent within narrowly defined education and labor market experience groups. This indicates that divergence in (or increasing returns to) these observable measures of skill does not account fully for the increased inequality in wages. In fact, only in 1980–7, when returns to education increased substantially, did changing returns to education and experience explain changing wage inequality.

Corporate Finance in Japan: A Comparative Perspective

A conference on "Corporate Finance and Related Issues: Comparative Perspectives," sponsored jointly by the NBER, the Tokyo Center of Economic Research (TCER), and the Centre for Economic Policy Research (CEPR), was held on January 7–8 in Tokyo. Kazuo Ueda, University of Tokyo and TCER, and Takatoshi Ito, NBER and University of Minnesota, organized the following program:

Kenneth R. French, NBER and University of Chicago, and James M. Poterba, NBER and MIT, "Japanese and U.S. Cross-Border Common Stock Investments"
Discussants: Takatoshi Ito, and Anil K. Kashyap, Federal Reserve Board

Colin Mayer, City University Business School and CEPR, and Ian Alexander, City University Business School, "Banks and Securities Markets: Corporate Financing in Germany and the United Kingdom"
Discussants: Takaaki Wakasugi, University of Tokyo, and Alan J. Auerbach, NBER and University of Pennsylvania

Takeo Hoshi, University of California at San Diego, and Anil K. Kashyap, "Evidence on Q and Investment for Japanese Firms"
Discussants: Hiroshi Yoshikawa, University of Tokyo and TCER, and Kazumi Asako, National University of Yokohama and TCER

Toshiaki Tachibanaki, Kyoto University and TCER; Hiroshi Kitagawa, Seikei University; and Kiyoshi Mitsui, Meiji-Gakuin University, "Economies of Scope and Intercorporate Share Ownership in the Japanese Banking Industries"
Discussants: Hiroshi Shibuya, Bank of Japan and International Monetary Fund, and Jennifer Corbett, Saint Anthony's College, Oxford

Kazuo Ueda, "Are Japanese Stock Prices Too High?"
Discussants: Fumiko Kon-Ya, Securities Research Institute, and James M. Poterba

Ravi Jagannathan, University of Minnesota, and Fumio Hayashi, NBER and University of Pennsylvania, "Ex-Dividend Day Behavior of Japanese Stock Prices"
Discussants: Junko Maru, Securities Research Institute, and Takeo Hoshi

T. J. Jenkinson, Keble College, Oxford and CEPR, "Initial Public Offerings in the United Kingdom, United States, and Japan"
Discussants: Takao Kobayashi, University of Tokyo and TCER, and John Y. Campbell, NBER and Princeton University

Alan J. Auerbach and Albert Ando, NBER and University of Pennsylvania, "The Cost of Capital in Japan: Recent Evidence and Further Results"

Discussants: Toshiaki Tachibanaki, and Yasushi Iwamoto, Osaka University

Jennifer Corbett, "Patterns of Finance and Government Lending to Industry in Japan"
Discussants: Naoyuki Yoshino, Saitama University and TCER, and Akiyoshi Horiuchi, University of Tokyo

French and Poterba investigate the level and determinants of cross-border common stock investments between Japan and the United States. They show that Japanese investors hold less than 2 percent of the U.S. stock market, while U.S. investors hold an even smaller share of the equity traded in Tokyo. This pattern persists despite the diversification gains from cross-border investment. None of the standard explanations for limited international equity holding, such as capital controls on Japanese investors, or limits on the international exposure of portfolios held by institutional investors, appears capable of explaining these patterns. French and Poterba suggest that to justify the observed portfolio pattern, investors in *both* the United States and Japan must believe that risk-adjusted expected returns are substantially higher in their own market than in the other market.

Mayer and Alexander compare the financing of industry in Germany and the United Kingdom. Large U.K. firms pay out significantly more of their earnings as dividends than large German corporations do. They raise more medium- and long-term finance than German firms do and are more reliant on trade credit. They also raise more new equity finance but purchase more shares in the process of making acquisitions. Therefore, British firms raise about the same amount through equity on a net basis as German firms do. Medium-sized U.K. firms raise more equity finance than their German counterparts and pay out more of their earnings as dividends. However, medium-sized U.K. firms use bank finance less than German firms do. Long-term lending to U.K. corporations is comparatively uncommon, for example.

Hoshi and Kashyap estimate qs for 580 Japanese firms from 1974–88. For most firms, q is just above one, but taxes have important effects on the level of q. Also, the measurement error in q, at least prior to the recent stock market boom, appears to be small. Despite the plausibility of the q estimates, the basic model relating investment and q does not fare well. The estimated cost of adjustment parameters is implausibly high and the investment/q relationship has changed since the boom in the Japanese stock market. Variables predicted to be extraneous under the narrowest, most tractable version of the theory, such as liquidity, also seem to play an important role in influencing investment.

Tachibanaki models a bank that produces two "outputs": lending activity and "other." He estimates that there is a significant input complementarity: that is, there are economies of scope for the sample period of 1985–7. This result is more prominent when the sample includes trust and long-term banks, since they hold equities of other corporations and the price of equities

rose sharply in 1985-7. In addition to the economies of scope, Tachibanaki also observes economies of scale for city and local banks.

Ueda studies the behavior of Japanese stock prices in the 1980s, especially of the price/earnings ratio (PER) or the price/dividend ratio (PDR). He finds that movements in fundamentals, such as the interest rate and the growth rate, together with the widespread practice of cross-share holdings between corporations, fail to explain the behavior of PER and PDR in the 1980s. Sharp increases in the Japanese PER and PDR in the 1980s are caused by either bubbles, declines in the risk premium, or expectations of land price inflation. Ueda argues that the latter two may have been an important feature of the Japanese economy in the 1980s.

Jagannathan and Hayashi study the ex-dividend day behavior of common stocks traded in the Tokyo Stock Exchange. Previous studies for Japan indicate that the ex-dividend day price drop is a very small fraction of the amount of dividend, which is inconsistent with the fact that the dividend tax rate is higher than the capital gains tax rate by up to 20 percentage points. Jagannathan and Hayashi find that on average the ex-dividend day price drop is far larger than previously estimated: about 50 to 60 percent of dividends. They also find that trading volume is large on the ex-dividend day, indicating that investors actively engage in dividend capture.

Jenkinson studies the pricing of initial public offerings in the United Kingdom, the United States, and Japan. In all three countries, new equity issues typically are priced at a discount relative to their subsequent trading price in the aftermarket. He first documents the large underpricing in Japan as compared to the United Kingdom and United States. In the United States, initial public offerings rose by around 10 percent relative to the market by the end of the first week, although large issues tended to be priced significantly more accurately than small issues. In London, the underpricing was about 12 percent on average, although there was a "hot issue" period between the Big Bang and the October 1987 crash when new-issue underpricing rose to about 25 percent. Excluding this period, the average U.K. initial public offering was underpriced by around 7 percent. In Japan, on average from 1986-8, the price of new issues rose by 55 percent by the end of the first week. In 1988, underpricing averaged nearly 74 percent.

Extending previous work comparing the implied cost of capital in the United States and Japan, Auerbach and Ando consider recent evidence that continues to show a gap in the rates of return between the two countries. They consider two potential explanations for this gap, other than a true difference in the cost of capital. One is the understatement of Japanese earnings because of the lack of consolidation of cross-held shares (an important phenomenon in that country). The other is the understatement of full earnings on corporate-held land that appears to be extremely important. Given the market value of land held by the Japanese corporate sector, the implied rate of refurn to corporate assets other than land may be as high as or high-er than in the United States. However, this result raises additional puzzles regarding the determinants of land values and the valuation of corporate-held land.

Corbett analyzes the effect of lending by Japanese government financial institutions on the pattern of corporate finance in Japan. She uses microdata on firms that borrowed from the Japan Development Bank (JDB), one of the main government financial institutions. Her analysis reveals that Japanese firms rely more heavily on internally generated funds than is commonly thought. Their main source of external finance has been banks, with capital markets playing a small role. In Japan, bank loans are more important for small and medium firms than for large firms. Finally, firms that borrowed from the JDB used a higher proportion of net bank credit in "total funds raised" than others—a result consistent with a view that borrowings from the JDB made possible extra private finance.

Also attending the conference were: Ken Ariga, Kyoto University; Koichi Hamada, NBER and Yale University; Richard Portes, Birkbeck College, NBER, and CEPR; and Ryoko Oba, Bank of Japan.

The Determinants and Effects of Immigration on the United States and Source Economies

The NBER held a conference on "The Determinants and Effects of Immigration on the United States and Source Economies" on January 14-17. Research Associates George J. Borjas, of the University of California at Santa Barbara, and Richard B. Freeman, Harvard University, organized the program:

George J. Borjas, "National Origin and the Skills of Immigrants in the Postwar Period"

Francine D. Blau, NBER and University of Illinois, "The Fertility Behavior of Immigrant Women"

Discussants: John M. Abowd, NBER and Cornell University, and James Smith, Rand Corporation

Robert J. LaLonde and Robert H. Topel, NBER and University of Chicago, "Income Distribution and the Quality of Immigrants"

Randall Filer, Hunter College and City University of New York, "The Impact of Immigrant Arrivals on Migratory Patterns of Native U.S. Workers"

Steven J. Bronars, University of California at Santa Barbara, "Immigration and Internal Migration in the United States: 1940-80"

Discussants: James Smith and Beth Asch, Rand Corporation

Fernando A. Ramos, KPMG Peat Marwick, "Outmigration and Return Migration of Puerto Ricans"

Alida Castillo, NBER, and Richard B. Freeman, "When the Minimum Wage Really Bites: The Effect of the U.S.-Level Minimum on Puerto Rico"

Discussants: John M. Abowd and David A. Wise, NBER and Harvard University

Edward Funkhouser, Harvard University, "Mass Emigration, Remittances, and Economic Adjustment: The Case of El Salvador in the 1980s"

George J. Borjas, Richard B. Freeman, and Lawrence F. Katz, NBER and Harvard University, "On the Labor Market Effects of Immigration and Trade"

Discussants: Anne Case, NBER and Harvard University, and Geoffrey Carliner, NBER

Borjas studies the experience of immigrants in the U.S. labor market between 1940 and 1980. Comparing successive waves of immigrants, he sees a major decline in their skills and a deterioration in their labor market performance (relative to that of natives) over time. One single factor, the changing national origin mix of the immigrant flow, is most responsible for this trend. If the national origin mix of immigrant waves had remained unchanged over the postwar period, either there would not have been a decline in the skills and labor market performance of successive immigrant waves, or it would have been greatly tempered.

Blau uses data from the 1970 and 1980 Censuses to examine the fertility of immigrant women from the Middle East, Asia, Latin America, and the Caribbean. In those areas, fertility rates averaged in excess of 5.5 children per woman during the period of immigration. Blau finds that immigrants have very similar (unadjusted) fertility to the native-born, and lower fertility than native women with similar personal characteristics. She suggests that immigration initially disrupts fertility, but that the effect of this disruption is dissipated within 5 to 10 years. In general, immigrant women seem to adjust fairly quickly to U.S. conditions and may even adapt their fertility to U.S. conditions before immigrating.

LaLonde and Topel use the 1970 and 1980 relative earnings of different immigrant cohorts, as well as the changes in the average earnings of those cohorts, to estimate the assimilation of immigrants and changes in immigrant quality over time in the United States. They find strong evidence of immigrant assimilation into the U.S. labor market. Also, the relative earnings of immigrants are sensitive to the factors that have increased wage inequality in the United States. That finding indicates that previous studies may have overestimated the importance of declining immigrant quality.

Filer investigates migration of native-born American workers in response to the arrival of immigrants in a local labor market. Using 1980 Census data, he finds that the fraction of a metropolitan area's labor force that arrived in the United States from another country between 1975 and 1980 is correlated negatively with migration of native workers. Thus, native workers are more likely

to move out of, and less likely to move into, an area that experienced a greater inflow of immigrants during this period. Among natives, the relationship between migratory patterns and immigrant arrivals is particularly strong for less-educated and less-skilled workers, as well as for white workers. Natives appear to be highly sensitive to immigrant arrival rates, while immigrants make their locational decisions essentially independent of native locational patterns.

Bronars shows that internal migration flows and immigration flows have been correlated positively across states from 1935–70, but that immigrant location decisions and net migration rates were not correlated from 1975–80, implying a change in patterns in that period. Since immigrants in the late 1970s located in virtually the same places as each of the earlier years, the shift in migration patterns was caused primarily by changes in internal migration flows during the 1970s. Recent internal migration has been in the direction of Sun Belt states that historically have attracted few immigrants. There is no evidence that higher immigration and internal migration into states have had an adverse impact on economic growth differentials across states.

Ramos finds that the returns to education are higher in Puerto Rico than in the United States. This may explain why the level of schooling of Puerto Rican migrants to the United States is lower than that of non-migrants, and the level of schooling of return migrants to Puerto Rico is higher than that of migrants remaining in the United States. There is a similar pattern among U.S.-born Puerto Ricans. Migrants to Puerto Rico have more schooling than U.S.-born Puerto Ricans living in the United States. Finally, since earnings are more equally distributed in the United States than in Puerto Rico, migrants to the United States tend to be drawn from those with lower earnings capacity, Ramos finds.

In 1983 the minimum wage in Puerto Rico reached the $3.35 per hour prevailing in the United States and coverage matched the U.S. rate of over 60 percent of the work force. With earnings on the island just two-thirds of those on the mainland, the result was an extraordinarily high ratio of the minimum wage to average hourly earnings in manufacturing: 0.74 in Puerto Rico compared to 0.45 in the United States. Castillo and Freeman find that the U.S.-level minimum altered the distribution of earnings in Puerto Rico to an extraordinary extent, creating marked spikes that dominate the earnings distribution and change as the minimum changed. Imposing the U.S.-level minimum on Puerto Rico also reduced employment by as much as 8 percent and raised unemployment by nearly four percentage points compared to the levels that would have prevailed had the minimum been the same proportion of average wages as in the United States.

Funkhouser finds that approximately 10 percent of the population has left El Salvador since 1978 and that these people remit approximately 9 percent of Salvadoran GDP. Emigrants to the United States are more urban, more educated, and more likely to be male and of working age than the resident population in El Salva-

dor. The households they leave are, on average, larger than the households from which no one has emigrated. The most important effect of migration from El Salvador, Funkhouser finds, has been the increase in remittances, from $40 million to $400 million per year in the last 10 years. In addition to becoming an important component of the balance-of-payments account and directly increasing income, remittances have forced the reorganization of foreign exchange markets in El Salvador.

Borjas, Freeman, and Katz examine how immigration and international trade flows changed the skill composition of the U.S. labor force in the 1970s and 1980s. They also assess the potential effect of these changes on the relative economic position of less-educated American workers. They find that the labor supply inflow implicit in the net trade deficit and the increased number of immigrant workers together amounted to one-quarter of the growth of the U.S. labor force from 1975-85. Trade increased the implicit supply of high school dropouts significantly, with the 1985 deficit raising the ratio of dropouts to college graduates by 5-12 percent among men and by 10-17 percent among women. In 1985 immigrants represented 22 percent of the country's male high school dropout work force and 28 percent of the country's female high school dropout work force.

These papers and the discussions that followed will be published in an NBER conference volume. Its availability will be announced in a future issue of the *NBER Reporter*.

Political Economics

Alberto F. Alesina, NBER and Harvard University, Morris Fiorina, Harvard University, and Roger Noll, Stanford University, organized a conference on political economics held in Cambridge on February 2-3. The program was:

James E. Alt, Harvard University, and Charles H. Stewart III, MIT and Hoover Institution, "Parties and the Deficit: Some Historical Evidence"
Discussant: Nouriel Roubini, NBER and Yale University

Douglas A. Hibbs. Jr., Trade Union Institute for Economic Research, Stockholm, "The Partisan Model of Macroeconomic Cycles; More Theory and Evidence for the United States"
Discussant: Nathaniel Beck, University of California at San Diego

John Londregan, Carnegie-Mellon University, "Oil Supply By Politicians"
Discussant: John Ferejohn, Stanford University

Susan A. Edelman, Columbia University, "Gotcha! Campaign Contributions, Political Action, and House Incumbents"
Discussant: Gary Jacobson, University of California at San Diego

James M. Snyder, Jr., University of Chicago, "Campaign Contributions As Investments: The U.S. House of Representatives, 1980-6"
Discussant: David Baron, Stanford University

Raquel Fernandez, NBER and Boston University, and Dani Rodrik, NBER and Harvard University, "Why Is Trade Reform So Unpopular?"
Discussant: Anne O. Krueger, NBER and Duke University

Ishac Diwan, The World Bank, and Thierry Verdier, Delta, Paris, "Distributive Aspects of Debt Adjustment"
Discussant: Sule Ozler, University of California at Los Angeles

Michael Alvarez and Peter Lange, Duke University, and Geoffrey Garrett, Stanford University, "Government Partisanship, Labor Organization, and Macroeconomic Performance, 1967-84"
Discussant: Takatoshi Ito, NBER, University of Minnesota, and Hitotsubashi University

Alt and Stewart show that split control of the federal government may lead to fiscal imbalance. While divided governments have not appeared to cause fiscal imbalances, they typically have been unable to solve either inherited surpluses or deficits. Thus, divided U.S. governments in the 1880s were unable to dissipate persistent federal surpluses created by high tariffs designed to protect manufacturing rather than to generate revenues. Similarly, divided government has been unable to solve the deficit problem of the 1980s.

The "partisan theory" of macroeconomic policy is based on the idea that leftist governments are more inclined than rightist ones to pursue expansive policies designed to yield lower unemployment and higher growth, and to run the risk (often realized) of higher inflation. Hibbs extends the partisan model to allow for: uncertainty among political leaders about the sustainable growth rate for output and about how expansions of aggregate demand will be partitioned between extra output and extra inflation; and ex post learning and preference adjustment under such uncertainty.

Londregan compares the standard model of the supply of an exhaustible resource by royalty maximizers with two alternatives. In one of these, the resource is controlled by a benevolent government; in the other, the resource is controlled by politicians who seek to maximize their expected term in office. The probability rate for losing power depends on the level of per capita income: rulers of richer populations have a firmer grasp on power. This model actually can yield a backward-bending short-run supply curve. The royalty maximization model implies that only costs, prices, interest rates, and their expected future values will affect extraction of the resource. In contrast, the alternative models

predict that changes in income and politcal unrest also can affect the supply behavior of governments. Londregan finds that during the 1980s, the petroleum exporting countries that were at risk of a coup d'état had backward-bending supply curves.

Edelman asks how campaign contributions from multicandidate corporate political action committees (PACs) influence the Business–Industry Political Action Committee's (BIPAC) voting score of incumbents in the House of Representatives of the 96th, 97th, 98th, and 99th Congresses. When PAC contributions received by the incumbents in their freshmen terms are available, they are included in her estimation. She finds that without the freshmen contributions, contemporaneous contributions significantly increase the BIPAC score. When the freshmen contributions are added, they significantly increase the BIPAC score, while the contemporaneous contributions become insignificant. This suggests that behavior in the freshman term is captured in a politician's reputation, and persists over time.

Snyder models the market for political favors and special-interest campaign contributions. The model yields an extremely simple equilibrium relationship between the total amount of contributions from special interest groups that a candidate receives, the monetary value of the favors promised, and the probability of winning. Using data on open-seat races for the U.S. House of Representatives from 1980-6, Snyder confirms that candidates do maximize contributions from special interests. However, candidates with a high probability of winning (over 85 percent) tend to accept fewer contributions of all types, including those from special interest groups.

Economists generally agree that free trade is superior to protection, but politicians and their electorates often disagree. Fernandez and Rodrik argue that if many individuals do not know whether they will gain or lose from a reform, they may oppose reforms from which they would have benefited. Because of risk aversion and uncertainty, there is a bias toward the status quo, which is usually protection. Fernandez and Rodrik use evidence drawn from developing countries—including South Korea, Chile, and Turkey—where the private sector was not particularly enthusiastic about trade reform early on. Once the consequences of liberalization became evident, though, the trade reforms were supported by an important section of private industry, often creating a split within big business between exporters and import-substituters that did not exist before.

External debt policy is affected by the nature of the decisionmakers and by the strength of the affected interest groups. Diwan and Verdier focus on three interrelated dimensions of the domestic conflicts created by debt policy: between labor and capital; between the import substitution and the export promotion sectors; and between the traded and the nontraded goods sectors. They highlight the important roles of the structure of production, social preferences, capital mobility, and private sector expectations in shaping debt policy.

Alvarez and Lange argue that in countries with densely and centrally organized labor movements, leftist governments can promote economic growth and reduce inflation and unemployment. Conversely, in countries with weak labor movements, rightist governments can pursue their preferred macroeconomic strategies and achieve similarly beneficial macroeconomic outcomes. In other cases, performance will be less desirable.

Also attending the conference were: Geoffrey Carliner, NBER; Linda Cohen, University of California at Irvine; Alex Cukierman, Tel Aviv University; Dennis Epple and Thomas Romer, Carnegie–Mellon University; Stephan Haggard, Kenneth A. Shepsle, Jean Tirole, and David Yoffie, Harvard University; Joseph Harrington, Johns Hopkins University; Paul L. Joskow and Nancy L. Rose, NBER and MIT; Kala Krishna, NBER and Harvard University; Karen K. Lewis, NBER and New York University; Lisa Martin, University of California at San Diego; Susan Rose-Ackerman, Yale University; Pablo Spiller, University of Illinois; and Richard Valelly, MIT.

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 1990 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.

May 1, 1990
Macroeconomic Policy and the External Constraint, Center for Economic Policy Research

May 4-5, 1990
Conference on Research in Income and Wealth: Measurement Issues in the Service Sector, NBER

May 11-12, 1990
Universities Research Conference: Asset Pricing and Financial Markets, NBER

May 14-15, 1990
Politics and Economics in the Eighties, NBER

May 14-15, 1990
Regulating International Financial Markets, Columbia (with MOF, FAIR)*

May 18-19, 1990
Conference on Populist Economics in Latin America, NBER

May 21-22, 1990
Spring Symposium, National Tax Associatiation–Tax Institute of America*

May 23, 1990
Sugar Markets in the 1990s, U.S. Department of State*

June 3-5, 1990
Biennial Meeting, International J. A. Schumpeter Society*

June 14-16, 1990
Economic Policy in Political Equilibrium, Center for Economic Policy Research

June 14-16, 1990
The Political Economy of Tax Reforms, NBER

June 19-20, 1990
International Seminar on Macroeconomics, NBER

June 19-21, 1990
1990 12th Annual International Conference, International Association for Energy Economics*

June 25-29, 1990
Labor Market Prospects for the Disadvantaged, Institute for Research on Poverty

June 28-30, 1990
1990 Meetings, Society for Economic Dynamics and Control*

June 29–July 3, 1990
65th Annual International Conference, Western Economic Association*

July 20-22, 1990
The Standard of Living in Early 19th Century America, NBER

July 23-26, 1990
Franco–American Economic Seminar, NBER

July 31–August 1, 1990
Program Meeting: International Studies, NBER

August 2-3, 1990
International Seminar on International Trade, NBER

August 6-9, 1990
Joint Statistical Meetings, American Statistical Association'

August 9-10, 1990
Program Meeting: International Studies, "International Competitiveness," NBER

August 22-29, 1990
World Congress, Econometric Society*

August 26-30, 1990
46th Conference: Public Finance with Several Levels of Government, International Institute of Public Finance*

September 13-14, 1990
Panel on Economic Activity, Brookings Instution

September 23-26, 1990
Annual Meeting, National Association of Business Economists*

October 4-5, 1990
Conference on Trade Policy, NBER

October 11-12, 1990
Conference on Higher Education, NBER

October 17-21, 1990
Conference on American Economic Policy, NBER

October 18-20, 1990
Annual Research Conference, Association for Public Policy Analysis and Management*

October 26, 1990
Economic Fluctuations Research Meeting, NBER

October 26-27, 1990
Conference on Microeconomic History, NBER

November 9-10, 1990
Conference on Economic Growth, NBER

November 11-14, 1990
83rd Annual Conference on Taxation, National Tax Associatiation–Tax Institute of America*

November 13, 1990
Conference on Tax Policy and the Economy, NBER

November 18-20, 1990
Annual Meeting, Southern Economic Association*

December 14-15, 1990
Universities Research Conference: Exchange Rate Regimes, NBER

December 28-30, 1990
Annual Meeting, American Economic Association*

January 3-7, 1991
US/Japan Housing Markets, NBER

January 7-8, 1991
Fiscal Policies in an Open Macro Economy, NBER, Center for Economic Policy Research, and Tokyo Center for Economic Research

February 2-3, 1991
Transatlantic Public Economic Seminar, NBER

February 9, 1991
Economic Fluctuations Research Meeting, NBER

February 14-17, 1991
Second Annual U.S.-Japan Economic Forum, NBER

March 21-24, 1991
Conference on Economic Crisis, NBER

Open conference, subject to rules of the sponsoring organization.

Open conference, subject to rules of the sponsoring organization.

Discussant: Randall Wright, University of Pennsylvania and Stanford University

Robert E. Lucas, Jr., NBER and University of Chicago, "The Effects of Monetary Shocks When Prices Are Set in Advance"
Discussant: Thomas J. Sargent, NBER and Stanford University

Julio J. Rotemberg, NBER and MIT, and Michael Woodford, NBER and University of Chicago, "Oligopolistic Pricing and the Effects of Aggregate Demand on Economic Activity" (NBER Working Paper No. 3206)
Discussant: Lawrence J. Christiano, Federal Reserve Bank of Minneapolis

Kenneth L. Judd, NBER and Stanford University, "Optimal Taxation in Stochastic Dynamic Economies: Theory and Evidence"
Discussant: Robert J. Barro, NBER and Harvard University

S. Rao Aiyagari, Federal Reserve Bank of Minneapolis, and Mark L. Gertler, NBER and University of Wisconsin, Madison, "Asset Returns with Transaction Costs and Uninsured Individual Risk: A Stage III Exercise"
Discussant: John H. Cochrane, NBER and University of Chicago

Joseph G. Altonji, NBER and Northwestern University; Fumio Hayashi, NBER and University of Pennsylvania; and Laurence J. Kotlikoff, NBER and Boston University, "Is the Extended Family Altruistically Linked? Direct Tests Using Microdata" (NBER Working Paper No. 3046)
Discussant: Robert E. Hall, NBER and Stanford University

Bureau News

Economic Fluctuations Research Discussed

Approximately 75 members and guests of the NBER's Program in Economic Fluctuations met at Stanford University on February 2. Martin S. Eichenbaum of Northwestern University organized the following program:

Andrew Caplin, NBER and Columbia University, and John Leahy, Princeton University, "State-Dependent Pricing and the Dynamics of Money and Output"

Standard macroeconomic models of price stickiness assume that each firm leaves its price unchanged for a fixed amount of time. Caplin and Leahy present an alternative model in which the pricing decision depends on the state of the economy. Their model produces a positive money-output correlation and an empirical Phillips curve. In addition, they find that the impact of monetary shocks depends crucially on the current level of output. This points to a natural connection between state-dependent microeconomics and state-dependent macroeconomics.

Lucas studies the effects of monetary disturbances in an economy in which sellers of goods fix nominal prices in advance, and consumers decide how many goods to buy at these preset prices. He provides an example of a monetary economy in which unanticipated changes in nominal spending flows induce less than proportional responses in nominal prices, and changes in the same direction in real output. The model does not require sellers to price identical items identically and, in equilibrium, they do not choose to do so.

Rotemberg and Woodford construct a dynamic gen-

eral equilibrium model in which the typical industry colludes by threatening to punish deviations from an implicitly agreed-upon pricing path. They argue that models of this type are better at explaining how the economy responds to aggregate demand shocks than competitive models are. The predictions of the model concerning the economy's response to changes in military spending are close to the estimated response based on actual postwar U.S. data.

Judd examines the optimal taxation of labor and capital income in various dynamic, stochastic models. He concludes that several seemingly irrational features of U.S. tax policy (for example, nominal depreciation allowances and taxation of income rather than consumption) may contribute to the efficiency of taxation in a stochastic environment. He also finds that the optimality of monetary policy depends on the nominal aspects of the tax system since seigniorage is relatively insignificant. Finally, fiscal surpluses are related positively to changes in the unemployment rate. This is consistent with optimal taxation in a real business cycle model and, therefore, does not support Keynesian interpretations of fiscal policy.

Aiyagari and Gertler construct models with these features: 1) the risk-free real interest rate is very low, and the average real return on short-term U.S. government debt is close to zero; 2) there is a large spread between returns on liquid assets (government debt and liquid accounts at depository institutions and money market funds) and stocks, and the "equity premium" has averaged about 6 percent per annum; and 3) transaction velocities for bank money market funds and bank savings accounts are about fourteen times and six times higher than velocities for stocks. Then they introduce a demand for liquid assets by adding uninsured individual risk to the differential costs of trading securities. By attempting to match the return data, they estimate a ratio of liquid assets to income that is considerably below observed levels.

Is the basic economic decisionmaking unit the household or the extended family? Altonji, Hayashi, and Kotlikoff use matched data on parents and their adult children, contained in the Panel Study of Income Dynamics, to test the altruism model against the life-cycle and Keynesian alternatives. They find that the distribution of resources across households within the extended family is a highly significant (statistically and economically) determinant of the distribution of consumption within the extended family. This finding holds for the entire sample, as well as for the subsample consisting of rich parents and poor children. They then test the life-cycle model by asking whether only own resources matter: that is, whether the resources of extended family members have no effect on a *household's* consumption. They find that the resources of extended family members have, at most, a modest effect on household consumption after controlling for the fact that extended family resources help to predict a household's own permanent income.

Credit Market Imperfections

Approximately 30 members and guests of the NBER's Program in Economic Fluctuations met in Palo Alto on February 3 to discuss credit market imperfections and economic activity. David S. Bizer of Johns Hopkins University organized the following program:

Gary Gorton, University of Pennsylvania, "Free Banking, Wildcat Banking, and the Market for Bank Notes"
Discussant: Robert E. Hall, NBER and Stanford University

Stephen D. Williamson, Federal Reserve Bank of Minneapolis, "Communication Costs, the Banking System, and Aggregate Activity"
Discussant: Russell Cooper, NBER and University of Iowa

David S. Bizer, and Peter M. DeMarzo, Northwestern University, "Labor Contracts, Banking, and Moral Hazard"
Discussant: Mark L. Gertler, NBER and Columbia University

Charles M. Kahn, University of Illinois, Urbana–Champaign, and Dilip Mookherjee, Stanford University, "Decentralized Exchange and Efficiency under Moral Hazard"
Discussant: Darrell Duffie, Stanford University

Joseph E. Stiglitz, NBER and Stanford University, and Andrew Weiss, NBER and Boston University, "Credit Rationing and Its Implications for Macroeconomics"
Discussant: R. Glenn Hubbard, NBER and Columbia University

Simon Gilchrist, University of Wisconsin, Madison, "An Empirical Analysis of Corporate Investment and Financing Hierarchies Using Firm-Level Panel Data"
Discussant: Glenn Rudebusch, Federal Reserve Board

Deborah J. Lucas, Northwestern University, and Robert L. McDonald, NBER, University of Chicago, and Northwestern University, "Equity Issues and Stock Price Dynamics"
Discussant: Bruce N. Lehmann, NBER and Columbia University

During the American Free Banking Era, 1838–63, all banks issued distinct private monies, called bank notes. These notes circulated at discounts from face value in secondary markets at a distance from the issuing bank. Gorton uses a newly discovered dataset of monthly bank note prices for all banks in North America from 1838–59 to study the secondary market for privately issued bank notes. He constructs the durations and costs of trips between Philadelphia and other locations, implicit in the cost of buying and selling the notes, and finds that the market worked well. The transportation costs of note redemption explain part of the variation in bank note discounts. Bank default risk was priced

differentially and such risk premiums varied cyclically.

Williamson constructs a model in which banks provide access to a communications technology that facilitates trade. Bank liabilities may coexist with alternative means of payment in equilibrium. Banking may dominate the payments system and physical exchange media may dominate. In early stages of economic development, rapid growth in measured output is accompanied by an increase in the share of banking in transactions activity, and there are recurrent "panic" periods in which large reductions in measured output are accompanied by increases in the currency/deposit ratio and by deflations. In later stages, growth moderates and panics are less likely.

Bizer and DeMarzo include banking in a model of moral hazard to show that the second-best principal-agent contract implies a latent demand for banking. When firms take banking opportunities into account in setting the labor contract, the equilibrium allocation is third-best. Loan schedules offered by banks embody credit constraints. Finally, a bankruptcy law can be an efficient social institution when firms cannot restrict their workers from outside contracting with a bank.

Kahn and Mookherjee investigate the efficiency of decentralized activity in general equilibrium under incentive constraints. They focus on the problem of moral hazard when trades cannot be monitored. They devise a new notion of third-best constrained optimality, which takes into account the inability of central planners to enforce exclusive contracts. They develop a general contracting game that models decentralized behavior and a solution concept that stresses the limited abilities of coalitions of players to coordinate their actions when the members of the coalitions cannot be monitored. For the insurance problem, they derive the equilibriums of the game and compare them with constrained Pareto-optimal allocations that would be mandated by a central planner, given varying degrees of limitation on his monitoring capability.

Stiglitz and Weiss investigate the macroeconomic equilibriums of an economy in which credit contracts have both adverse selection and incentive effects. The terms of credit contracts include both an interest rate and a collateral requirement. In this model, all types of borrowers may be rationed. Interest rates charged borrowers may move either procyclically or countercyclically. If procyclical shocks have a greater effect on the success probabilities of risky techniques than on safe ones, then the interest rate offered depositors also may move countercyclically, Finally, they show that the impact of monetary policy on the macroeconomic equilibrium is affected by whether or not the economy is in a regime in which credit is rationed.

Gilchrist examines the role of financial constraints in investment equations. He rejects the perfect capital market model of investment in favor of an alternative model based on a financing hierarchy that results from imperfect capital markets. The underlying investment model is more general than models in most previous studies using firm level data, since it allows for both imperfect competition and nonconstant returns to scale. Gilchrist also finds that cash flow is a significant determinant of investment for firms that appear to face financing constraints.

Lucas and McDonald present a model of the decision to issue equity. The model's predictions about stock price behavior and the timing of an issue explain most of the facts in the empirical literature. Equity issues on average are preceded by an abnormal positive return on the stock, although there is considerable variation across firms. They also are preceded by an abnormal rise in the market. The stock price drops significantly at the announcement of an issue. In Lucas and McDonald's model, the price drop at announcement of issue is not correlated with the social cost of suboptimal investment because of asymmetric information; the welfare loss may be small even if the price drop is large.

In addition to the authors and discussants, participants included: David Aschauer and Bruce C. Petersen, Federal Reserve Bank of Chicago; Enrica Detragiache, Johns Hopkins University; Martin S. Eichenbaum, NBER and Northwestern University; Roger E. A. Farmer, University of California at Los Angeles; Steven M. Fazzari, University of Washington; Kenneth L. Judd and Peter C. Reiss, NBER and Stanford University; Anil Kashyap, Federal Reserve Board; Mordecai Kurz, Stanford University; Ross Starr, University of California at San Diego; and Michael Woodford, University of Chicago.

First Annual U.S.–Japan Economic Forum

The first annual U.S.–Japan Economic Forum was held on February 15–17 in Hawaii. Organized by Martin Feldstein, NBER and Harvard University, and Yutaka Kosai, Japan Center for Economic Research (JCER), this meeting brings together younger U.S. CEOs and Japanese executives who will be leaders of their corporations in the 1990s, to discuss various issues of international concern.

The Economic Forum consisted of four sessions, each of which included background papers written by an NBER and a JCER economist, and presentations by four corporate executives. The background papers, presentations, and a summary of discussion at the sessions will be published in English and in Japanese.

The program was:

American and Japanese Corporate Responses to Europe 1992

Robert E. Lipsey, NBER and Queens College, City University of New York, "American Firms Face Europe: 1992" (NBER Working Paper No. 3293)

Chikao Tsukuda, Institute for International Trade and Investment, "EC '92 and Japanese Corporate Strategies toward Europe"

Discussants:
George Fisher, Motorola Corporation
James Houghton, Corning Glass Works
Shoichiro Irimajiri, Honda Motor Company
Kinichi Kadono, Toshiba Corporation

New Directions in Financial Markets
Frederic S. Mishkin, NBER and Columbia University, "Financial Innovation and Current Trends in U.S. Financial Markets"

Hirohiko Okumura, Nomura Research Institute, "Recent Development of and Future Outlook for Financial Deregulation in Japan"

Discussants:
John S. Reed, Citicorp
Yoshihiko Miyauchi, Orix Corporation
James Montgomery, Great Western Financial Corporation
Tasuku Takagaki, Bank of Tokyo

The Changing Nature of Labor Markets and Personnel Policies
Lawrence H. Summers, NBER and Harvard University, "American Labor Markets in the 1990s"

Haruo Shimada, Keio University, "Labor Markets and Labor Management Practices: Changes and Challenges"

Discussants:
Paul Allaire, Xerox Corporation
Robert Haas, Levi Strauss & Co.
Yotaro Kobayashi, Fuji Xerox
Akira Tobishima, Tobishima Corporation

Foreign Investments in Manufacturing in the United States and Japan
Kenneth A. Froot, NBER, Harvard University, and MIT, "Japanese Foreign Direct Investment"

Toshihiro Horiuchi, JCER, "Myth and Reality: U.S. and Japan's Asymmetrical Cross Foreign Direct Investment in Manufacturing Industries"

Discussants:
Joseph Gorman, TRW
Takashi Imai, Nippon Steel
Henry Schacht, Cummins Engine Company
Tatsuro Toyoda, Toyota Motor Corporation

Reprints Available

The following NBER Reprints, intended for nonprofit education and research purposes, are now available. (Previous issues of the *NBER Reporter* list titles 1–1326 and contain abstracts of the Working Papers cited below.)

These reprints are free of charge to corporate associates and other sponsors of the National Bureau. For all others there is a charge of $2.00 per reprint to defray the costs of production, postage, and handling. Please do not send cash. Reprints must be requested by number, in writing, from: Reprint Series, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138.

1327. "The Employer Size-Wage Effect," by Charles C. Brown and James L. Medoff, 1989 (NBER Working Paper No. 2870)

1328. "International Portfolio Nondiversification and Exchange Rate Variability," by Alan C. Stockman and Harris Dellas, 1989 (NBER Working Paper No. 1342)

1329. "The Equilibrium and Optimal Timing of Price Changes," by Laurence Ball and David H. Romer, 1989 (NBER Working Paper No. 2412)

1330. "The Size and Incidence of the Losses from Noise Trading," by J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers, and Robert J. Waldmann, 1989 (NBER Working Paper No. 2875)

1331. "Second Mortgages and Household Saving," by Joyce M. Manchester and James M. Poterba, 1989 (NBER Working Paper No. 2853)

1332. "Assessing the Federal Reserve's Measures of Capacity and Utilization," by Matthew D. Shapiro, 1989

1333. "Exchange Rate Dynamics with Sticky Prices: The Deutsche Mark, 1974–82," by Alberto Giovannini and Julio J. Rotemberg, 1989 (NBER Working Paper No. 1281)

1334. "Integration of Mortgage and Capital Markets and the Accumulation of Residential Capital," by Patric H. Hendershott and Robert VanOrder, 1989 (NBER Working Paper No. 2847)

1335. "The Impact of the Agencies on Conventional Fixed-Rate Mortgage Yields," by Patric H. Hendershott and James D. Shilling, 1989 (NBER Working Paper No. 2646)

1336. "Production, Sales, and the Change in Inventories," by Jeffrey A. Miron and Stephen P. Zeldes, 1989 (NBER Working Paper No. 2765)

1337. "Business Cycles and the Exchange Rate Regime," by Marianne Baxter and Alan C. Stockman, 1989 (NBER Working Paper No. 2689)

1338. "Birth, Death, and Taxes," by Andrew B. Abel, 1989 (NBER Working Paper No. 2953)

1339. "Markets, Market Failures, and Development," by Joseph E. Stiglitz, 1989 (NBER Working Paper No. 2961)

1340. "Tariffs, Capital Accumulation, and the Current Account in a Small Open Economy," by Partha Sen and Stephen J. Turnovsky, 1989 (NBER Working Paper No. 2781)

1341. "Incentives, Information, and Organizational Design," by Joseph E. Stiglitz, 1989 (NBER Working Paper No. 2979)

1342. "Dealing with Debt: The 1930s and the 1980s," by Barry J. Eichengreen and Richard Portes, 1989 (NBER Working Paper No. 2867)

1343. "The Founding of the Fed and the Destabilization of the Post-1914 U.S. Economy," by Jeffrey A. Miron, 1989 (NBER Working Paper No. 2701)

1344. "Trade in Nominal Assets," by Lars E. O. Svensson, 1989 (NBER Working Paper No. 2417)

1345. "Exchange Rate Variability and Asset Trade," by Torsten Persson and Lars E. O. Svensson, 1989 (NBER Working Paper No. 2811)

1346. "Real Exchange Rates and Macroeconomics: A Selective Survey," by Rudiger Dornbusch, 1989 (NBER Working Paper No. 2775)

1347. "Should Governments Learn to Live with Inflation?" by Stanley Fischer and Lawrence H. Summers, 1989 (NBER Working Paper No. 2815)

1348. "Tax Reform and Adjustment Costs: The Impact on Investment and Market Value," by Alan J. Auerbach, 1989 (NBER Working Paper No. 2103)

1349. "Gibson's Paradox and the Gold Standard," by Robert B. Barsky and Lawrence H. Summers, 1989 (NBER Working Paper No. 1680)

1350. "The Basic Analytics of Moral Hazard," by Richard J. Arnott and Joseph E. Stiglitz, 1988 (NBER Working Paper No. 2484)

1351. "Vertical Restraints and Producers' Competition," by Patrick Rey and Joseph E. Stiglitz, 1988 (NBER Working Paper No. 2601)

1352. "Toward a Theory of Rigidities," by Bruce C. Greenwald and Joseph E. Stiglitz, 1989 (NBER Working Paper No. 2938)

1353. "Does Monetary Policy Matter? A New Test in the Spirit of Friedman and Schwartz," by Christina D. Romer and David H. Romer, 1989 (NBER Working Paper No. 2966)

1354. "Changes in the Structure of Wages: The United States versus Japan," by Lawrence F. Katz and Ana L. Revenga, 1989 (NBER Working Paper No. 3021)

1352. "Implicit Contracts, Labor Mobility, and Unemployment," by Richard J. Arnott, Arthur J. Hosios, and Joseph E. Stiglitz, 1988 (NBER Working Paper No. 2316)

Technical Papers Series

The following studies in the NBER Technical Working Papers series are now available (see previous issues of the *NBER Reporter* for other titles). Like NBER Working Papers, these studies may be obtained by sending $2.00 per paper to: Technical Working Papers, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please do not send cash.

84. "The Ramsey Problem for Congestible Facilities," by Richard J. Arnott and Marvin Kraus. February 1990

85. "On the Formulation of Uniform Laws of Large Numbers: A Truncation Approach," by Benedikt M. Potscher and Ingmar R. Prucha. February 1990 (JEL No. 211)

86. "Efficient Estimation of Linear Asset Pricing Models with Moving-Average Errors," by Lars Peter Hansen and Kenneth J. Singleton. March 1990 (JEL Nos. 131, 211, 531)

87. "Simulated Moments Estimation of Markov Models of Asset Prices," by Darrell Duffie and Kenneth J. Singleton. March 1990 (JEL No. 211)

Bureau Books

Tax Policy, Volume 4

Tax Policy and the Economy, Volume 4, edited by Lawrence H. Summers, is now available. The cloth volume is priced at $26.95; the paperback is $13.95.

This volume presents the papers and discussions of the NBER's fourth annual tax policy conference, held in Washington last November. In the first paper, Summers and Daniel R. Feenberg ask who benefits from reductions in the capital gains tax. Next, Eytan Sheshinski contrasts the tax treatment of capital income in several industrialized countries. Mark L. Gertler and R. Glenn Hubbard investigate the effect of taxation on corporate capital structure. Alan J. Auerbach and Laurence J. Kotlikoff consider the influence of demographics on saving. Finally, Lawrence H. Goulder studies the possibility of withholding taxes on foreigners' U.S. interest income.

This volume should appeal to anyone with a basic understanding of economics who is interested in tax issues.

Summers is a research associate in the NBER's Program in Taxation and the Nathaniel Ropes Professor of Political Economy at Harvard University.

Tax Policy and the Economy may be ordered directly from the MIT Press, 55 Hayward Street, Cambridge, MA 02142; their telephone number is (617) 253-2884.

The following volumes may be ordered directly from the University of Chicago Press, Order Department, 11030 South Langley Avenue, Chicago, IL 60628. Academic discounts of 10 percent for individual volumes and 20 percent for standing orders for *all* NBER books published by the University of Chicago Press are available to university faculty; orders must be sent on university stationery.

Taxation in the Global Economy

Taxation in the Global Economy, edited by Assaf Razin and Joel B. Slemrod, will be available from the University of Chicago Press in May. The price is $58.

This volume is based on a February 1989 conference that brought together experts in taxation and international economics to explore the role of tax policy in a unified and integrated world economy. The papers should appeal to graduate students and professionals with a strong background in economics.

Razin is an NBER research associate in international studies and the Daniel Ross Professor of International Economics at Tel Aviv University. Slemrod is an NBER research associate in taxation and professor of economics, business economics, and public policy at the University of Michigan.

The Measurement of Durable Goods Prices

The Measurement of Durable Goods Prices by Robert J. Gordon is available from the University of Chicago Press for $85.

In this volume, Gordon documents the need for a dramatic improvement in the indexes of economic activity commonly used to describe and study the economy. He argues that in government indexes, price measures for consumer goods are typically not adjusted adequately for quality changes in the goods that may have occurred. Yet accurate price measurement is critical for any evaluation of a nation's progress in achieving price stability and economic growth.

Gordon analyzes different techniques for measuring quality-adjusted prices for consumer durables and presents the results, along with a new set of price indexes for producer and durable goods. His indexes differ fundamentally from those published by the government in terms of methodology of measurement, sources of data, and empirical implications, and they offer a unique perspective from which to reconsider the way in which official data series are constructed. This volume is part of a long research tradition at the Bureau: the painstaking collection of basic statistical data combined with innovative reevaluation of existing concepts and techniques.

Gordon is a research associate in the NBER's Program in Economic Fluctuations and the Stanley G. Harris Professor in the Social Sciences at Northwestern University.

Volume II in Developing Country Debt Series

Developing Country Debt and Economic Performance, Volume 2: Country Studies—Argentina, Bolivia, Brazil, and Mexico, is available from the University of Chicago Press for $65. Jeffrey D. Sachs is the editor.

This volume contains comprehensive case studies of four debtor countries with very different economies. Mexico is an oil exporter with significant manufactured exports; Argentina and Brazil import oil and export agricultural products; and Bolivia exports oil and other raw materials. These four countries thus were affected very differently by the sharp increase in oil prices that occurred in the late 1970s, yet all of them suffered serious debt crises beginning in 1982. This volume emphasizes that the common experience of these four debtors was an inability to keep government spending in line with government revenues and a tendency to spend money on unproductive investments.

Volume 2 in this series should be of interest to graduate students in economic development, regional area specialists, and individuals who work with developing countries.

Sachs is a research associate in the NBER's Program in International Studies and the Galen L. Stone Professor of International Trade at Harvard University.

Current Working Papers

Individual copies of NBER Working Papers and Historical Factors in Long-Run Growth Working Papers are available free of charge to corporate associates and other supporters of the National Bureau. Others can receive copies of Working Papers by sending $2.00 per copy to Working Papers, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please make checks payable to the National Bureau of Economic Research, Inc. Please do not send cash.

Journal of Economic Literature (JEL) subject codes, when available, are listed after the date of the Working Paper. Abstracts of all Working Papers issued since January 1990 are presented below. For previous papers, see past issues of the *NBER Reporter.* Working Papers are intended to make results of NBER research available to other economists in preliminary form to encourage discussion and suggestions for revision before final publication. They are not reviewed by the Board of Directors of the NBER.

Historical Factors in Long-Run Growth

Modeling Complex Dynamic Interactions: The Role of Intergenerational, Cohort, and Period Processes and of Conditional Events in the Political Realignment of the 1850s

Robert W. Fogel
Historical Working Paper No. 12
March 1990
JEL No. 042

This paper attempts to break open the stochastic component of a major political change and to show that what appears to be the product of purely random events is the particular conjunction of systematically definable processes. These processes collectively provide a favorable context in which purely chance events operate. Only in a particular context can purely chance events become decisive in bringing about a particular political outcome.

Section 1 emphasizes that Lincoln's margin of victory in 1860 was so small that any one of a number of chance events could have resulted in his defeat. Sections 2–4 outline the intergenerational, cohort, and period changes and events that created a favorable context for the political realignment of the 1850s.

Section 5 describes the key chance events of 1855–6, which were necessary to the formation of a major national Republican Party in 1856. It also describes the chance (or at least exogenous) events of 1857–9 without which there could have been splits in the Republican Party that would have ensured the victory of a proslavery candidate for the presidency in 1860.

Section 6 deals with the problems and advantages of turning the theory of the political realignment of the 1850s, implicit in Sections 2–5, into an explicit, testable mathematical model. Section 7 explains why it is impossible to produce a general theory of political realignments that would have significant predictive power.

NBER Working Papers

Industrial Dediversification and Its Consequences for Productivity

Frank R. Lichtenberg
Working Paper No. 3231
January 1990
JEL Nos. 220, 510, 610

In large part because of intense takeover activity during the 1980s, industrial diversification of American firms has declined significantly during the second half of the decade. The mean number of industries in which firms operated declined by 14 percent, and the fraction of single-industry firms increased by 54 percent. Firms that were "born" during the period were much less diversified than those that "died," and "continuing" firms reduced the number of industries in which they operated. Using plant-level Census Bureau data, I show that productivity is related inversely to the degree of diversification. Holding constant the number of plants of the parent firm, the more industries in which the plant operates, the lower is the productivity of its plants. Hence, dediversification is one way in which recent takeovers have contributed to U.S. productivity growth. I also find that regulations governing disclosure of financial information by companies for their industry segments were not very effective when they were introduced in the 1970s and have been less effective ever since.

A Note on Optimal Fines When Wealth Varies among Individuals

A. Mitchell Polinsky and **Steven Shavell**

In the economic theory of enforcement, under certain circumstances it is optimal for a fine to be as high as possible—to equal the entire wealth of individuals. Such a fine allows the probability of detection to be as low as possible, thereby saving enforcement costs. This paper shows that when the level of wealth varies among individuals, the optimal fine generally is less than the wealth of the individuals with the greatest wealth and may well be less than the wealth of most individuals.

Are OSHA Health Inspections Effective? A Longitudinal Study in the Manufacturing Sector

Wayne B. Gray and **Carol Adaire Jones**

We examine the impact of OSHA health inspections on compliance with agency regulations in the manufacturing sector. We use a unique plant-level dataset of inspection and compliance behavior in 1972–83, the first 12 years of OSHA enforcement operations. Two major findings are robust across the range of linear and count models estimated in the paper: 1) the number of citations and the number of violations of worker exposure restrictions decrease with additional health inspections in manufacturing plants; and 2) the first health inspection has the strongest impact. The results suggest that prior research focusing on the limited impact of OSHA safety regulations may underestimate OSHA's total contribution to reducing workplace risks.

The Impact of the Tax Reform Act of 1986 on Foreign Direct Investment to and from the United States

Joel B. Slemrod

Since the passage of the Tax Reform Act of 1986 (TRA86), foreign direct investment (FDI) has surged both into and out of the United States. Inward FDI reached an all-time high of $58.4 billion in 1988, continuing a secular increase that began in the late 1970s. Outward FDI reached an all-time high of $44.5 billion in 1987; contrary to the case of inward FDI, this represented a sharp turnaround from the early 1980s. But outward FDI in 1988 fell back to $17.5 billion, approximately its 1985 level; after adjusting for capital gains and tax haven transactions, outward FDI is lower as a fraction of GNP than it was in the late 1970s.

This paper asks how tax reform has been responsible for the surge in FDI and how it has affected the mix of investment, its financing, and its timing. The link between tax policy and aggregate FDI is difficult to make, both because the net incentive effect of several new provisions is not clear and because it is impossible, with fewer than three years of post-TRA86 data, to sort out any tax effect from other influences on FDI. However, several aspects of recent FDI performance are consistent with the effect of TRA86 on incentives, including the strength of outward FDI to low-tax countries and the increase in net transfers of debt abroad. For inward FDI, the predominance of Japanese and U.K. investment, the relative decline of debt transfers, and the increased reported rate of return are consistent with changed tax incentives.

The Sensitivity of Strategic and Corrective R and D Policy in Battles for Monopoly

Kyle Bagwell and **Robert W. Staiger**

We characterize the strategic and corrective role for R and D subsidies in an export market in which R and D is uncertain and the winner of the R and D competition monopolizes the market. Investments in R and D induce either first-order, or mean-preserving second-order, shifts in the distribution of: 1) a firm's costs, with the low-cost firm then monopolizing the product market; or, under a reinterpretation of the model, 2) a firm's discovery dates, with the first firm to make the discovery enjoying infinite patent protection. We show that regardless of the form of uncertainty in the R and D process, there is a national strategic incentive to subsidize R and D. That must be balanced against a national corrective incentive to tax R and D whenever a country has more than one firm involved in the R and D competition. We conclude that an R and D subsidy is likely to be attractive in markets in which scale economies are sufficiently large that firms battle for the eventual monopoly position, only if there are few domestic firms involved in the R and D stage.

The Sensitivity of Strategic and Corrective R and D Policy in Oligopolistic Industries

Kyle Bagwell and **Robert W. Staiger**
Working Paper No. 3236
January 1990
JEL Nos. 441, 422

We evaluate the sensitivity of the case for an R and D subsidy in an export sector when the outcome of R and D is uncertain and the resulting product market is oligopolistic. Investments in R and D induce either first-order, or mean-preserving second-order, shifts in the distribution of a firm's costs. Firms then compete in either prices or quantities in the product market. When R and D reduces the mean of a firm's cost distribution, then there is a national strategic basis for R and D subsidies, whether firms choose prices or quantities. This national strategic incentive to subsidize R and D must be balanced against the national corrective incentive to tax R and D that arises whenever there is more than one domestic firm. However, when R and D preserves the mean but alters the riskiness of a firm's cost distribution, then the national strategic basis for R and D intervention disappears completely; the national corrective incentive is to subsidize R and D whenever there is more than one domestic firm. We conclude that the crucial determinant of appropriate R and D policy is the nature of the R and D process itself.

The Tax Elasticity of Capital Gains Realizations: Evidence from a Panel of Taxpayers

Joel B. Slemrod and **William Shobe**
Working Paper No. 3237
January 1990
JEL No. 323

We use a newly available six-year panel of tax return data to estimate the tax elasticity realizations of capital gains. The panel data are particularly valuable, because they can help to distinguish short-run from long-run effects and because they track the behavior of individuals when faced with varying tax systems. We find consistent, although not overwhelming, support for an inverse response of realizations of capital gains to changes in the rate of taxation. The response to deviations from past tax rates generally exceeds the response to persistent tax changes. We estimate the realization response to be large enough to substantially mitigate the revenue loss that a tax reduction would cause otherwise; especially in the short run, the response may be large enough to generate an increase in revenues. However, these results must be qualified by their nonrobustness to specification changes along a number of dimensions and by the fact that a more general dynamic specification does not yield plausible results.

A North–South Model of Taxation and Capital Flows

Joel B. Slemrod
Working Paper No. 3238
January 1990
JEL Nos. 323, 441

In this paper, I present a simple two-country model of the role of taxation in capital flows between developed countries ("The North") and developing countries ("The South"). I assume that the southern country cannot enforce a tax on its residents' foreign-source income, and that the northern country chooses not to impose a withholding tax on portfolio income earned within the country.

World equilibrium in the model involves excessive (by the standard of global efficiency and southern welfare) flows of capital across borders, and insufficient investment located in the South. Under certain conditions, the South's national income could be improved if the North would impose a withholding tax on portfolio income that leaves the country, even though the South sacrifices tax revenue to the North. A southern tax on foreign-source income may dominate this, depending on the resource cost of enforcing such a tax.

Faculty Turnover at American Colleges and Universities: Analyses of AAUP Data

Ronald G. Ehrenberg, Hirschel Kasper, and **Daniel I. Rees**
Working Paper No. 3239
January 1990
JEL Nos. 821, 912

This paper uses institutional level data, collected by the American Association of University Professors as part of their annual survey of faculty members' compensation, to analyze faculty turnover. Analyses of aggregate data over almost a 20-year period highlight how remarkably stable faculty retention rates have been nationwide and how little they vary across broad categories of institutions. Analyses of variations in faculty retention rates across individual institutions stress the role that faculty compensation levels play. Higher levels of compensation appear to increase retention rates for assistant and associate professors (but not for full professors). The magnitude of this effect grows larger as one moves from institutions with graduate programs to four-year undergraduate institutions to two-year institutions.

Reviving the Federal Statistical System: International Aspects

Robert E. Lipsey
Working Paper No. 3240
January 1990
JEL Nos. 220, 400

Despite the impression that the federal statistical system has been starved for resources, the record over the last decade or so, judged by conventional deflation methods, has been one of rough stability. The quality of U.S. international data on commodity and service trade, direct investment, and export and import prices has improved, but there has been a serious deterioriation in data on portfolio capital flows, stocks, and income.

Where improvements have taken place, the main source has been computerization, both inside and outside the federal statistical system. The standard deflators for expenditures do not take adequate account of the decline in the cost of computing and therefore impart a downward bias to the estimates of input.

Despite the gains in some areas, serious deficiencies remain for the increasingly important international sector. The improvements that have occurred have resulted mainly from congressional and outside pressures, while successive administrations have shown little concern with the quality of the data they produce and, presumably, use for policymaking.

A Convex Model of Equilibrium Growth

Larry E. Jones and **Rodolfo Manuelli**
Working Paper No. 3241
January 1990

This paper describes a convex model of equilibrium growth that is strictly in the Solow tradition. It has two features that distinguish it from most other work on the subject. First, the model is convex on the technological side; second, fixed factors are included explicitly. Our model differs from the standard single-sector growth model because the marginal product of capital does not converge to zero as the level of inputs goes to infinity. We show that the long-run growth rate in per capita consumption depends, in the natural way, on the parameters describing tastes and technology. We also show that some policies have effects on growth while others affect only levels of economic activity. In a free trade equilibrium with taxation, national growth rates of consumption and output need not converge.

Speculative Dynamics

David M. Cutler, James M. Poterba,
and **Lawrence H. Summers**
Working Paper No. 3242
January 1990
JEL Nos. 520, 313

This paper presents evidence on the characteristic speculative dynamics of a wide range of asset returns. It highlights three stylized facts. First, returns tend to be serially correlated positively at high frequency. Second, returns tend to be serially correlated negatively over long horizons. Third, deviations of asset values from proxies for fundamental value have predictive power for returns. These patterns emerge repeatedly in our analyses of stocks, bonds, foreign exchange, real estate, collectibles, and precious metals. They appear too strong to be attributed only to small sample biases. The pervasive nature of these patterns suggests that they may be caused by inherent features of the speculative process, rather than by variation in risk factors that affect particular markets.

Speculative Dynamics and the Role of Feedback Traders

David M. Cutler, James M. Poterba,
and **Lawrence H. Summers**
Working Paper No. 3243
January 1990
JEL Nos. 313, 520

This paper summarizes our earlier research that documented the characteristic speculative dynamics of many asset markets and suggests a framework for understanding these dynamics. Our model incorporates "feedback traders": traders whose demand is based on the history of past returns rather than on the expectation of future fundamentals. We use this framework to describe ways in which the characteristic return patterns might be generated and also to address the long-standing question of whether profitable speculation stabilizes asset markets.

Export Restraints with Imperfect Competition: A Selective Survey

Kala Krishna
Working Paper No. 3244
January 1990
JEL No. 422

This paper is a selective survey of research on the effects of export restraints with imperfect competition.

Although there are a number of excellent surveys of strategic trade theory as a whole, not much attention has been paid to the effects of export restraints per se. The large and growing literature in this area is explicitly game theoretic and contains a wide variety of models that often yield different results. For this reason, the research in this area can be difficult to follow.

I provide a stylized overview and contrast short-run effects with long-run effects. The short-run effects that usually are studied are on pricing behavior. Long-run effects are multidimensional and include effects on quality choice and investment that often work in the opposite direction from short-run effects.

A Modern Look at Asset Pricing and Short-Term Interest Rates

Martin Evans and **Paul Wachtel**
Working Paper No. 3245
January 1990
JEL No. 311

This paper uses modern asset pricing theory to examine the behavior of short-term nominal interest rates over the past 25 years. The analysis investigates whether variation in the stochastic behavior of output and inflation can explain movements in the rate of interest. Our results reveal that much of the month-to-month movement in nominal interest rates reflects changes in the real rate and the risk premiums rather than inflationary expectations.

A Variance Decomposition for Stock Returns

John Y. Campbell
Working Paper No. 3246
January 1990
JEL No. 313

This paper shows that unexpected stock returns must be associated with changes in expected future dividends or expected future returns. I use a vector autoregressive method to break unexpected stock returns into these two components. In U.S. monthly data in 1927–88, one-third of the variance of unexpected returns is attributed to the variance of changing expected dividends, one-third to the variance of changing expected returns, and one-third to the covariance of the two components. Changing expected returns have a large effect on stock prices because they are persistent: a 1 percent innovation of the expected return is associated with a 4 or 5 percent capital loss. Changes in expected returns are correlated negatively with changes in expected dividends, increasing the stock market reaction to dividend news. In 1952–88, changing expected returns account for a larger fraction of stock return variation than they do in 1927–51.

Short Rates and Expected Asset Returns

Kenneth A. Froot
Working Paper No. 3247
January 1990

I show that short-term interest rates forecast excess returns on many alternative assets: foreign exchange; stocks; bonds; and commodities. On average, a one-percentage-point increase in short rates is associated with annualized excess returns that are 3 percent lower. To test whether this predictability is attributable to time-varying risk, I formulate independent measures of excess returns using survey data on expected returns. I find similar predictability in these measures, too. Since the surveys don't include risk premiums, the predictable components cannot be attributed to risk. I suggest that when short rates are high (low), investors are excessively optimistic (pessimistic) about alternative-asset returns.

Tax Harmonization and Tax Competition in Europe

Hans-Werner Sinn
Working Paper No. 3248
January 1990
JEL No. 420

Opening Europe's borders in 1993 makes the allocation of resources more vulnerable to differences in national tax rates. The first part of this paper demonstrates that direct consumer purchases will cause distortions because of diverging value-added tax rates, and exchange rates will not eliminate those distortions. I then show that, in the case of direct taxation, a harmonization of tax bases is more important than a harmonization of tax rates. Either the combination of true economic depreciation and residence taxation, or the combination of immediate write-off and source taxation, will result in an efficient international allocation of capital, independent of the national tax rates. In conclusion, I argue that free migration renders a policy of income redistribution—interpreted as insurance against the risk of lifetime careers—impossible.

Nominal Exchange Rate Patterns: Correlations with Entry, Exit, and Investment in U.S. Industry

Linda S. Goldberg
Working Paper No. 3249
January 1990
JEL Nos. 430, 431, 440

Correlations among exchange rate patterns and data on business formation, business failure, and sec-

torial investment in new plant and equipment support the view that the strength of the dollar in the early 1980s was associated with persistent restructuring of U.S. industry. Short-term trend depreciations of the dollar are associated with reallocation of resources across sectors, while longer-term trend depreciations are associated with investment expansions in many sectors of industry. Persistent exchange rate volatility is strongly associated with investment contractions; this effect is weakest during periods of depreciation. This finding suggests a second-order effect of depreciation trends: during periods of trend depreciation, the negative and significant correlation between exchange rate volatility and investment is reduced.

Herd on the Street: Informational Inefficiencies in a Market with Short-Term Speculation

Kenneth A. Froot, David S. Scharfstein,
and **Jeremy C. Stein**
Working Paper No. 3250
February 1990
JEL No. 313

Standard models of informed speculation suggest that traders try to glean information that others do not have. The result implicitly relies on the assumption that speculators have long horizons, that is, they can hold the asset forever. By contrast, we show that if speculators have short horizons, they may "herd" on the same information, trying to learn what other informed traders also know. There can be multiple herding equilibriums, and herding speculators may even choose to study information that is completely unrelated to fundamentals. These equilibriums are informationally inefficient.

Unemployment and the Demand for Unions

David G. Blanchflower, Robert Crouchley, Saul Estrin,
and **Andrew J. Oswald**
Working Paper No. 3251
February 1990

Why do people in open shops join unions when they would receive union wage rates even if they were not members? Why are unionization rates so low in southeast England? We treat these questions as interrelated, and we consider the idea that unions offer insurance against victimization and arbitrary dismissal. Consistent with our theoretical approach, we find that union density is greatest, ceteris paribus, within establishments in areas of high unemployment.

What Makes a Young Entrepreneur?

David C. Blanchflower and **Andrew J. Oswald**
Working Paper No. 3252
February 1990

We study the factors that shape entrepreneurship among young adults. Using data on a British birth cohort, we find that the probability of self-employment depends sensitively upon whether the individual ever received a gift or inheritance. Those who were given or bequeathed £5000, for example, were approximately twice as likely, ceteris paribus, to start a business. This is consistent with, and a new test of, recent results from the United States stressing the importance of capital and liquidity constraints. We also evaluate a number of hypotheses suggested in the literature on small businesses.

Workers' Compensation Insurance and the Duration of Workplace Injuries

Alan B. Krueger
Working Paper No. 3253
February 1990
JEL No. 822

This paper uses a new administrative microdataset to examine the effect of a legislated increase in the minimum and maximum workers' compensation benefit on the duration of workplace injuries in Minnesota. As a result of legislation, workers in some earnings groups received higher benefits if they were injured after the effective date of the benefit increase, while workers in other earnings groups received the same benefit regardless of when they were injured. The analysis compares the change in mean log injury duration for workers who were affected by the benefit increase to that of workers who were not affected by the benefit increase. The findings indicate that the duration of injuries increased by 8 percent more for the group of workers who experienced a 5 percent increase in benefits than for the group of workers who had no change in their benefit. Additional findings suggest that employees of self-insured firms who are injured on the job tend to return to work faster than employees of imperfectly experience-rated firms who incur similar injuries.

The Effect of Domestic Antidumping Law in the Presence of Foreign Monopoly

Robert W. Staiger and **Frank A. Wolak**
Working Paper No. 3254
February 1990
JEL Nos. 411, 422

We consider the effects of antidumping law as used by competitive domestic petitioners against a foreign

monopolist. The foreign monopolist must set the capacity before the realization of random foreign demand but can reduce the cost of holding excess capacity in periods of slack foreign demand by dumping on the domestic market. With the introduction of anti-dumping law in the domestic market, domestic firms file suits in periods of sufficiently shack foreign demand, directly reducing the volume of imports in such periods. Moreover, this occasional filing activity raises the cost to the foreign monopolist of holding excess capacity and, in so doing, results in a scaling back of foreign capacity. Thus, the volume of imports generally is reduced by the introduction of domestic anti-dumping law, even in periods in which no suit is filed.

Finally, we consider self-enforcing agreements between the domestic industry and the foreign monopolist that take the form of a promise by the domestic industry not to file in exchange for a promise by the foreign monopolist to export no more than a prespecified amount. We show that these agreements narrow the range over which suits are filed to only the softest states of demand and lead to greater foreign capacity. This partially mitigates both the direct and the indirect impacts of anti-dumping law on trade volume.

Federal Taxation and the Supply of State Debt

Gilbert E. Metcalf
Working Paper No. 3255
February 1990
JEL Nos. 313, 323, 324, 325

This paper presents a model of debt finance at the subnational level from which I derive municipal bond supply equations. I show that federal tax considerations are important determinants of the price entering the bond supply equation.

Using data on 40 state governments over a seven-year period in the 1980s, I show that federal tax rates have an important effect on the supply of municipal bonds, independent of the demand-side effect that usually is considered in the literature. Furthermore, the effect persists after controlling for capital expenditures. This suggests that municipal bond proceeds are fungible at the margin. This has implications for the measurement of the tax expenditure associated with tax-exempt debt.

A Quick Refresher Course in Macroeconomics

N. Gregory Mankiw
Working Paper No. 3256
February 1990
JEL No. 130

This paper presents a nontechnical discussion of some of the important developments in macroeconomics over the past 20 years. I consider three broad categories of research: 1) how the notion of rational expectations has affected economists' views on the role of economic policy, the debate over rules versus discretion, and empirical work in macroeconomics; 2) various new classical approaches to the business cycle, including theories of imperfect information, real business cycles, and sectorial shifts; and 3) various new Keynesian approaches to the business cycle, including theories based on general disequilibrium, labor contracting, and menu costs.

The Impact of the 1986 Tax Reform Act on Personal Saving

Daniel R. Feenberg and **Jonathan S. Skinner**
Working Paper No. 3257
February 1990
JEL No. 320

Many critics believed that the Tax Reform Act of 1986 (TRA86) would discourage saving. Yet personal saving rates have rebounded since 1987. This rebound might have been caused by a general decline in marginal tax rates on household saving. We estimate, at least for the 1980s, a positive elasticity of saving with respect to the aftertax rate of return. But the tax changes alone cannot account for the recent upswing in saving rates. Furthermore, the positive saving elasticity during the 1980s is fleeting and fragile; during the entire postwar period, the correlation between the aftertax rate of return and personal saving is zero at most.

We also consider three alternative ways by which TRA86 could have affected personal saving. First, the cutbacks in IRA eligibility were viewed by some as discouraging saving, but conventionally measured personal saving *increased* after IRA enrollment plummeted in 1987. We show that this anomalous finding may be an artifact of how personal saving is measured, since a different measure—the real change in household wealth —grew strongly during the mid-1980s, before leveling off after 1987. Second, the phasing out of personal credit interest deductions in TRA86 could have discouraged borrowing and thereby stimulated national saving. We find that wealthier taxpayers simply shuffled their personal credit loans into tax-deductible housing mortgages with little net effect on aggregate saving. Finally, saving could have been reduced in 1986 if taxpayers, rushing to realize capital gains before TRA86, spent their proceeds on big-ticket consumption goods. We also find little evidence in favor of this view, although we do find that much of the capital gains ended up in interest-bearing accounts. In sum, TRA86 had more impact on the composition than on the overall level of saving.

Designing Policies for Open Trade

Robert C. Feenstra, Tracy R. Lewis,
and **John McMillan**
Working Paper No. 3258
February 1990
JEL No. 420

We consider recent proposals to auction U.S. import quotas and use the resulting funds to encourage relocation out of the protected industries. We argue that the information, or lack thereof, available to the government is a critical factor in understanding these policies. In a world of full information, it makes little sense to use auction quotas rather than tariffs. Similarly, it is unclear why an elaborate program of temporary protection is needed, rather than immediately opening trade and compensating people with an income transfer. When the government has limited information, however, these policies become quite sensible and may even be optimal.

The Informational Content of Initial Public Offerings

Ian Gale and **Joseph E. Stiglitz**
Working Paper No. 3259
February 1990
JEL No. 022

The ability of capital markets to distinguish firms of different value by the size of their initial equity offerings is attenuated when insiders can sell equity more than once. We develop a model in which there is price risk from holding equity between periods. When uncertainty is small, there must be pooling in the first period. When uncertainty is large, the pooling equilibriums dominate the separating equilibrium.

The Effects of Mandating Benefits Packages

Olivia S. Mitchell
Working Paper No. 3260
February 1990
JEL No. 800

This paper identifies and, where possible, quantifies the potential labor market consequences of government mandating of employee benefits. I argue that mandating benefits could increase coverage and generosity for numerous workers and their families. However, even when mandating benefits does improve their provision, there will be offsetting effects, including wage and other benefit cuts, reduced work hours, reduced employment, and possible output reductions in covered sectors. Employer bias against "expensive-to-insure" workers also may result, producing labor market sorting and segmentation. In addition, many workers currently without benefit coverage are employees of small firms, women, part-time, and minimum-wage workers. Frequently, mandated benefit proposals exclude or reduce coverage for these workers to alleviate the financial burden on small firms. As a result, many uninsured people will not be helped by the type of mandated employee benefit program currently under review. A separate approach probably would be needed to meet the needs of those not covered by mandated benefit programs.

Product Innovations, Price Indexes, and the (Mis)measurement of Economic Performance

Manuel Trajtenberg
Working Paper No. 3261
February 1990
JEL Nos. 220, 621

This paper addresses the problem of "product innovations" (that is, new goods, increased variety, and quality change) in the construction of price indexes and, by extension, in the measurement of economic performance. My premise is that a great deal of technical progress takes the form of product innovations, but that conventional economic statistics fail, by and large, to reflect them. My approach consists of two stages: first, I estimate the benefits from innovations with the aid of discrete choice models. Second, I use those benefits to construct "quality-adjusted" price indexes.

Following a discussion of the merits of this approach vis-à-vis hedonic price indexes, I apply it to the case of CT (Computed Tomography) scanners. My main finding is that the rate of *decline* in the real price of CT scanners was a staggering 55 percent per year (on average) over the first decade of the technology. By contrast, a hedonic-based index captures just a small fraction of the decline, and a simple (unadjusted) price index shows a substantial price *increase* over the same period. Thus, conventional economic indicators indeed might be missing a great deal of the welfare consequences of technical advance, particularly during the initial stages of the product cycle of new products.

Pay, Performance, and Turnover of Bank CEOs

Jason R. Barro and **Robert J. Barro**
Working Paper No. 3262
February 1990
JEL Nos. 312, 821

We study the relationship of CEO pay and turnover

to performance and company characteristics in a new dataset that covers large commercial banks over 1982-7. For newly hired CEOs, the elasticity of pay with respect to assets is about one-third. As experience increases, the correlation between compensation and assets diminishes for about four years and then rises back to its initial value. We interpret these findings along the lines of Rosen's matching model, allowing for adjustments of compensation and bank assets and for possible dismissal of the CEO. For continuing CEOs, the change in compensation depends on performance as measured by stock and accounting returns. The sensitivity of pay to performance diminishes with experience, and there is no indication that stock or accounting returns are filtered for aggregate returns. Logit regressions relate the probability of CEO departure to age and performance. The relevant measure of performance in this context is stock returns filtered for average returns of banks in the same year and geographical region.

Can Direct and Indirect Taxes Be Added for International Comparisons of Competitiveness?

Hans-Werner Sinn
Working Paper No. 3263
February 1990

While it usually is argued that direct and indirect taxes should be added for meaningful international comparisons of country competitiveness, this paper argues that the opposite may be true. It is possible that a country with a high value-added tax needs a high capital income tax to maintain its international competitiveness and vice-versa. Which view is correct depends on which combination of the origin, destination, source, and residence principles prevail, and whether or not accelerated depreciation is allowed.

Macroeconomic Convergence: International Transmission of Growth and Technical Progress

Alan Chung and **John F. Helliwell**
Working Paper No. 3264
February 1990

This paper uses data for 19 industrial countries from 1960–85 to examine the evidence for international convergence of technical progress. We evaluate several models of convergence, including one in which convergence is affected by changes in a country's openness to trade. We also assess the extent to which convergence depends on some key measurement issues, including the use of purchasing power parities to com-pare real output in different countries, the use of different capital stocks in aggregate production functions, and alternative ways of representing embodied or disembodied technical progress. We assess the various models of technical progress by nonnested tests of both the estimated output equations (using the factor utilization model) and their related factor demand equations. The results show significant evidence of international convergence in the rates of growth of labor efficiency, and some evidence that convergence is faster for countries that have been increasing their openness to international trade. A more general model of output determination, encompassing variations in factor utilization as well as the autocorrelated technology shocks used in real business cycle models, was preferred over more restricted alternatives.

Dynamic Optimal Income Taxation with Government Commitment

Dagobert L. Brito, Jonathan H. Hamilton, Steven M. Slutsky, and **Joseph E. Stiglitz**
Working Paper No. 3265
February 1990

The problem of optimal income taxation has been studied extensively in one-period models. This paper analyzes optimal income taxation when consumers work for many periods. We also analyze what information, if any, the government learns about abilities in one period that can be used in later periods to attain more redistribution than in a one-period world. When the government must commit itself to future tax schedules, intertemporal nonstationarity of tax schedules could relax the self-selection constraints and lead to Pareto improvements. The effect of nonstationarity is analogous to that of randomization in one-period models. The use of information is limited, since only a single lifetime self-selection constraint exists for each type of consumer. These results hold when individuals and the government have the same discount rates. The planner can make additional use of the information when individual and social rates of time discounting differ. In this case, the limiting tax schedule is a nondistorting one if the government has a lower discount rate than individuals have.

Implications of Corporate Indebtedness for Monetary Policy

Benjamin M. Friedman
Working Paper No. 3266
February 1990
JEL No. 311

The extraordinary increase in reliance on debt by

U.S. business in the 1980s has generated widespread concern that overextended borrowers may become unable to meet their obligations, and that proliferating defaults then could lead to some kind of rupture of the financial system, with ensuing consequences for the nonfinancial economy as well. The thesis advanced in this paper, however, is that the more likely threat posed by a continuing rapid rise of corporate indebtedness is instead a return to rapid price inflation. In particular, a review of recent developments leads to four specific conclusions:

First, problems of debt service within the private sector are more likely to arise among business borrowers, not households. Because businesses, and especially corporations, have used much of the proceeds of their borrowing merely to pay down their own or other firms' equity, their interest payments have risen to post-war record levels compared to either their earnings or their cash flows.

Second, despite these high debt service burdens, debt default on a scale large enough to threaten the financial system as a whole is unlikely in the absence of a general economic downturn. But the sharp increase in indebtedness has made U.S. businesses crucially dependent on continued strong earnings growth.

Third, the consequent need to prevent a serious recession—to preclude the possibility of a systemic debt default—increasingly will constrain the Federal Reserve System's conduct of monetary policy. The Federal Reserve's reluctance to risk a situation of spreading business (and LDC) debt defaults, especially with the U.S. commercial banking system in its current exposed condition, increasingly will prevent it from either acquiescing in a recession or bringing one about on its own initiative.

Fourth, over time this constraint will limit severely the ability of monetary policy to contain or reduce price inflation. Episodes of disinflation in the United States since World War II invariably have involved business recessions, including declines in business earnings and increases in bankruptcies and defaults. If the economy's financial system has become too fragile to withstand any but the shortest and shallowest recession, it is unlikely to be able to support a genuine attack on inflation by monetary policy.

Men, Women, and Addiction: The Case of Cigarette Smoking

Frank J. Chaloupka
Working Paper No. 3267
February 1990
JEL Nos. 913, 916

I estimate equations of cigarette demand, derived from the Becker–Murphy (1988) model of rational addictive behavior, separately for men and women. These demand equations explain the reinforcement, tolerance, and withdrawal factors characterizing addictive consumption. The results of these equations support the hypothesis that cigarette smoking is an addictive behavior. It is particularly interesting that men are responsive to changes in the price of cigarettes, with a long-run price elasticity centered on –0.60, while women are virtually unresponsive to price changes. However, men behave more myopically than women do.

Rational Addictive Behavior and Cigarette Smoking

Frank J. Chaloupka
Working Paper No. 3268
February 1990
JEL Nos. 913, 916

After a discussion of cigarette smoking in the context of the Becker–Murphy (1988) model of rational addictive behavior, I derive demand equations that account for the tolerance, reinforcement, and withdrawal characteristic of addictive consumption. I contrast these to equations developed under the competing hypotheses that smoking is not addictive, or that cigarettes are addictive but that individuals behave myopically. I estimate the demand equations using adults interviewed as part of the Second National Health and Nutrition Examination Survey. Estimates support the assumptions that cigarette smoking is an addictive behavior and that individuals do not behave myopically. Long-run price elasticities of demand fall in the range of –0.38 to –0.27. These estimates suggest that increased excise taxation would be an effective way to reduce cigarette smoking. Estimates for samples of current smokers and "ever-smokers" indicate that price increases would lead to lower cigarette consumption among both groups.

Finally, I test the Becker–Murphy model's implications concerning the rate of time preference and addictive consumption by estimating the demand for cigarettes separately using samples based on age and education. Less educated and younger individuals behave much more myopically than their more educated or older counterparts. Additionally, more addicted (myopic) individuals are more responsive, in the long run, to changes in price than less addicted (myopic) individuals.

Why Is Trade Reform So Unpopular? On Status Quo Bias in Policy Reforms

Raquel Fernandez and **Dani Rodrik**
Working Paper No. 3269
February 1990
JEL No. 420

Despite the well-known gains from trade, trade liber-

alization is one of the most politically contentious actions that a government can take. We propose and formalize a new argument involving uncertainty that complements the usual explanations for this.

Many individuals simply do not know how they will fare under trade reform, and this can reduce support for a reform that otherwise would have been popular, even in the absence of risk aversion. We show that reforms that would have received adequate popular support ex post (that is, which would last) may fail to carry the day ex ante because of uncertainty regarding the distribution of gains and losses. Moreover, the role of uncertainty in determining the outcome is not symmetric; reforms that initially are rejected will continue to be rejected in the future, while the reforms that initially are accepted may find themselves reversed over time. We discuss empirical illustrations drawn from the experiences of South Korea, Chile, and Turkey to support our argument.

ing growth. Compared to previous statements of this well-known argument, this paper places more emphasis on the distinction between two of the fundamental attributes of any economic good: rivalry and excludability. It also emphasizes the difference between public goods and the technological advances that are fundamental to economic growth. Like public goods, technological advances are nonrival goods. Hence, they are inextricably linked to nonconvexities. But in contrast to public goods, which are nonexcludable, technological advances generate benefits that are at least partially excludable. Hence, innovations in the technology for the most part are provided privately. This means that nonconvexities are relevant for goods that trade in private markets. Consequently, an equilibrium with price-taking in all markets cannot be sustained. Finally, I describe some of the recent equilibrium growth models that do rely on price-taking and highlight some of the implications of these models.

Taxation and Housing Markets: Preliminary Evidence on the Effects of Recent Tax Reforms

James M. Poterba
Working Paper No. 3270
February 1990
JEL Nos. 323, 932

The tax changes of the 1980s altered the incentives for housing consumption. Reductions in marginal tax rates in both the Economic Recovery Tax Act (1981) and the Tax Reform Act (1986) reduced the attraction of homeownership, particularly at high income levels. The Tax Reform Act, by lowering depreciation allowances and implementing provisions inimical to tax shelters, also reduced the net tax subsidy to rental housing. In the long run, these changes will raise real rents and reduce the fraction of national income that is allocated to housing. Preliminary evidence shows a pronounced decline in rental housing construction since the 1986 tax bill, as well as a decline in the real price of owner-occupied homes, which may be partly attributable to the tax change.

Are Convexities Important for Understanding Growth?

Paul M. Romer
Working Paper No. 3271
February 1990

Everyday experience and a simple logical argument show that nonconvexities are essential for understand-

A Positive Theory of Social Security

Guido Tabellini
Working Paper No. 3272
February 1990
JEL Nos. 300, 320

In many countries, social security is a large fraction of the government budget. Why is this so, given that at any moment in time the number of recipients of social security benefits is smaller than the number of contributors? More generally, what determines the size of social security?

This paper studies an overlapping-generations model in which all individuals vote on social security. There is no commitment to preserve the legislation inherited from the past. Voters are weakly altruistic and there is heterogeneity within each generation. The paper shows that in equilibrium the size of social security increases as the proportion of elderly people in the population and the inequality of pretax income increase. Both of the theory's predictions are supported by the empirical evidence in cross-country data.

The Impact of Tax Reform on Charitable Giving: A 1989 Perspective

Charles T. Clotfelter
Working Paper No. 3273
March 1990

This paper examines the predicted effects of tax reform in the 1980s (the Tax Acts of 1981 and 1986) on charitable contributions by individuals and compares them to the actual and apparent effects, viewed from

the perspective of 1989. I conclude that the changes in contributions are quite consistent with the economic model of giving. As a result of these tax changes, average giving in high-income classes declined. These results imply that tax policy should continue to be considered one important determinant of the level of individual charitable contributions.

facturing between the regions. With lower transport costs, stronger scale economies, or a higher manufacturing share, circular causation sets in: the more manufacturing is located in one region, the larger that region's share of demand will be, and this provides an incentive to locate still more manufacturing there. Thus, when the parameters of the economy lie even slightly on one side of a critical "phase boundary," all manufacuring production ends up concentrated in only one region.

Asymmetries and Rigidities in Wage Adjustments by Firms

Harry J. Holzer and **Edward B. Montgomery**
Working Paper No. 3274
March 1990
JEL No. 824

In this paper we use microdata from the Employment Opportunity Pilot Project (EOPP) surveys of firms in 1980 and 1982 to test for labor market rigidities and asymmetries in response to demand shifts. We analyze wage and employment adjustments to positive and negative shifts, as measured by sales growth between 1979 and 1981. We analyze both the entire sample of firms and selected subsamples based on firm size, unionization, industry, and skill mix.

The results show that wage adjustments are fairly rigid, compared with employment adjustments; they are also quite asymmetric, with significant adjustments in response to positive shifts, but little adjustment in response to negative shifts. These asymmetries are not more pronounced in large firms or in manufacturing, heavily waged, or highly skilled industries than in other firms or industries. In contrast, employment adjustments show no consistent pattern of asymmetry.

Increasing Returns and Economic Geography

Paul R. Krugman
Working Paper No. 3275
March 1990
JEL Nos. 112, 410

This paper develops a two-region, two-sector general equilibrium model of location. The location of agricultural production is fixed, but monopolistically competitive manufacturing firms choose their location to maximize profits. If transportation costs are high, returns to scale weak, and the share of spending on manufactured goods low, then the incentive to produce close to the market leads to an equal division of manu-

Trade and Uneven Growth

Robert C. Feenstra
Working Paper No. 3276
March 1990
JEL Nos. 111, 411

I consider trade between two countries of unequal size, each creating new intermediate inputs. I assume that the knowledge gained from R and D in one country *does not* spill over to the other country. Under autarky, the larger country would have a higher rate of product creation. I find that when trade occurs in the final goods, the rate of product creation in the smaller country is slowed, even in the long run. In contrast, the larger country enjoys a temporary increase in its rate of R and D. I also examine the welfare consequences of trade in the final goods, which depend on whether or not the intermediate inputs are traded.

Distributing the Gains from Trade with Incomplete Information

Robert C. Feenstra
Working Paper No. 3277
March 1990
JEL Nos. 422, 026

I argue that the *incomplete information* that the government has about domestic agents means that tariffs become an optimal instrument to protect these agents from import competition. I solve for the optimal government policies, subject to the constraints of ensuring Pareto gains from trade, incentive compatibility, and the government's budget.

I find that the optimal policies take the form of nonlinear tariffs, so that both buyers and sellers of the import face an effective price that exceeds its world level. The tariffs are never complete, in the sense of bringing prices for all individuals back to their initial level. Rather, it will always be possible to make some individuals strictly better off than at the initial prices, while ensuring that no persons are worse off.

Changing Effects of Monetary Policy on Real Economic Activity

Benjamin M. Friedman
Working Paper No. 3278
March 1990
JEL No. 311

Major changes have taken place in the U.S. economy within the past quarter century. Changes with implications that are at least potentially important for the effect of monetary policy on real economic activity include: the elimination of Regulation Q interest ceilings and the development of the secondary mortgage market; the greater openness of the U.S. economy, including both goods markets and financial markets; and the rapidly increasing indebtedness of private borrowers, including especially nonfinancial business corporations.

Examination of relationships between monetary policy and economic activity at a detailed, disaggregated level indicates several changes within the past quarter century that are broadly consistent with these changes in the underlying economic environment: First, the elimination of major episodes of credit rationing in the mortgage market clearly has rendered housing less sensitive to restrictive monetary policy; moreover, there is no solid evidence of change in the sensitivity of homebuilding to mortgage interest rates. Second, business fixed investment has become more sensitive to financial market conditions, at least in the short run. Third, consumer spending has become less sensitive to interest rate increases and stock price declines, at least in situations that persist for lengthy periods. Fourth, although foreign trade clearly has grown relative to aggregate U.S. economic activity, both exports and imports exhibit less sensitivity to exchange rate changes, and hence presumably less sensitivity to monetary policy actions, than in earlier years.

Asset Prices under Habit Formation and Catching Up with the Joneses

Andrew B. Abel
Working Paper No. 3279
March 1990
JEL No. 520

This paper introduces a single utility function that nests three classes of utility functions: 1) time-separable utility functions; 2) "catching up with the Joneses" utility functions that depend on the consumer's level of consumption relative to the lagged cross-sectional average level of consumption; and 3) utility functions that display habit formation. I derive closed-form solutions for equilibrium asset prices under the assumption that consumption growth is i.i.d. For some parameter values, the equity premiums under catching up with the Joneses and under habit formation are as large as the historically observed equity premium in the United States.

The Effects of Colleges and Universities on Local Labor Markets

Patricia Beeson and **Edward Montgomery**
Working Paper No. 3280
March 1990

Despite the anecdotal evidence linking regional economic growth to the presence of high-quality universities in such areas as Silicon Valley in California and Route 128 in Boston, there have been few systematic studies of the relationship between universities and local economies. This paper examines the relationship among four measures of the quality or extent of activities of colleges and universities in an area and various measures of the local labor market activity, including employment, income, and migration.

We could not disprove the lack of a relationship between our measures of university activity and the overall employment rate in a Standard Metropolitan Statistical Area (SMSA). However, we did find evidence that colleges and universities affect the composition of employment in an SMSA. The probability of being employed as a scientist or engineer, and the probability of being employed in a high tech industry, both were found to increase with the amount of R and D funding at local universities. The probability of being employed in a high tech industry also was found to be positively related to the number of graduates from local universities. We also found evidence that employment growth rates and earnings are higher in areas with good universities. Finally, the data cannot reject the hypothesis that net migration is unrelated to universities.

Capital Market Integration: Issues of International Taxation

Assaf Razin and **Efraim Sadka**
Working Paper No. 3281
March 1990
JEL Nos. 400, 440

This paper analyzes three issues in international taxation: 1) how opening the economy to international capital movements can affect the size and structure of the fiscal branch of government; 2) optimal restrictions on capital exports in the face of capital flight; and 3) the structure of taxes on mobile factors that emerges from international tax competitions, and the gains from international tax harmonization.

Was There a "Peso Problem" in the U.S. Term Structure of Interest Rates: 1979–82?

Karen K. Lewis
Working Paper No. 3282
March 1990
JEL Nos. 310, 430

From just after October 1979 through 1982, the Federal Reserve System allowed interest rates to fluctuate widely, in contrast to its 1970s policy of targeting rates. In 1982 the Fed changed to an operating procedure that reduced the variation in interest rates. This paper uses the term structure of Eurodollar returns to estimate the market's belief that the Fed might revert to interest rate targeting. The model yields plausible estimates of the probability of a switch in monetary regimes.

Endogenous Market Structures in International Trade

Ignatius J. Horstmann and **James R. Markusen**
Working Paper No. 3283
March 1990
JEL No. 410

Almost all of the literature on international trade with imperfect competition assumes that market structures are exogenous. This paper develops a simple model that generates alternative market structures as Nash equilibriums for different parameterizations of the basic model. Familiar configurations, such as a duopoly competing in exports or a single multinational producing in both markets, arise as special cases. Small changes in tax policy can produce large welfare effects as the equilibrium market structure shifts, implying discontinuous jumps in prices, quantities, and profits.

First-Mover Advantages, Blockaded Entry, and the Economics of Uneven Development

James R. Markusen
Working Paper No. 3284
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This paper presents a two-sector, two-period trade model in which one sector has increasing returns based on the creation of specialized intermediate inputs. One of the two (otherwise identical) countries is not able to enter the increasing-returns sector in the first period through some "accident of history." A theoretical and numerical analysis solves for parameter regimes under which firms in the disadvantaged country are, or are not, able to enter the increasing-returns sector in the second period. The welfare consequences of the two alternative second-period outcomes are compared and each is compared to an equilibrium with both countries entering in the first period. The disadvantaged country may fall further behind in the second period even when its firms are able to enter.

Does It Matter What We Trade? Trade and Industrial Policies When Labor Markets Don't Clear

William T. Dickens
Working Paper No. 3285
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JEL Nos. 822, 410

In efficiency wage models, firms set employment so that the value of the marginal revenue product of labor (VMRPL) equals the wage. If efficiency wages result in interindustry wage differences for comparable workers, then there are welfare-enhancing industrial trade policies that shift employment from low- to high-wage industries. Previous attempts to measure the potential impact of such policies have assumed that wages equal the VMRPL, but not all explanations for interindustry wage differences have that property.

From the evidence on interindustry wage differences, this paper argues that rent-sharing/extraction models are preferable to other explanations. However, not all such models have the property that wages equal the VMRPL. In the model presented, VMRPL is set equal to the opportunity cost of labor, so policies to shift employment to high-wage industries would be of no value. Further, the empirical work that has been done to assess the importance of labor market distortions for trade and industrial policy is not applicable if such models correctly explain interindustry wage differences.

I develop a rent-extraction model that takes into account workers' limited information about the profitability of their company. In that model, high-wage industries have high VMRPL, so policies to shift employment to high-wage industries are appropriate. Past empirical studies of the effects of trade and industrial policy are approximately correct, according to this model.

The Effect of the Medicaid Program on Welfare Participation and Labor Supply

Robert Moffitt and **Barbara Wolfe**
Working Paper No. 3286
March 1990
JEL No. 910

Although there is extensive literature on the effect of

Aid to Families with Dependent Children and Food Stamps on labor supply and welfare participation, there has been little work on the effects of Medicaid, despite its importance in the U.S. transfer system. This paper uses 1986 data from the Survey of Income and Program Participation to examine the effect of Medicaid on the labor supply and welfare participation decisions of female heads of family. In particular, it develops a family-specific proxy for the valuation of Medicaid benefits that depends upon the health and other characteristics of the family.

We find that Medicaid has strong and significant negative effects on labor supply and positive effects on welfare participation. Those effects are concentrated in the tail of the distribution with the highest expected medical expenditures. We also find that the availability and level of private health insurance has very large effects that are opposite in sign to those of Medicaid.

Debt, Deficits, and Inflation: An Application to the Public Finances of India

Willem H. Buiter and **Urjit R. Patel**
Working Paper No. 3287
March 1990
JEL Nos. 134, 321, 121, 310

This paper studies the solvency of the public sector in India and the eventual monetization and inflation implied by stabilizing the debt–GNP ratio without changes in the primary deficit. The nonstationarity of the discounted public debt suggests that indefinite continuation of the pattern of behavior reflected in the historical discounted debt process is not consistent with maintaining solvency. This message is reinforced by the recent behavior of the debt–GNP ratio and by the ratio of primary surplus plus seigniorage to GNP. Our estimates of the base money demand function suggest that even maximal use of seigniorage will not be sufficient to restore solvency.

Pareto-Efficient Tax Structures

Dagobert L. Brito, Jonathan H. Hamilton,
Steven M. Slutsky, and **Joseph E. Stiglitz**
Working Paper No. 3288
March 1990
JEL No. 321

Most analyses of optimal income taxation make restrictive technical assumptions about preferences (such as single-crossing) and only derive properties of welfare-maximizing tax schedules. Here we describe Pareto-efficient tax structures for an economy with any finite numbers of groups and commodities, assuming only continuity and monotonicity of preferences. Most results follow directly from a property of self-selection: at an optimum, one group will never envy the bundle of another group that pays a larger total tax. The bundle of a group paying the largest total tax is not distorted. Assuming normality, undistorted outcomes for a group form a connected segment on the constrained utility possibility frontier. We also describe the tax structure at distorted outcomes.

Randomization in Optimal Income Tax Schedules

Dagobert L. Brito, Jonathan H. Hamilton,
Steven M. Slutsky, and **Joseph E. Stiglitz**
Working Paper No. 3289
March 1990
JEL No. 321

The optimal income tax problem, since it requires self-selection constraints that define nonconvex feasible sets, may require randomization in the solution. For a two-class economy, we characterize the optimal random tax schedules. We also present necessary and sufficient conditions for the desirability of local randomization. The standard single-crossing restriction on preferences is not required for these results. We also show that randomization can be beneficial without violating (ex post as well as ex ante) horizontal equity. Finally, we give an example to demonstrate that the gains from randomization may be large.

Are Japanese Stock Prices Too High?

Kenneth R. French and **James M. Poterba**
Working Paper No. 3290
March 1990
JEL Nos. 521, 313

The difference between reported price/earnings ratios in the United States and Japan is not as puzzling as it appears at first glance. Nearly half the disparity is caused by differences in accounting practices with respect to consolidation of earnings from subsidiaries and depreciation of fixed assets. If Japanese firms used U.S. accounting rules, the P/E ratio for the Tokyo Stock Exchange would have been 32.1, not the reported 54.3, at the end of 1988. However, accounting differences cannot explain the sharp rise in the Japanese stock market during the mid-1980s. Changes in required returns on equities, or in investor expectations of future growth for Japanese firms, must be invoked to explain this phenomenon. Real interest rates declined during the period of rapid price increase, but there is little evidence that growth expectations became more optimistic. However, the real interest rate changes do not appear large enough to account fully for the change in stock prices.

Noncointegration and Econometric Evaluation of Models of Regional Shift and Share

Scott J. Brown, N. Edward Coulson,
and **Robert F. Engle III**
Working Paper No. 3291
March 1990
JEL No. 941

This paper tests for cointegration between regional output of an industry and national output of the same industry. We present an equilibrium economic theory to argue for the plausibility of cointegration. However, regional economic forecasting using the shift-and-share framework often acts as if cointegration does not exist. Data analysis on broad industrial sectors for 20 states finds very little evidence for cointegration. Then we construct forecasting models with and without cointegration and use them to forecast out of sample. The simplest, noncointegrating models are the best.

Determinants of Saving and Labor Force Participation of the Elderly in Japan

Guorn Liu, Tadashi Yamada, and **Tetsuji Yamada**
Working Paper No. 3292
March 1990
JEL Nos. 810, 910

Japanese annual time-series data for 1951 to 1982 reveal that changes in social security retirement benefits have a substantial influence on personal saving and retirement behavior. Social security retirement benefits depressed personal saving by approximately 13.5 thousand yen per capita in real terms from 1951 to 1982. However, declining labor force participation of the elderly (that is, earlier retirement) stimulated personal saving by an estimated 0.5 thousand yen over the same period.

We find that the benefit effect dominates the retirement effect. Consequently, the net effect is a downward impact on personal saving. We estimate that the retirement behavior induced by social security retirement benefits tends to become more sensitive and responsive to a rise in the benefits. In addition, there is a negative interdependency between the personal saving and labor retirement behaviors. That is, an individual saves more before retirement if he expects to stay a shorter time in the labor market, and vice-versa. Moreover, personal saving tends to become less and less responsive to retirement behavior, although the results indicate a relatively large response. Retirement behavior gradually becomes more responsive to changes in personal saving, although the response is very small.

American Firms Face Europe: 1992

Robert E. Lipsey
Working Paper No. 3293
March 1990
JEL Nos. 423, 440

The press and business magazines are filled with stories about a rush of American firms into the European Community (EC) to take advantage of, or avoid, the adverse consequences of the expected formation of a single market in 1992. Yet, it is hard to find evidence of a large shift in plant and equipment expenditures, employment, or financial investment toward the EC countries by American firms. The main reason seems to be that large American manufacturing firms already are well entrenched in the EC and may be even better positioned to take advantage of the single market than most of their European rivals are. The U.S. firms (unlike most Japanese companies) already supply almost all their share of the EC market from operations within the EC and depend very little on importing from the United States. There is some indication of moves toward EC production by nonmanufacturing operations, such as distribution and services, by smaller companies, by those not now producing extensively in the EC, and by firms hoping to take part in public procurement.

Specific Capital, Mobility, and Wages: Wages Rise with Job Seniority

Robert H. Topel
Working Paper No. 3294
March 1990

The idea that wages rise relative to alternatives as job seniority accumulates is the foundation of the theory of specific human capital, as well as other widely accepted theories of compensation. The fact that persons with longer job tenures typically earn higher wages tends to support these views, yet this evidence ignores the decisions that have brought individuals to the combination of wages, job tenure, and experience that are observed in survey data. Allowing for sources of bias generated by these decisions, this paper uses longitudinal data to estimate a lower bound on the average return to job seniority among adult men. I find that 10 years of current job seniority raises the wage of the typical male worker in the United States by over 25 percent. This is an estimate of what the typical worker would lose if his job were to end exogenously. Overall, the evidence implies that accumulation of specific capital is an important ingredient in the typical employment relationship, and of life-cycle earnings and productivity as well. Continuation of these relationships has substantial specific value for workers.

Inventories and the Short-Run Dynamics of Commodity Prices

Robert S. Pindyck

I examine the behavior of inventories and their role in the short-run dynamics of commodity production and price. Competitive producers of a storable commodity react to price changes by balancing costs of changing production with costs of changing inventory holdings. To determine these costs, I estimate a structural model of production, sales, and storage for copper, heating oil, and lumber. I then examine the implications of these costs for inventory behavior, and for the behavior of spot and futures prices. I find that inventories may serve to smooth production during periods of low or normal prices, but, during periods of temporarily high prices, inventories have a more important role in facilitating production and delivery scheduling and avoiding stockouts.

This paper differs from earlier studies of inventory behavior in three respects. First, I focus on homogeneous and highly fungible commodities. This helps avoid aggregation problems, simplifies the meaning of marginal convenience yield, and allows the use of direct measures of units produced, rather than inferences from dollar sales. Second, I estimate Euler equations and allow marginal convenience yield to be a convex function of inventories. This is more realistic and better explains the value of storage and its role in the dynamics of price. Third, I use futures prices to measure marginal convenience yield directly. This produces tighter estimates of the parameters of the convenience yield function.

Stock Returns and Real Activity: A Century of Evidence

G. William Schwert

This paper analyzes the relationship between real stock returns and real activity from 1889–1988. It replaces Fama's (1990) results for 1953–87 using an additional 65 years of data. It also compares two measures of industrial production in the tests: 1) the series produced by Babson for 1889–1988, spliced with the Federal Reserve Board index of industrial production for 1919–88; and 2) the new Miron and Romer (1989) index spliced with the Fed index in 1941. Fama's findings are robust for a much longer period; future production growth rates explain a large fraction of the variation in stock returns. The new Miron–Romer measure of industrial production is less closely related to movements in stock prices than the older Babson and Federal Reserve Board measures.

Predictable Stock Returns: Reality or Statistical Illusion?

Myung Jig Kim and **Charles R. Nelson**

Recent research suggests that stock returns are predictable from fundamentals, such as dividend yield, and that predictability rises with the length of the horizon over which the return is measured. This paper investigates the magnitude of two sources of small sample bias in these results.

First, it is a standard result in econometrics that regression on the lagged value of the dependent variable is biased in finite samples. Since a fundamental such as the price/dividend ratio is a statistical proxy for lagged price, predictive regressions are potentially subject to a corresponding small sample bias. This may create the illusion that one can buy low and sell high in the sample even if the relationship is useless for forecasting. Second, multiperiod returns are positively autocorrelated by construction, raising the possibility of spurious regression. Standard errors that are computed from the asymptotic formula may not be large enough in small samples.

We present a set of Monte Carlo experiments in which data are generated by a version of the present value model in which the discount rate is constant so returns in fact are not predictable. We show that a number of the characteristics of the historial results can be replicated simply by the combined effects of the two small sample biases.

Investment Tax Credit in an Open Economy

Partha Sen and **Stephen J. Turnovsky**

This paper contrasts the effects of a permanent and a temporary investment tax credit (ITC) in an open

economy. In both cases, an ITC initially will stimulate investment while reducing employment and output and generating a current account deficit. If the ITC is permanent, the accumulation of capital leads to a higher equilibrium capital stock, higher employment and output, and a reduction in the economy's stock of net credit. If the ITC is temporary, the economy eventually moves to a new steady-state equilibrium after its removal with a lower permanent capital stock and employment, together with a higher stock of net credit.

Does Foreign Exchange Intervention Matter? Disentangling the Portfolio and Expectations Effects for the Mark

Kathryn M. Dominguez and **Jeffrey A. Frankel**
Working Paper No. 3299
March 1990
JEL No. 431

How can foreign exchange intervention affect the exchange rate? We attempt to isolate two distinct effects: the portfolio effect, whereby an increase in the supply of marks must reduce the dollar/mark rate (for given expected rates of return); and the additional expectations effect, whereby intervention that is publicly known may alter investors' expectations of the future exchange rate, which will feed back to the current equilibrium price.

We estimate a system with two equations: one describes investors' portfolio behavior; the other describes their formation of expectations. The two endogenous variables are the current spot rate and investors' expectation of the future spot rate. We use relatively new data sources: actual daily data on intervention by the Bundesbank; newspaper stories on known intervention; and survey data on investors' expectations.

We find evidence of both an expectations effect and a portfolio effect. The statistical significance of the portfolio effect suggests that even sterilized intervention may have had positive effects during the sample period. (It tends to be significant only during the later of our two sample periods, October 1984 to December 1987. The fact that intervention appears less significant statistically during the earlier period, November 1982 to October 1984, could be because little intervention was undertaken until 1985.) For our effects to be large, intervention must be known publicly. Our (still preliminary) estimates suggest that a typical $100 million of "secret" intervention has an effect of less than 0.1 percent on the exchange rate, but that the effect of news reports of intervention can be as large as an additional 4 percent.

Premature Liberalization, Incomplete Stabilization: The Ozal Decade in Turkey

Dani Rodrik
Working Paper No. 3300
March 1990
JEL Nos. 121, 133, 134

In late 1979, Turkey stood in the throes of a foreign exchange crisis, with widespread shortages, negative growth, and inflation in triple digits. A decade later, Turkey has a comfortable balance-of-payments situation, and sits atop considerable foreign exchange reserves. The economy has achieved a remarkable transformation from an inward-oriented outlook to an outward-oriented one. Yet, after some success in the early 1980s, inflation remains unconquered and the public sector budget is out of control.

This paper provides an interpretation of the Turkish experience in the 1980s. Some economists argue that foreign capital inflows in the early 1980s cushioned the fiscal squeeze and allowed a relatively painless reduction in inflation alongside a process of export-oriented growth. In the best of all possible worlds, the outward-oriented reforms would have taken sufficient root by the mid-1980s to allow the public sector to undertake the delayed retrenchment as the inflows came to an end, at no great cost to output. Instead, policy followed a mix of liberalization with patronage politics, detrimental to monetary discipline. Financial liberalization reduced demand for base money at the same time that fiscal balances came under increasing strain because of the external transfer. Inflation was rekindled under the dual influence of fiscal deficits and a shrinking base for the inflation tax.

Patent Statistics as Economic Indicators: A Survey

Zvi Griliches
Working Paper No. 3301 Parts I and II
March 1990
JEL Nos. 621, 226

This survey reviews the growing use of patent data in economic analysis. After describing some of the main characteristics of patents and patent data, it focuses on the use of patents as an indicator of technological change. I review cross-sectional and time-series studies of the relationship of patents to R and D expenditures, as well as scattered estimates of the distribution of patent values and the value of patent rights (the latter being based on recent analyses of European patent renewal data). I examine time-series trends of patents granted in the United States; their decline in the 1970s

is an artifact of the budget stringencies at the Patent Office. I interpret the longer-run downward trend in patents per R and D dollar not as an indication of diminishing returns but rather as a reflection of the changing meaning of such data over time. I conclude that, in spite of many difficulties and reservations, patent data remain a unique resource for the study of technical change.

From Stabilization to Growth

Rudiger Dornbusch
Working Paper No. 3302
March 1990

The 1980s were a lost decade for Latin America. Will the 1990s also be lost? For some countries, stabilization has not even started. In other countries, the accomplishments of stabilization remain tentative and vulnerable. Even those countries that have firmly established a new path for their economic management are still waiting for economic growth to return.

The hardest part of stabilization is the transition to growth. Even with major adjustment efforts in place, growth does not resume spontaneously. If the lack of recovery is caused by coordination failure, then market forces cannot resolve the difficulty: a mechanism must be found to bring about the coordination.

Do Publicly Traded Corporations Act in the Public Interest?

Roger H. Gordon
Working Paper No. 3303
March 1990
JEL No. 520

Models of corporate behavior normally assume that a firm acts in the interest of shareholders, and that shareholders care only about the returns they receive on the shares they own in that firm. But shareholders also should care about the effects of a manager's decisions on the value of shares they own in other firms, on the price they pay as consumers of the firm's output, on the value of the firm's bonds they own, on government tax revenue that finances public expenditures benefiting shareholders, and so on. These effects normally are presumed to be of second order. This paper reexamines this presumption, argues that many of these effects are likely to be important, and examines how a variety of conventional conclusions about corporate behavior change as a result.

The International Comparison Program: Current Status and Problems

Irving B. Kravis and **Robert E. Lipsey**
Working Paper No. 3304
March 1990
JEL Nos. 220, 400

This paper reviews the International Comparison Program (ICP), a worldwide effort to produce international comparisons of real GDP and its components and purchasing power parities (PPPs) of currencies. A generous estimate of margins of uncertainty in the benchmark estimates might be 20–25 percent for low-income countries and 7 percent for high-income countries. The errors in extrapolations to countries not covered by the surveys could go as high as 30–35 percent. That is still a small range of error compared to what stems from the use of exchange rates to convert own-currency to common currency measures of output. Furthermore, exchange rate conversions are even more sensitive to methodology than PPP conversions are. The notion that exchange comparisons rest on a simple and transparent procedure using standard market data is illusory.

The future of ICP measures seems assured in Europe, particularly in the European Community. The prospects for systematic worldwide comparisons do not look as bright. A renewed effort by the United Nations Statistical Office and the World Bank would be needed to maintain an ICP with comprehensive coverage and comparable methods in all major regions.

Measuring the Persistence of Expected Returns

John Y. Campbell
Working Paper No. 3305
March 1990
JEL No. 313

This paper summarizes earlier research on the sources of variation in monthly U.S. stock returns for 1927–88. I use a log–linear model to break unexpected returns into changing expectations about future dividends and changing expectations about future returns. Even though stock returns are not highly forecastable, the model attributes one-third of the variation in returns to changing expected returns, one-third to changing future dividends, and one-third to the covariance between these components. Changing expected returns have a large effect on the stock market because their movements are persistent and negatively correlated with changing expected dividends.

Is the Japanese Distribution System Really Inefficient?

Takatoshi Ito and **Masayoshi Maruyama**
Working Paper No. 3306
March 1990

This paper investigates the efficiency of the Japanese distribution system, as measured by the distribution margin. Most of the discussions on the Japanese distribution system so far have relied on institutional descriptions and anecdotal evidence, failing to substantiate the case. This paper shows that the Japanese and U.S. distribution sectors are roughly the same in terms of value-added and distribution margins. Therefore, it is not true that the distribution sector adds up to unnecessary distribution costs or earns monopolistic operating profits. This paper does not address the question of whether the distribution system is acting as a nontariff barrier. Thus, even if the distribution sector in Japan is judged to be "efficient," there is the possibility that it works as a barrier to potential new entrants from both home and foreign manufacturers.

Irreversibility, Uncertainty, and Investment

Robert S. Pindyck
Working Paper No. 3307
March 1990

Most investment expenditures have two important characteristics: they are largely irreversible, and the firm cannot disinvest, so the expenditures are sunk costs; they can be delayed, allowing the firm to wait for new information about prices, costs, and other market conditions before committing resources. An emerging literature has shown that this has important implications for investment decisions and for the determinants of investment spending. Irreversible investment is especially sensitive to risk, whether with respect to future cash flows, interest rates, or the ultimate cost of the investment. Thus if a policy goal is to stimulate investment, stability and credibility may be more important than tax incentives or interest rates.

This paper presents some simple models of irreversible investment, and shows how optimal investment rules and the valuation of projects and firms can be obtained from contingent claims analysis, or from dynamic programming. It demonstrates some strengths and limitations of the methodology and shows how the resulting investment rules depend on various parameters that come from the market environment. It also reviews a number of results and insights that have appeared in the literature recently, and discusses possible policy implications.

Incentive Conflict in the International Regulatory Agreement on Risk-Based Capital

Edward J. Kane
Working Paper No. 3308
March 1990
JEL No. 314

Intergovernmental regulatory cooperation is fundamentally cartel behavior and subject to principal-agent conflict. In negotiating the 1988 risk-based capital agreement, most western officials' unstated goals arguably may be described as postponing the pain of adapting their domestic regulatory schemes to successor officials' watch. They hoped they could buy time by raising book-value capital requirements for Japanese banks.

Efficient-market theory indicates that the market value rather than the book value of a bank's capital impacts its funding cost. It also clarifies that restrictions on domestic and foreign bank competition for Japanese deposits unfairly enhance Japanese banks' ability to intermediate that country's massive capital exports.

Real Rents and Household Formation: The Effect of the 1986 Tax Reform Act

Donald R. Haurin, Patric H. Hendershott,
and **Dongwook Kim**
Working Paper No. 3309
March 1990
JEL Nos. 323, 932

Although the economic literature has analyzed some components of the "headship decision," household formation primarily has been studied in the realm of demography. We begin with a pure demographic model and expand it to include additional determinants of the decision of whether to remain with parents, to marry, and to live with a group or separately. Our results, based on a sample of 2355 youth in their twenties, indicate that 1) rental costs, wealth, and the potential wage that a youth could earn are important in explaining the outcomes of these choices; and 2) including the economic variables significantly changes the estimated impacts of the demographic variables.

The expanded economic model allows us to predict that some public policies will affect headship rates of youth. This prediction is of interest because choices of living arrangements often have implications for demands on public services and housing. As an example, we use the 1986 Tax Reform Act and focus on a single outcome: the expectation of higher rental costs. If rentals rise by 20 percent, as predicted by some tax analysts, we estimate a reduction of 500,000 in the number of 1986 households formed by youth ages 21 to 29.

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