pears to have been caused more by income growth than by financial liberalization. Also, after financial innovation, economies with more perfect capital markets experience: 1) a smoother decline in consumption when the economy moves into recession; 2) a slower consumption recovery; and 3) a larger cumulative consumption loss.

Cecchetti and **Kashyap** study 20 years of monthly production data for 11 industries and 19 countries, and uncover eight recurring patterns of international business and seasonal cycles: 1) A tremendous amount of volatility in production in explained by seasonal shifts. In France and Italy, for example, output falls steeply in the vacation month of August. 2) Seasonal shifts are not very highly correlated across countries. 3) The country-level differences are larger than the industry-level patterns in seasonality. 4) There are considerable differences in the timing and magnitude of business cycles across countries. 5) Except for textiles, transportation equipment, and to a lesser extent, chemicals, the seasonal cycle in production is significantly less volatile during a business cycle boom than during a contraction. 6) There are significant cyclical/seasonal interactions common to all industries in a given country for about one-third of the countries. 7) In relative terms, the estimated interactions that are common to countries are larger than those common to industries. 8) The reallocation of production from high-output months to low-output months, which typically occurs in moving from a business cycle trough to a peak, sometimes is quite large.

Elliott and **Fatás** analyze the transmission of shocks across countries, and how investment and the current account respond differently depending on the degree of propagation of shocks. The authors estimate a structural model for the Japanese, German, and U.S. economies in which productivity shocks propagate through trade. They find that shocks to the United States propagate quickly to the other two economies, while German and Japanese shocks have little impact on other countries' productivity. Further, productivity increases lead to booms in domestic investment and current account deficits. However, foreign investment tends to react positively to productivity shocks, even when the shock is purely national. The authors also find quantitative differences among the three countries in the response of their current account and investment growth rates to changes in domestic productivity. They interpret this as evidence of different degrees of capital mobility among the countries.

Bottazzi, Pesenti, and **van Wincoop** investigate the impact of fluctuations in the return to human capital on the composition of international asset portfolios. Their model applied to a large set of OECD countries accounts for an average bias of 30 to 35 percentage points toward domestic securities. The results are quantitatively similar when a "fundamentals" approach is adopted to compute the returns to domestic capital from data on aggregate operating surpluses; when data on equity returns are used directly; and when data on stock returns, long-term government bond yields, and short-term deposit rates are combined to evaluate the overall payoff of a claim on a country's productive resources.

The recent enlargement of the European Union has been accompanied by an intense public debate on the gains and losses accruing to each of the old member countries, and the reallocation of power and transfers that would countervail the direct economic effect. **Casella** asks whether countries of different sizes participating in a trade bloc gain differently from the entry of new members. She theorizes that gains will be distributed disproportionately in favor of small countries, because the enlargement of a trade bloc diminishes the importance of the domestic market, and thus the advantage enjoyed by large countries. Her empirical analysis of trade flows toward Spain and Portugal after their 1986 entry into the European Community confirms that: with the unexplained exception of Italy, the largest increase in trade, and thus the largest welfare gains, were experienced by the small EC countries.

Throughout postwar history, immigration to Western Europe has been numerically significant, and it is projected to gain in importance in years to come. The key to the integration of immigrants is the labor market; native and migrant workers have disparate skills. In the absence of a countervailing immigration policy, migrants primarily will compete directly with manual laborers. In Europe, manual and nonmanual laborers face distinctively different mechanisms of wage and employment determination. Generally, unions act as the agent for manual workers in this process, although there are a number of different institutional arrangements. **Schmidt** and **Zimmerman** analyze how the relative labor market outcomes of manual workers in Europe are affected by immigration, and how the explicit setup of wage determination influences these effects.

Also participating in this conference were: Lorenzo Bini-Smaghi and Wolfgang Schill, European Monetary Institute; Bernhard Felderer, Institüt für Höhere Studien; Martin Feldstein, NBER and Harvard University; Klaus Friedrich, Dresdner Bank; Francesco Giavazzi, Bocconi University; Robert J. Gordon, NBER and Northwestern University; Otmar Issing, Deutsche Bundesbank; and Guido Tabellini, Innocenzo Gasparini Institute for Economic Research.

These papers and their discussions will be published in a special edition of the *European Economic Review*.

Additional Paper

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"Budgets as Dynamic Gatekeepers," by **Harold Pollack** and **Richard J. Zeckhauser**

Bureau News

Public Economics Program Meeting

Fifty members and guests of the NBER's Program on Public Economics met at the Bureau's Cambridge office on April 6 and 7. Program Director James M. Poterba, also of MIT, organized this program:

A. Lans Bovenberg, Tilburg University, and **Lawrence H. Goulder,** NBER and Stanford University, "Optimal Environmental Taxation in the Presence of Other Taxes: General Equilibrium Analyses" (NBER Working Paper No. 4897)
Discussant: Don Fullerton, NBER and University of Texas

Steven D. Levitt, NBER and Harvard University, "The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation" (NBER Working Paper No. 5118)
Discussant: Joel Waldfogel, NBER and Yale University

Florencio López-de-Silanes, Harvard University; **Andrei Shleifer,** NBER and Harvard University; and **Robert W. Vishny,** NBER and University of Chicago, "Privatization in the United States" (NBER Working Paper No. 5113)
Discussant: James M. Poterba

Patricia M. Anderson, NBER and Dartmouth College, and **Bruce D. Meyer,** NBER and Northwestern University, "The Effects of Unemployment Insurance Taxes and Benefits on Layoffs Using Firm and Individual Data" (NBER Working Paper No. 4960)
Discussant: Hilary W. Hoynes, NBER and University of California, Berkeley

Roger H. Gordon and **Jeffrey K. MacKie-Mason,** NBER and University of Michigan, "Why Is There Corporate Taxation in a Small Open Economy? The Role of Transfer Pricing and Income Shifting" (NBER Working Paper No. 4690)
Discussant: James R. Hines, Jr., NBER and Harvard University

Martin Feldstein, NBER and Harvard University, "Tax Avoidance and the Deadweight Loss of the Income Tax" (NBER Working Paper No. 5055)
Discussant: Alan J. Auerbach, NBER and University of California, Berkeley

Bovenberg and **Goulder** ask what the optimal rate of environmental taxes would be in an economy with other distortionary taxes. They find that the optimal environmental tax rate will be lower as the distortions posed by other taxes increase. Their numerical results suggest that previous studies may have overstated the optimal carbon tax seriously by disregarding preexisting taxes.

Levitt uses the status of prison overcrowding litigation in a state as a proxy for changes in the prison population. Overcrowding litigation has a negative effect on prison populations, but is unlikely to be related to fluctuations in the crime rate, except through that effect. Levitt estimates that for each reduction in the prison population brought about by prison overcrowding litigation, the total number of crimes committed increases by approximately 15 per year. The estimated social benefit from eliminating those 15 crimes is approximately $45,000 per year, substantially above the costs of incarceration. His estimates imply that the socially optimal prison population is roughly 15 percent (or 200,000 prisoners) above the current figure.

In the United States, the two principal modes of producing local government services are inhouse provision by government employees and contracting out to private suppliers, also known as privatization. **López-de-Silanes, Shleifer,** and **Vishny** empirically examine how U.S. counties choose the mode of providing services. They find that state clean government laws and state laws restricting county spending encourage privatization, whereas strong public unions discourage it. This is inconsistent with the view that efficiency considerations alone govern provision, and points to the important roles of political patronage and taxpayer resistance to government spending.

Anderson and **Meyer** examine the effects of unemployment insurance experience rating on layoffs. They find that incomplete experience rating is responsible for over 20 percent of temporary layoffs. They also confirm the correlation found in past studies between proxies for experience rating and layoffs.

Gordon and **MacKie-Mason** study the role of income shifting, both domestic (between the personal and corporate tax bases) and cross border (through transfer pricing). Countries need cash-flow corporate taxes as a backstop to labor taxes in order to discourage individuals from converting their labor income into otherwise untaxed corporate income. The authors explore how these taxes can best be modified to deal with cross-border shifting as well.

Feldstein's analysis of the deadweight loss of the income tax emphasizes the induced change in taxable income (including the effects of deductions and exclusions) instead of the traditional emphasis on changes in labor force participation and hours. Using the NBER's TAXSIM model calibrated to 1994, he finds that a marginal increase in tax revenue achieved by a proportional rise in all personal income tax rates involves a deadweight loss of nearly $2 per incremental dollar of revenue. Repealing the 1993 increase in tax rates for high income taxpayers would reduce the deadweight loss of the tax system by $24 billion while actually increasing tax revenue, he concludes.

Productivity Meeting

The NBER's Program on Productivity held its spring meeting at the Bureau's Cambridge office on April 21. Ernst R. Berndt, NBER and MIT, and Robert H. McGuckin, U.S. Bureau of the Census, organized this program:

Douglas Dwyer, Columbia University, "Whittling Away at Productivity Dispersion"

Mark Roberts, Pennsylvania State University, and **Dylan Supina,** Stanford University, "The Magnitude and Persistence of Output Price Dispersion for U.S. Manufactured Products"

Ron Jarmin, U.S. Bureau of the Census, Progress Report on Innovations Survey

Robert H. McGuckin, Progress Report on Extension of LRD to Nonmanufacturing and New Survey of Manufacturing Technology

Mark Doms and **Kenneth Troske,** U.S. Bureau of the Census, and **Timothy Dunne,** University of Oklahoma, "Workers, Wages, and Technology"

Sanghamitra Das, NBER and Indiana University; **Steven Olley,** NBER and New York University; and **Ariel Pakes,** NBER and Yale University, "Evolution of Brand Qualities of Televisions in the United States"

Wayne B. Gray, NBER and Clark University, and **Ron Shadbegian,** University of Massachusetts, "Do Different Pollution Abatement Costs Affect Factor Productivity Differently?"

Dwyer finds that skill differences between plants, which are measured by wage differences, can account for approximately 15 percent of the dispersion in plant productivity levels in the textile industry. As much as half of the observed dispersion in plant productivity levels is transitory, which suggests that much of this dispersion could be the result of reporting error. Nevertheless, a portion of the dispersion reflects real quality differences across plants; plants that are measured as being more productive expand faster and are less likely to exit.

Roberts and **Supina** use panel data from the U.S. Census of Manufactures to study the pattern of output prices at the plant level for 13 products. They find that price dispersion varies across products but changes relatively little over time for a given product. Output prices are correlated negatively with plant size and positively with estimates of a plant's marginal cost for virtually every product. Cost shocks common to all producers of a product—for example, increases in raw material prices experienced by gasoline refiners, newsprint manufacturers, and coffee roasters—are reflected almost fully in output prices while plant-level cost shocks are not. This is consistent with competitive output markets, combined with persistent differences among producers in quality of product.

Doms, Dunne, and **Troske** use a number of data sources to examine the plant-level patterns of worker skills and technology. With detailed information on over 34,000 employees working in 358 manufacturing plants, and data on over 3300 plants spanning 1977–92, the authors conclude that technologically advanced plants rely more on educated workers, and generally use a higher fraction of workers in skilled occupations. Technologically advanced plants also pay higher wages to production workers and to technical/clerical/sales workers. The most technologically intensive plants shifted their employment toward more skilled workers between 1977 and 1992. However, the most technologically advanced plants experienced the smallest increase in the wages of nonproduction workers relative to production workers over this period.

Das, Olley, and **Pakes** estimate the quality of U.S. televisions using price and market share data from 1978–88. They hope to provide a partial answer to why U.S. firms exited the TV industry even though it was not declining; as a consequence, foreign firms penetrated the industry through imports as well as via direct foreign investment. During the quota restrictions or Orderly Market Agreement period, U.S. quality was relatively high as compared to after that period. Low prices and relatively higher-quality brands from the Far East seem to have wiped out low-price, lower-quality U.S. brands. Dutch brands, although of high quality per dollar, had a restricted market share because of their high prices.

Gray and **Shadbegian** use plant-level Census data for the paper, oil, and steel industries to see how pollution abatement costs affect productivity. Large, capital-intensive plants are affected more by regulation, spending a larger share of their total costs on pollution abatement than smaller plants in the same industry. The authors find that plants that spent more on pollution abatement had lower levels of productivity, but that the approach to pollution control was important. That is, plants that redesigned their production processes did better than those that relied on traditional "end-of-pipe" abatement methods.

Stiglitz Is Named to Lead Economic Advisers

President Clinton recently named Joseph E. Stiglitz chairman of his Council of Economic Advisers. Already a member of the council, Stiglitz is on leave from Stanford University and the NBER, where he was a research associate in the Programs in Public Economics and Economic Fluctuations.

Monetary Economists Meet at NBER

The NBER's Program on Monetary Economics held its spring meeting at the Bureau's Cambridge office on April 28. Anil K Kashyap, NBER and University of Chicago, and David N. Weil, NBER and Brown University, organized this program:

Joe Peek, Boston College, and **Eric Rosengren,** Federal Reserve Bank of Boston, "Banks and the Availability of Small Business Loans"
Discussant:
Frederic S. Mishkin, Federal Reserve Bank of New York

René Garcia, Université de Montréal, and **Huntley Schaller,** Princeton University, "Are the Effects of Monetary Policy Asymmetric?"
Discussant:

N. Gregory Mankiw, NBER and Harvard University

Glenn Rudebusch, Federal Reserve Bank of San Francisco, "Federal Reserve Interest Rate Targeting, Rational Expectations, and the Term Structure"
Discussant:
John Y. Campbell, NBER and Harvard University

A discussion with
Mervyn A. King, Chief Economist and Executive Director, Bank of England

V. V. Chari, University of Minnesota;
Lawrence J. Christiano, NBER and Northwestern University; and
Patrick Kehoe, University of Minnesota, "Principles of Optimal Fiscal and Monetary Policy: A Primer"
Discussant:
Robert E. Lucas, Jr., NBER and University of Chicago

Ben S. Bernanke, NBER and Princeton University, and
Ilian Mihov, Princeton University, "Measuring Monetary Policy"
Discussant:
Mark W. Watson, NBER and Northwestern University

Peek and **Rosengren** examine formal regulatory actions and clearly identify a supply shock that caused an abrupt decline in bank lending not attributable to demand. Further, they find that this decreased lending occurred at institutions (and in lending categories) that serve the type of firm most likely to be dependent on bank financing. This decline in lending to small businesses was probably a contributing factor to the unprecedented increase in business failures in New England.

Garcia and **Schaller** ask whether monetary policy has the same effect regardless of the current phase of the business cycle. For example, if the economy is in a recession, do declining interest rates increase the probability of an expansion? They find that changes in interest rates have larger effects during recessions. Interest rates also have substantial effects on the probability of a switch from recession to expansion, or vice-versa.

The amount of information in the yield curve for forecasting future changes in short rates varies with the maturity of the rates involved. Spreads between certain long and short rates appear to be unrelated to future changes in the short rate. **Rudebusch** estimates a daily model of Federal Reserve interest rate targeting; when accompanied by the rational expectations hypothesis, it explains the varying predictive ability of the yield curve, and elucidates the link between Fed policy and the term structure.

Chari, Christiano, and **Kehoe** focus on three operating characteristics of optimal policy suggested by the literature on Ramsey taxation in stochastic neoclassical growth models. Under the optimal policies, labor tax rates are constant, nominal debt absorbs shocks to the government budget constraint, and nominal interest rates are low and constant.

Bernanke and **Mihov** develop an approach to extracting information about monetary policy from data on bank reserves and the federal funds rate. Their methodology can be used to compare and evaluate existing indicators of monetary policy and to develop an "optimal" measure. Their new measure of policy stance conforms well to qualitative indicators of policy; innovations to their measure lead to reasonable and precisely estimated dynamic responses by variables including real GDP and the GDP deflator.

The Well-Being of Children

Over 50 members and guests of the NBER's Project on the Well-Being of Children met at the Bureau's Cambridge office on May 11. Lawrence F. Katz, NBER and Harvard University, organized this program:

Eric Hanushek, University of Rochester;
Steven Rivkin, Amherst College; and
Lori Taylor, Federal Reserve Bank of Dallas, "Aggregation and the Estimated Effects of School Resources"

Thomas J. Kane, NBER and Harvard University, "Rising Public College Tuition and College Entry: How Well Do Public Subsidies Promote Access to College?"

Joshua D. Angrist, NBER and MIT, and
William N. Evans, NBER and University of Maryland, "Instrumental Variables Estimates of the Effect of Teen Childbearing on Mother's Schooling and Earnings"

Philip Levine, Wellesley College;
David Zimmerman, Williams College; and
Amy Trainor, Hewitt Associates, "The Effect of Medicaid Abortion Funding Restrictions on Abortions, Pregnancies, and Birth" (NBER Working Paper No. 5066)

Hanushek, Rivkin, and **Taylor** use a new method to investigate the effectiveness of school resources in raising student performance. They find that studies using aggregate data are much more likely than other types of studies to find positive effects of school resources on achievement, and to magnify those effects. These results provide strong evidence against the view that additional expenditures alone are likely to improve student outcomes.

Kane asks how sensitive young people are to the price of schooling, especially college. He finds that cost has a large impact on enrollment, particularly for low-income students and for those attending two-year colleges. However, the evidence of enrollment responses to targeted aid is fairly weak. For example, after a federal means-tested grant program was established in 1973, there was no disproportionate increase in college enrollment by low-income youth.

Angrist and **Evans** analyze the causal link between teen motherhood and the teens' social and economic prospects. They focus on women born in 1949–59 and use data from the 1980 and 1990 Censuses. Results from the 1980 Census show a significant association between exposure to a liberalized abortion environment and a reduction in teen childbearing; these effects are largest for black women. Further, abortion reform is associated with a reduction in teen marriage rates. Other estimates show that teen fertility has an adverse impact on schooling for black women born in 1949–54, and for white women born in 1954–59. However, estimates based on the 1990 Census are inconclusive.

Levine, Zimmerman, and **Trainor** ask how state restrictions on Medicaid abortion funding affect the likelihood of getting pregnant, having an abortion, and bearing a child. They find that Medicaid funding restrictions are associated with a reduction in the number of both abortions and pregnancies, resulting in either no change or a reduction in births

Program Meeting on Labor Studies

Nearly 40 members and guests of the NBER's Program on Labor Studies gathered in Cambridge on May 12 to discuss their research. The program, organized by Lawrence F. Katz, of NBER and Harvard University, was:

Caroline Minter Hoxby, NBER and Harvard University, "Teachers' Unions and the Effectiveness of Policies Designed to Improve School Quality"

Joseph G. Altonji, NBER and Northwestern University, and **Nicolas Williams,** University of Cincinnati, "Do Wages Rise with Job Seniority? A Reassessment"

John Bound, NBER and University of Michigan, and **Harry J. Holzer,** Michigan State University, "Structural Changes, Employment Outcomes, and Population Adjustments Among Whites and Blacks: 1980–90"

David M. Cutler and **Edward L. Glaeser,** NBER and Harvard University, "Are Ghettos Good or Bad?"

David Neumark, NBER and Michigan State University; **Roy J. Bank** and **Kyle D. Van Nort,** Michigan State University, "Sex Discrimination in Restaurant Hiring: An Audit Study" (NBER Working Paper No. 5024)

Hoxby estimates the effect of teachers' unions on the level and productivity of school "inputs": the student–teacher ratio, per-pupil spending, and teacher salaries. Using panel data on all U.S. school districts, she finds that teachers' unions lower student–teacher ratios, raise per-pupil spending, and raise teacher salaries. Moreover, she finds that increased school inputs attributable to unionization have less effect on student performance than inputs not associated with unions. For instance, a decrease of ten students per teacher *not brought about by unionization* raises students' wages as adults by 2 percent. This effect is modest, but it contrasts sharply with the complete lack of student improvement associated with a ten-student decrease brought about by union influence.

Altonji and **Williams** reexamine the evidence on the effects of job seniority on earnings. An earlier study by Altonji and Robert Shakotko found only a small return to seniority. A subsequent study by Robert Topel found that the returns were large. The results reported here for a more recent period suggest that the return to seniority lies somewhere between the two earlier estimates.

In the 1980s, earnings and employment deteriorated most for young, less-educated, and/or black males. Among blacks, the most severe deterioration occurred in the North-Central regions. According to

Bound and **Holzer,** the causes of such regional and demographic variations include shifts in demand away from these groups and areas, and the greater relative impacts of such shifts on the earnings and employment of certain demographic groups. Shifts in relative supply also contributed somewhat to the observed changes in employment. But younger and less-educated workers, especially blacks, adjusted substantially less to the changes than other workers and did not migrate in response to shifts in demand. Nor did their education levels improve during this decade.

Cutler and **Glaeser** examine the effects of segregation on African-Americans in terms of schooling, employment, and single parenthood. They find that African-Americans in more segregated areas do significantly worse, particularly if they live in central cities. Some, but never more than 37 percent of this effect, stems from lack of role models and from long commuting times.

Neumark, Bank, and **Van Nort** investigate sex discrimination in restaurant hiring. After sending out comparably matched pairs of men and women to apply for jobs as waiters and waitresses at 65 restaurants in Philadelphia, they uncover discrimination against women in the high-price restaurants. The women were less likely to receive a job offer or an interview than the men. These hiring patterns have implications for sex differences in earnings, since informal survey evidence indicates that earnings are higher in the high-price restaurants.

NBER Working Group on Japan Initiated

Members of the NBER's Working Group on Japan held their first meeting in Cambridge on May 19. The program, organized by NBER Project Director Anil K. Kashyap, also of University of Chicago, was:

Jun-Koo Kang, University of Rhode Island, and
René M. Stulz, NBER and Ohio State University, "How Different Is Japanese Corporate Finance? An Investigation of the Information Content of New Security Issues"
Discussant:
Kenneth J. Singleton, NBER and Stanford University

Michael M. Knetter, NBER and Dartmouth College, "Why Are Retail Prices in Japan So High? Evidence from German Export Prices" (NBER Working Paper No. 4894)
Discussant:
Kenneth A. Froot, NBER and Harvard University

Kazuo Ueda, University of Tokyo, and
Yuri Nagataki, Hitotsubashi University, "The Import Behavior of Japanese Corporate Groups: Evidence from Micro Survey Data"
Discussant:
Robert Z. Lawrence, NBER and Harvard University

Charles Y. Horioka, NBER and Osaka University, "Is Japan's Household Saving Rate Really High?"
Discussant:
Robert Dekle, Boston University

Takatoshi Ito, International Monetary Fund, and
Tokuo Iwaisako, Harvard University, "Explaining Asset Bubbles in Japan"
Discussant:
Kenneth D. West, NBER and University of Wisconsin

Kang and **Stulz** study the wealth effects associated with 875 new security issues in Japan from January 1, 1985 to May 31, 1991. They find that the announcement of convertible debt issues has a significant positive abnormal return of 1.05 percent. At the announcement of equity issues, there is an abnormal return of 0.45 percent that is offset by an abnormal return of 1.01 percent on the issue day. Abnormal returns are related negatively to firm size, so large Japanese firms have abnormal returns more like those of large U.S. firms than those of small Japanese firms. Japanese managers decide to issue shares based on different considerations than American managers, though.

Retail prices in Japan are higher than in other countries for similar products. **Knetter** finds that, for the vast majority of the 37 seven-digit German export industries he studies, prices on shipments to Japan are significantly higher than prices on shipments to the United States, the United Kingdom, and Canada. He notes that this implies that it is monopoly practices in Japan and not distribution costs that keep Japanese prices so high.

Using a sample of 527 Japanese manufacturing firms, **Ueda** and **Nagataki** ask whether the Keiretsu affiliation of these firms affects their import behavior. After controlling for the effects of other economic determinants of imports, they find that Keiretsu firms import as much as non-Keiretsu firms do.

Horioka finds that Japan's

seemingly high household saving rate is biased because it: excludes capital transfers and real capital gains; values depreciation at historical cost rather than at replacement cost; uses a residual measure of financial saving rather than data from the Flow-of-Funds Accounts; and treats expenditures on consumer durables as consumption rather than as saving. But to a considerable extent these biases are offsetting. Household saving in Japan consists primarily of financial saving (net lending), meaning that most of it is available to finance investment in other sectors of the economy and/or abroad.

Ito and **Iwaisako** consider the boom and bust in Japanese stock and real estate markets in the second half of the 1980s, paying considerable attention to the linkage of the two markets and to the effects of monetary policy. They find that the initial seed of bubbles is sown by a sharp increase in bank lending to real estate. There is considerable comovement between stock and land prices, consistent with the collateral value of land for firms constrained by cash flow problems. Asset price increases from mid-1987 to mid-1989 are consistent with movement in fundamentals. Finally, the stock price increase in the second half of 1989, and the land price increase in 1990, are not explained by any model of fundamentals or rational bubbles.

Also participating in this meeting were: Jennifer Corbett, Oxford University; and NBER associates Michael R. Darby and Lynne G. Zucker, University of California, Los Angeles; Kathryn M. E. Dominguez and Martin Feldstein, Harvard University; Michael P. Dooley, University of California, Santa Cruz; Jeffrey A. Frankel, University of California, Berkeley; Herschel I. Grossman, Brown University; and Steven N. Kaplan, University of Chicago.

Economic Fluctuations Research Meeting

Over 70 members and guests of the NBER's Program on Economic Fluctuations met in Cambridge on July 15. Steven J. Davis, NBER and University of Chicago, and Matthew D. Shapiro, NBER and University of Michigan, organized this program:

Jonathan Eaton and **Samuel S. Kortum,** NBER and Boston University, "Trade in Ideas: Patenting and Productivity in the OECD"
Discussant: Alan C. Stockman, NBER and University of Rochester

John Driscoll, Brown University, "Does Bank Lending Affect Output? Evidence from the U.S. States"
Discussant: Anil K. Kashyap, NBER and University of Chicago

Michael Horvath, Stanford University, "Cyclicality and Sectoral Linkages: Aggregate Fluctuations from Independent Sectoral Shocks"
Discussant: Robert King, NBER and University of Virginia

Martin Weitzman, Harvard University, "Recombinant Growth"
Discussant: Paul M. Romer, NBER and University of California, Berkeley

Mark Bils, NBER and University of Rochester, and **Peter Klenow,** University of Chicago, "Uncovering Curvature—Tests of Competing Business Cycle Models"
Discussant: Valerie A. Ramey, NBER and University of California, San Diego

Jagadeesh Gokhale, Federal Reserve Bank of Cleveland; **Laurence J. Kotlikoff,** NBER and Boston University; and **John Sabelhaus,** Urban Institute, "Understanding the Postwar Decline in United States Saving: A Cohort Analysis"
Discussant: Orazio Attanasio, NBER and Università di Bologna

Eaton and **Kortum** develop a model of technological innovation and its contribution to growth at home and abroad. They use international patents to indicate the source and use of innovations. They assume that countries grow at a common steady-state rate, and that a country's relative productivity depends on its capacity to absorb technology. They estimate that, except for the United States, OECD countries derive almost all of their productivity growth from abroad.

Do changes in bank lending cause subsequent changes in income? Using a panel dataset with 27 years of annual observations on the U.S. states, **Driscoll** finds that shocks to money demand have effects on loans. However, shocks to the supply of loans have no effect on output. These results imply that banks are not an important propagation method for aggregate shocks, and that monetary policy does not operate through the market for bank loans.

Horvath presents a multisector dynamic general equilibrium model of business cycles with a distinctive feature: aggregate fluctuations are driven by independent sectoral shocks. The shocks in the model are magnified by sectoral interaction, so that more than half of the volatility of aggregate output is explained by them. The chief virtue of this model is that implausible aggregate shocks are not necessary to capture the qualitative features of macroeconomic fluctuations.

Weitzman introduces a production function for new knowledge that uses as an input old knowledge reconfigured with itself in new ways. He models the development of new ideas as analogous to an experimental agricultural station's hybridization of existing plant varieties to obtain new and improved strains. The core concept, "recombinant innovation," derives from the notion that many basic ideas are essentially combinations of other basic ideas. Weitzman shows that recombinant expansion has the power to offset most forms of diminishing returns.

The production and sale of luxuries and durable goods should be more cyclical than that of necessities and nondurable goods. **Bils** and **Klenow** study 57 luxury and durable consumer goods to quantify just how much more cyclical they are. They find that: 1) productivity is more procyclical for luxuries and durables than for necessities and nondurables; 2) relative prices are acyclical; and 3) relative quantities are steeply dampened.

Gokhale, Kotlikoff, and **Sabelhaus** study the decline in U.S. national saving. They find that the decline in U.S. saving can be traced to one major factor: the redistribution of resources from young and unborn generations that consume little or nothing to older generations that consume a lot. Most of the redistribution to the elderly reflects the growth in Social Security, Medicare, and Medicaid benefits.

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1948. "Preventing Financial Crises: An International Perspective," by **Frederic S. Mishkin** (NBER Working Paper No. 4636)

1949. "Nonstationarity of Regressors and Tests on Real Interest Rate Behavior," by **Frederic S. Mishkin** (NBER Working Paper No. 3632 [appendix])

1950. "Ownership Structure and Corporate Performance in Japan," by **Frank R. Lichtenberg** and **George M. Pushner** (NBER Working Paper No. 4092)

1951. "Was the Great Depression a Low-Level Equilibrium?" by **John Dagsvik** and **Boyan Jovanovic** (NBER Working Paper No. 3726)

1952. "Criminal Deterrence: Revisiting the Issue with a Birth Cohort," by **Helen V. Tauchen, Ann Dryden Witte,** and **Harriet Griesinger** (NBER Working Paper No. 4277)

1953. "Monetary Policy with Flexible Exchange Rates and Forward Interest Rates as Indicators," by **Lars E. O. Svensson** (NBER Working Paper No. 4633)

1954. "Privatization, Risktaking, and the Communist Firm," by **Domonique Demougin** and **Hans-Werner Sinn** (NBER Working Paper No. 4205)

1955. "Host Country Competition, Labor Skills, and Technology Transfer by Multinationals," by **Magnus Blömstrom, Ari Kokko,** and **Mario Zejan** (NBER Working Paper No. 4131)

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Taxing Multinational Corporations

Taxing Multinational Corporations, edited by Martin Feldstein, James R. Hines, Jr., and R. Glenn Hubbard, is now available from the University of Chicago Press for $17.95.

The essays in this volume, written for a nontechnical audience, discuss the impact of outbound foreign investment by U.S. firms on both the United States and foreign economies. They document the channels through which tax policy in the United States and abroad affects investment in plant and equipment, spending on research and development, the cost of debt and equity finance, and dividend repatriations by U.S. subsidiaries.

These essays will be of immediate value to practitioners, and of long-term value to scholars and policymakers as they debate reforms of international tax rules worldwide. The appendix to this volume will be especially useful to nonspecialists, as it summarizes current U.S. rules for taxing international income.

All three editors are members of the NBER's Program in Public Economics. Feldstein is also President and CEO of the NBER, and the George F. Baker Professor of Economics at Harvard University. Hines is an associate professor of public policy at the Kennedy School of Government; Hubbard is the Russell L. Carson Professor of Economics at Columbia University's Graduate School of Business.

The Effects of Taxation on Multinational Corporations

The Effects of Taxation on Multinational Corporations, edited by Martin Feldstein, James R. Hines, Jr., and R. Glenn Hubbard, will be available from the University of Chicago Press in August. Its price is $50.00.

The ten essays in this volume analyze the interaction between international tax rules and the investment decisions of multinational enterprises. The essays fall into three groups: 1) assessing the role played by multinational firms and their foreign direct investment (FDI) in the U.S. economy, and the design of international tax rules for multinational investment; 2) analyzing channels through which international tax rules affect the costs of international business activities such as FDI; and 3) examining ways in which international tax rules affect financing decisions of multinational firms.

This volume will be of interest to researchers in public finance and international economics, and to policymakers concerned with tax policy and international investment issues.

Differences and Changes in Wage Structures

Differences and Changes in Wage Structures, edited by Richard B. Freeman and Lawrence F. Katz, will be available from the University of Chicago Press in September for $55.00.

The 12 essays in this volume explore whether recent trends in U.S. relative wages are unique, or part of a general pattern of increasing inequality throughout the advanced nations. The papers compare patterns of earnings inequality and pay differentials in the United States, Australia, Korea, Japan, Western Europe, and the changing economies of Eastern Europe. They examine such issues as managerial compensation, gender differences in earnings, and the relationship between pay and regional unemployment.

This book casts important light on the evolution of wage structures and the growth of inequality in the United States and abroad. It will be of interest to researchers, policymakers, and scholars in business and economics alike.

Richard B. Freeman holds the Herbert Ascherman Chair in Economics at Harvard University, and is Program Director in labor studies at the National Bureau of Economic Research. He is also the executive programme director for comparative labour market institutions at the Centre for Economic Performance, London School of Economics. Lawrence F. Katz is a professor of economics at Harvard University and a research associate of the National Bureau of Economic Research.

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A complete list of NBER Working Papers and Reprints can be accessed on the Internet by using our **gopher at nber.harvard.edu.** Abstracts of all papers issued since April 1995 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.

Erratum

The first sentence of the abstract of NBER Working Paper No. 5043 should read: "This review of Preston Miller's *The Rational Expectations Revolution, Readings from the Front Line* focuses on the impact of this research on macroeconomic policymaking."

NBER Working Papers

The Distributional Effects of the Tax Treatment of Child Care Expenses

William M. Gentry and Alison P. Hagy

NBER Working Paper No. 5088
April 1995
Public Economics

The Child Care Tax Credit and the Dependent Care Assistance Plans are the largest U.S. federal government programs aimed at helping families with child care by providing tax relief. Using both the National Child Care Survey and tax return data, we examine the distributional effects of these policies among families with children. We find that among families that use tax relief, the benefits average 1.24 percent of family income. Benefits as a percent of family income vary systematically over the income distribution.

Despite being regressive at low-income levels (mainly because the tax credit is nonrefundable), tax relief is distributed progressively over most of the income distribution. The ratio of benefits to income falls above the bottom quintile of the income distribution. The benefits of tax relief also vary among families with the same income depending on a family's structure and its labor market and child care choices.

The Annuitization of Americans' Resources: A Cohort Analysis

Alan J. Auerbach, Jagadeesh Gokhale, Laurence J. Kotlikoff, John Sabelhaus, and David N. Weil

NBER Working Paper No. 5089
April 1995
JEL No. E20
Public Economics

This paper constructs a unique cohort dataset to study the changes since 1960 in the share of Americans' resources that are annuitized. Understanding these changes is important because the larger this share, the more cohorts are likely to consume, and the less they are likely to bequeath. Hence, the degree of annuitization affects national saving as well as the transmission of inequality over time.

Our findings are striking. Although the annuitized share of resources of younger Americans declined slightly between 1960 and 1990, it increased dramatically for older Americans. It doubled for older men and quadrupled for older women. Since the elderly have much higher mortality probabilities than the young do, their degree of annuitization is much more important for aggregate bequests and saving. According to our estimates, aggregate U.S. bequests would now be 66 percent larger if the post-1960 increase in annuitization had not occurred. In addition, U.S. national saving likely would be substantially larger than it is now.

Generational Accounting in General Equilibrium

Hans Fehr and Laurence J. Kotlikoff

NBER Working Paper No. 5090
April 1995
JEL No. H22
Public Economics

This paper shows how changes in generational accounts relate to the generational incidence of fiscal policy. To illustrate the relationship, we use the Auerbach–Kotlikoff Dynamic Life-Cycle Simulation Model and compare policy-induced changes in generational accounts with actual changes in generations' utilities. We consider a wide range of policies in closed and small open economies, as well as in economies with and without capital adjustment costs.

In general, changes in generational accounts appear to provide fairly good approximations of generations' actual changes in utilities. The approximations are better for living generations. They are worse for policies that involve significant changes in the degree of tax progressivity, and for economies with sizable capital adjustment costs.

Finally, generational accounting needs to be modified in the case of small open economies to take account of the fact that the incidence of corporate taxation is on labor. The method of adjustment is simply to allocate changes in corporate tax revenues to generations in proportion to their changes in labor supply.

Optimal Investment with Costly Reversibility

Andrew B. Abel and Janice C. Eberly

NBER Working Paper No. 5091
April 1995
Economic Fluctuations

Investment is characterized by costly reversibility when a firm can purchase capital at a given price and sell it at a lower price. In this paper, we derive an explicit analytic solution for optimal investment by a firm that faces costly reversibility. We also derive a local approximation to the solution that highlights the effects of the parameters of the problem on the triggers for investment. More generally, we extend the Jorgensonian concept of the user cost of capital to the case of uncertainty, and define c_U and c_L as the user costs of capital associated with the purchase and sale of capital, respectively. Optimality requires the firm to purchase and sell capital as needed to keep the marginal revenue product of capital in the closed interval $[c_U, c_L]$. This prescription encompasses the case of irreversible investment as well as the standard neoclassical case of costlessly reversible investment. Finally, quantitative analysis suggests that even when the difference between the purchase and sale prices of capital is small, the user costs associated with purchasing and selling capital are closer to those applicable under complete irreversibility than to those applicable under costless reversibility.

The Effects of Minimum Wages on Teenage Employment and Enrollment: Evidence from Matched CPS Surveys

David Neumark and William Wascher

NBER Working Paper No. 5092
April 1995
JEL Nos. J31, J15, J18
Labor Studies

The recent debate over minimum wages raises two questions. First, should policymakers no longer believe that minimum wages entail negative consequences for teenagers? Second, should economists discard the competitive labor market model? Our evidence for teenagers, using matched CPS surveys, suggests that the answer to both of these questions is no. We find that although increases in minimum wages have small net effects on overall teen employment rates, such increases raise the probability that more-skilled teenagers leave school and displace lower-skilled workers from their jobs. These findings are consistent with the predictions of a competitive labor market model that recognizes skill differences among workers. In addition, we find that the displaced lower-skilled workers are more likely to end up nonenrolled and nonemployed. Thus, despite the small net disemployment effects for teenagers as a group, there are significant enrollment and employment shifts associated with minimum wage changes that should be of concern to policymakers.

Labor Market Institutions and the Distribution of Wages, 1973–92: A Semiparametric Approach

John DiNardo, Nicole M. Fortin, and Thomas Lemieux

NBER Working Paper No. 5093
April 1995
JEL Nos. C14, J31
Labor Studies

This paper presents a semiparametric procedure to analyze the effects of institutional and labor market factors on recent changes in the U.S. distribution of wages. We estimate the effects of these factors by applying kernel density methods to appropriately "reweighted" samples. The procedure provides a visually clear representation of where in the density of wages these various factors exert the greatest impact. Using data from the Current Population Survey, we find, as in previous research, that deunionization and supply and demand shocks were important factors in explaining the rise in wage inequality from 1979 to 1988. We also find compelling visual and quantitative evidence that the decline in the real value of the minimum wage explains a substantial proportion of this increase in wage inequality, particularly for women. We conclude that labor market institutions are as important as supply and demand considerations in explaining changes in the U.S. distribution of wages from 1979 to 1988.

Sectoral Growth Across U.S. States: Factor Content, Linkages, and Trade

J. David Richardson and Pamela J. Smith

NBER Working Paper No. 5094
April 1995
JEL Nos. F1, R1
International Trade and Investment

Using a "factor-content" model that relates sectoral growth to regional factor endowments, we find: 1) that U.S. state factor endowments are reasonably strong correlates of cross-state sectoral growth in value added, with patterns that accord well with intuition; 2) that intersectoral differences in productivity change are marked—estimates range from negative to annual rates over 10 percent; 3) little evidence of unusual growth linkages, either from sector to sector or from state to state, as might be expected from recent discussions of externalities; and 4) no correlation between unusually strong sectoral growth and unusual levels of export dependence, another putative channel of externalities.

Our principal dataset is a 1987–9 panel of sector-by-sector, state-by-state value-added and international exports, as well as state endowments of patents, structural capital, and six types of labor. "Unusual" growth and exports are defined as the residual growth and international exports left unexplained by endowments.

World Income Components: Measuring and Exploiting International Risksharing Opportunities

Robert J. Shiller and Stefano Athanasoulis

NBER Working Paper No. 5095
April 1995
JEL No. G1
Asset Pricing

We provide methods of decomposing the variance of world national incomes into components so as to indicate the most important risksharing opportunities and, therefore, the most important missing international risk markets to establish. One method uses a total variance reduction criterion, and identifies risksharing opportunities in terms of eigenvectors of a variance matrix of residuals produced when country incomes are regressed on world income. Another method uses a mean-variance utility-maximizing criterion, and identifies risk-sharing opportunities in terms of eigenvectors of a variance matrix of deviations of country incomes from their respective contract-year shares of world income.

We apply the two methods using Summers–Heston (1991) data on national incomes for large countries 1950–90, each using two different methods of estimating variances. While these data are not sufficient to provide accurate estimates of the requisite variance matrixes of (transformed) national incomes, the results are suggestive of important new markets that actually could be created, and show that there may be large welfare gains to creating some of these markets.

Financial Innovation and the Management and Regulation of Financial Institutions

Robert C. Merton

NBER Working Paper No. 5096
April 1995
Asset Pricing, Corporate Finance, International Finance and Macroeconomics, Monetary Economics

New security designs, improvements in computer telecommunications technology, and advances in the theory of finance have led to revolutionary changes in the structure of financial markets and institutions. This paper provides a functional perspective on the dynamics of institutional change, and uses a series of examples to illustrate the breadth and depth of institutional change that is likely to occur. These examples emphasize the role of hedging versus equity capital in managing risk, the need for risk accounting, and changes in methods for implementing both regulatory and stabilization public policy.

Why Are Saving Rates So Different Across Countries? An International Comparative Analysis

Sebastian Edwards

NBER Working Paper No. 5097
April 1995
JEL Nos. E2, F4, D9
International Finance and Macroeconomics, International Trade and Investment

This paper analyzes the determinants of savings in the world economy, and discusses why saving ratios have been so uneven across countries. I distinguish between private and government savings, using panel data for 36 countries from 1970 to 1992. In particular, I assume that government savings are not completely exogenous, and respond to both economic and political (strategic) determinants, along the lines of the recent literature on the political economy of macroeconomic policy.

Using instrumental variables estimation methods, I find that per capita growth is one of the most important determinants of both private and public savings. These results indicate that government-run social security systems negatively affect private savings. In addition, the results provide some support for the political economy perspective on government finances, which shows that a different underlying process determines public savings.

Public savings tend to be lower in countries with higher political instability. Higher government savings crowd out private savings, but in a less-than-proportional fashion. Higher levels of foreign savings—that is, reductions in the current account balance—are associated with lower domestic (both private and public) saving rates, although the degree of offset is also less than proportional. The degree of financial development turns out to be another important determinant of private savings. The results are mixed on the role of borrowing constraints, a topic that deserves additional research.

Globalization and the Inequality of Nations

Paul R. Krugman and Anthony J. Venables

NBER Working Paper No. 5098
April 1995
International Trade and Investment, International Finance and Macroeconomics

A monopolistically competitive manufacturing sector produces goods that are used for final consumption as well as intermediate goods. Intermediate usage creates cost and demand linkages between firms and a tendency for manufacturing agglomeration. How does globalization affect the location of manufacturing and the gains from trade? At high transport costs, all countries have some manufacturing; but when transport costs fall below a critical value, a core-periphery pattern forms spontaneously, and nations that find themselves in the periphery suffer a decline in real income. At still lower transport costs, there is convergence of real incomes, in which peripheral nations gain and core nations may lose.

Transfer Behavior Within the Family: Results from the Asset and Health Dynamics Survey

Kathleen McGarry and Robert F. Schoeni

NBER Working Paper No. 5099
April 1995
JEL No. D1
Aging

If an individual falls on hard times, can he rely on his family for financial support? In view of proposed reductions in public assistance programs, it is important to understand the mechanisms through which families provide support for their members. We show that intrafamily transfers are compensatory, directed disproportionally to less well-off members. These results hold both for the incidence of transfers and for the amounts.

Within a given year, adult children in the lowest income category are 6 percentage points more likely to receive a financial transfer from their parents; on average, they receive over $300 more than siblings in the highest income category. The data used in this study, the new Asset and Health Dynamics Survey, contain information on all children in the family. Thus we are able to estimate models that control for unobserved differences across families. Our results are robust to these specifications, Additionally, we do not find that parents provide financial assistance to their children in exchange for caregiving.

Banks and Derivatives

Gary Gorton and Richard Rosen

NBER Working Paper No. 5100
April 1995
Asset Pricing, Corporate Finance

In the last 10 to 15 years, financial derivative securities have become an important, and controversial, product for commercial banks. The controversy concerns whether the size, complexity, and risks associated with these securities; the difficulties with accurately reporting timely information concerning the value of firms' derivative positions; and the concentration of activity in a small number of firms, have increased substantially the risk of collapse of the world banking system. Despite the widespread attention to derivatives, there has been little systematic analysis. We estimate market values and interest rate sensitivities of interest rate swap positions of U.S. commercial banks to address empirically the question of whether swap contracts have increased or decreased systematic risk in the U.S. banking system. We find that the banking system as a whole faces little net interest rate risk from swap portfolios.

Internal Capital Markets and the Competition for Corporate Resources

Jeremy C. Stein

NBER Working Paper No. 5101
May 1995
Corporate Finance

This paper examines the role of corporate headquarters in allocating scarce resources to competing projects in an internal capital market. Unlike a bank lender, headquarters has control rights that give it both the authority and the incentive to engage in "winner picking": the practice of actively shifting funds from one project to another. By doing a good job in winner picking, headquarters can create value even when its own relationship with the outside capital market is fraught with agency problems, and therefore it cannot help to relax overall firmwide credit constraints. One implication of the model developed here is that internal capital markets may function more efficiently when companies choose relatively focused strategies.

Wages and Foreign Ownership: A Comparative Study of Mexico, Venezuela, and the United States

Brian Aitken, Ann Harrison, and Robert E. Lipsey

NBER Working Paper No. 5102
May 1995
JEL Nos. F23, J31
International Trade and Investment

This paper explores the relationship between wages and foreign investment in Mexico, Venezuela, and the United States. Despite very different economic conditions and levels of development, one fact holds for all three countries: higher levels of foreign investment are associated with higher wages. In Mexico and Venezuela, foreign investment is associated with higher wages only for foreign-owned firms; there is no evidence of wage spillovers leading to higher wages for domestic firms. In the United States there is evidence of wage spillovers. The lack of spillovers in Mexico and Venezuela is consistent with significant wage differentials between foreign and domestic enterprises. In the United States, wage differentials are smaller.

Price and Volume Measures in the System of National Accounts

W. Erwin Diewert

NBER Working Paper No. 5103
May 1995
JEL Nos. C43, E31, O47
Productivity

This paper reviews in detail Chapter 16 in the *System of National Accounts, 1993* by Peter Hill. It explains the basic principles for measuring price and quantity change in the national accounts. It also presents some new material on the consistency of superlative indexes with indexes that are additive in their components. There also is some new material on the treatment of quality change, indicating that traditional statistical agency treatments of this issue will lead to upward bias in price indexes. Finally, there is a review of the literature on sources of bias in consumer price indexes.

Axiomatic and Economic Approaches to Elementary Price Indexes

W. Erwin Diewert

NBER Working Paper No. 5104
May 1995
JEL Nos. C43, C81, E31, O47
Productivity

In a 1993 paper, Marshall Reinsdorf finds that the CPI components for food and gasoline were biased upward by about 2 percent and 1 percent per year respectively during the 1980s. He attributes this result to outlet substitution bias. The more recent paper by Reinsdorf and Moulton (1994) presents an alternative explanation for Reinsdorf's earlier results: when the BLS moved to probability sampling of prices in 1978, the micro price quotations were aggregated together using an index number formula that generates an upward bias. I further explore the central theoretical issue raised by the Reinsdorf–Moulton paper: the choice of an index number formula to aggregate prices at the finest level of disaggregation. I examine this issue from both axiomatic and economic perspectives. I also review the empirical literature on alternative elementary price indexes, and the recent literature on sources of bias in consumer price indexes. In conjunction with the empirical work of Reinsdorf and Moulton, my findings yield a number of recommendations for statistical agencies that I outline in the final section.

The Effect of Collective Bargaining Legislation on Strikes and Wages

Peter C. Cramton, Joseph S. Tracy, and Morley Gunderson

NBER Working Paper No. 5105
May 1995
JEL No. J52
Labor Studies

Using Canadian data on large, private sector contract negotiations from January 1967 to March 1993, we find that wages and strikes are influenced substantially by labor policy. In particular, we find that prohibiting the use of replacement workers during strikes is associated with significantly higher wages, and more frequent and longer strikes. This is consistent with private information theories of bargaining. We estimate the welfare consequences of a ban on replacement workers, as well as other labor policies. Despite the higher dispute costs, union workers are better off with a ban on replacement workers. The higher wage more than compensates for the more frequent and longer strikes.

The Use of Replacement Workers in Union Contract Negotiations: The U.S. Experience, 1980–9

Peter C. Cramton and Joseph S. Tracy

NBER Working Paper No. 5106
May 1995
JEL No. J52
Labor Studies

It is argued in many circles that a structural change occurred in U.S. collective bargaining in the 1980s. We investigate the extent to which the hiring of replacement workers can account for this change. For a sample of over 300 major strikes since 1980, we estimate the likelihood of replacements being hired. We find that the risk of replacement declines during tight labor markets, and is lower for bargaining units with more experienced workers. We use the predicted replacement risk as an explanatory variable in a model of the union's choice between the strike and holdout threat. We find that strike usage decreases significantly as the predicted replacement risk increases. We estimate that a ban on the use of replacement workers would have increased strike incidence from 1982–9 by 3 percentage points, a 30 percent increase.

Technological Change and the Skill Acquisition of Young Workers

Ann P. Bartel and Nachum Sicherman

NBER Working Paper No. 5107
May 1995
JEL Nos. J24, O33
Labor Studies

Using the National Longitudinal Survey of Youth and six proxies for industry rates of technological change, we study the impact of technological change on skill accumulation among young male workers in the manufacturing sector during 1987 through 1992. Production workers in manufacturing industries with higher rates of technological change are more likely to receive formal company training, but not other types of training. One important finding is that, while more educated workers are more likely to receive formal company training, the training gap between the highly educated and the less educated narrows, on average, as the rate of technological change increases. The positive effect of technological change on hours of training is caused largely by an increase in the incidence of training, not in the number of hours per training spell.

Fixed Versus Flexible Exchange Rates: Which Provides More Fiscal Discipline?

Aaron Tornell and Andres Velasco

NBER Working Paper No. 5108
May 1995
JEL No. F31
International Finance and Macroeconomics

In recent years the conventional wisdom has held that fixed rates provide more fiscal discipline than flexible rates do. In this paper, we show that this wisdom need not hold in a standard model in which fiscal policy is determined endogenously by a maximizing fiscal authority. The claim that fixed rates induce more discipline stresses that sustained adoption of lax fiscal policies eventually must lead to an exhaustion of reserves, and thus to a politically costly collapse of the peg. Hence, under fixed rates bad behavior today leads to punishment tomorrow. Under flexible rates bad behavior has costs as well. The difference is in the intertemporal distribution of these costs: flexible rates allow the effects of unsound fiscal policies to manifest themselves immediately through movements in the exchange rate. Hence, bad behavior today leads to punishment today. If fiscal authorities are impatient, flexible rates—by forcing the costs to be paid upfront—provide more fiscal discipline and higher welfare for the representative private agent. The recent experience of sub-Saharan countries supplies some preliminary evidence that matches the predictions of our model.

American Fiscal Policy in the 1990s

Herschel I. Grossman

NBER Working Paper No. 5109
May 1995
JEL Nos. H62, H63
Economic Fluctuations, Monetary Economics

This essay analyzes current fiscal policy in the United States within a historical context. Its objective is to clarify why recent developments in the United States are troubling, but also to understand why the United States, in contrast to other countries such as Italy, has avoided the path to fiscal disaster so far. The discussion suggests that perhaps the American public understands, at least implicitly, that unless fiscal policy limits the growth of the public debt, the government's credit is sure to run out at some unpredictable future time, as happened in Italy, with the consequent need for drastic and painful fiscal adjustments.

Trade, Technology, and Wage Inequality

Gordon H. Hanson and Ann Harrison

NBER Working Paper No. 5110
May 1995
JEL Nos. F14, F15
International Trade and Investment

In Mexico during the 1980s, the wages of more educated, more experienced workers rose relative to those of less educated, less experienced workers. We assess the extent to which the increase in the skilled–unskilled wage gap was associated with Mexico's recent trade reform. In particular, we examine whether trade reform has shifted employment toward industries that are relatively intensive in the use of skilled labor (that is, whether there are Stolper–Samuelson-type effects). Our results suggest that the rising wage gap is associated with changes internal to industries, and even internal to plants, that cannot be explained by Stolper–Samuelson-type effects. We also find that other characteristics associated with globalization—such as foreign investment and export orientation—do matter. Exporting firms and joint ventures pay higher wages to skilled workers and demand more skilled labor than other firms.

What Is the Value Added for Large U.S. Banks in Offering Mutual Funds?

Edward J. Kane

NBER Working Paper No. 5111
May 1995
Corporate Finance

This paper argues that an implicit deposit insurance credit enhancement is extended to any nondeposit savings vehicle offered by a very large bank. This unpriced credit enhancement helps to explain the preference of very large U.S. banks for offering mutual funds rather than developing index-linked deposit products. It also explains why large banks have been more eager than small banks to offer mutual funds, and why bank mutual funds could be priced to grow at a time when bank deposits were being priced to shrink.

Open Economy Forces and Late Nineteenth-Century Scandinavian Catchup

Kevin O'Rourke and Jeffrey G. Williamson

NBER Working Paper No. 5112
May 1995
Development of the American Economy

Scandinavia recorded very high growth rates between 1870 and 1914, catching up with the world's growth leaders. This paper estimates that about two-thirds of Scandinavia's catching up with Britain was the result of the open economy forces of global factor and commodity market integration. All of Scandinavia's catching up with America was caused by the same open economy forces.

The question for the economist is: why does the new growth theory spend so little time dealing with these open economy forces? The question for the economic historian is: can the breakdown of global factor and commodity markets after 1914 explain a large share of the cessation of convergence up to 1950? Further, can the spectacular OECD convergence achieved after 1950 be explained by the resumption of the pre-1914 open economy conditions that contributed so much to the Scandinavian catchup?

Privatization in the United States

Florencio López-de-Silanes, Andrei Shleifer, and Robert W. Vishny

NBER Working Paper No. 5113
May 1995
Corporate Finance, Public Economics

In the United States, the two principal modes of producing local government services are inhouse provision by government employees and contracting out to private suppliers, also known as privatization. We empirically examine how U.S. counties choose their mode of providing services. Our evidence indicates that state clean government laws and state laws that restrict county spending encourage privatization, whereas strong public unions discourage it. This evidence is inconsistent with the view that efficiency considerations alone govern the mode of provision, and points to the important roles played by political patronage and taxpayer resistance to government spending in the privatization decision.

A Heckscher–Ohlin View of Sweden Competing in the Global Marketplace

Edward E. Leamer and Per Lundberg

NBER Working Paper No. 5114
May 1995
International Trade and Investment

We explore the hypothesis that the Swedish malaise comes from the *interaction* of the Swedish welfare state with changes in the global marketplace. External commerce can expose Swedish workers in exporting and in import-competing industries to a kind of competition from low-wage foreign workers that is incompatible with an extensive welfare system. Incompatibilities between the external marketplace and the welfare state can be amplified over time if the welfare system discourages investments in human and physical capital, thus causing a shift in the product mix toward more labor-intensive goods that are produced outside the Swedish borders by lower-wage workers.

The Heckscher–Ohlin theory, which is the theoretical foundation of this paper, allows a high-wage equilibrium without government intervention even though there is increasing competition from low-wage suppliers, if capital is abundant and if production is concentrated on the most capital-intensive products. Then the unskilled workers can be employed at high wages either in the tradables sector or the nontradables sector. On the contrary, however, Swedish investment rates have not been high enough to maintain the unique position that Sweden had a couple of decades ago. We express this in the form of the Heckscher–Ohlin Crowding Hypothesis: Swedish difficulties in its interactions with the international marketplace come from its eroding lead in abundance of capital.

Although losing its distinctiveness in capital abundance, Sweden remains unusually well supplied with softwood forests. These forest resources can be a mixed blessing. Although contributing substantially to gross domestic product, forest resources also can imply lower wages for unskilled workers, and consequently greater income inequality. A country with abundant forest resources and also very abundant capital can produce capital-intensive manufactures in addition to pulp and paper, but a country with more moderate supplies of capital can find much of its capital deployed in pulp and paper, and end up with a mix of tradables that includes some relatively labor-intensive products. This product mix may dictate relatively low wages for unskilled workers, since the marginal unskilled worker may be employed in sectors that globally award low wages.

A Provincial View of Capital Mobility

Tamim Bayoumi and Michael W. Klein

NBER Working Paper No. 5115
May 1995
JEL No. F32
International Finance and Macroeconomics

We develop a method of testing for zones of financial integration based upon intertemporal considerations and apply it to data on Canadian provincial trade. In a financially integrated region, individuals smooth consumption with respect to movements in aggregate income. Consumption in that region follows income in that region if individuals use only regional capital markets; consumption follows movements in income in broader regions (for example, national in-

come or world income) if individuals have access to and use capital markets in those broader regions (for example, the national or global capital markets, respectively). We derive a specification that measures the impact of differential levels of access to capital markets—different zones of capital mobility—on the relationship between regional trade balance and regional, national, and global income. We test this empirical specification using data on trade balances across Canadian provinces. The results indicate full capital mobility within Canada, but only partial capital mobility between Canada and the rest of the world.

Economics of the Generation and Management of Municipal Solid Waste

David N. Beede and David E. Bloom

NBER Working Paper No. 5116
May 1995
JEL No. Q2
Health Care

We estimate that the global burden of municipal solid waste (MSW) was 1.3 billion metric tons in 1990, or 0.67 kilograms of waste per person per day. Industrial countries account for a disproportionate share of the world's MSW relative to their share of world population; developing countries account for a disproportionate share of the world's MSW relative to their share of world income. Both cross-country and time-series analyses reveal that MSW generation is associated positively but inelastically with per capita income, and positively with unit elasticity with respect to population size.

Practices for collecting, processing, and disposing of MSW vary widely across countries, generally in accord with the nature of the waste stream and with key features of the environmental and economic context. However, the least efficient practices tend to be in developing countries, where MSW poses serious threats to local environmental quality and public health.

Although the generation and management of MSW likely is sensitive to income and price variables, natural incentives to overuse common property and the presence of intergenerational externalities suggest that private economic behavior alone will not yield socially optimal outcomes in this area. Community intervention, which may take a variety of forms, thus may promote the social good. The evidence now accumulating favors arrangements involving the participation of private firms.

The average cost of MSW management will grow faster than urbanization if urbanization outpaces the development of transportation infrastructures. Our calculations also suggest that current improvements in the handling of hazardous MSW will be far less expensive (in discounted terms) than undoing the damage to be caused by current handling practices. Addressing these issues from a rational societal perspective will become increasingly urgent in the future, especially in developing countries, where urbanization is accelerating and where MSW is projected to increase at an annual rate of 2.7 percent through the year 2010.

Costs of Environmentally Motivated Taxes in the Presence of Other Taxes: General Equilibrium Analyses

A. Lans Bovenberg and Lawrence H. Goulder

NBER Working Paper No. 5117
May 1995
JEL Nos. E62, H21, H22
Public Economics

There has been keen interest in recent years in environmentally motivated, or "green," tax reforms. This paper uses analytical and numerical general equilibrium models to investigate the costs of such reforms, concentrating on whether these costs can be eliminated if revenues from new environmental taxes are devoted to cuts in marginal income tax rates. A distinguishing feature of our model is its attention to preexisting inefficiencies in the tax treatment of labor and capital, and the associated role of tax shifting. We show how an environmental tax reform can have zero or negative cost if it shifts the tax burden toward the less efficient (undertaxed) factor.

Our results indicate that the revenue-neutral substitution of BTU or gasoline taxes for typical income taxes usually entails positive costs to the economy. In the case of the gasoline tax, a significant tax shifting effect lowers the costs of the policy. This explains why the gasoline tax has lower gross costs than the BTU tax. Under neither policy will there be enough tax shifting to eliminate the overall gross costs.

Effects of Air Quality Regulation

Vernon Henderson

NBER Working Paper No. 5118
May 1995
JEL Nos. H00, Q28, R38
Public Economics

This paper investigates the effects of local regulations on ground level ozone air quality and on industrial location. Local regulatory effort varies by annual air quality attainment status and by state attitudes toward the environment. A switch from attainment to nonattainment status induces greater regulatory effort in a county, leading to an improvement in air quality. Air quality readings for ground level ozone improve by 3–8 percent depending on the exact air quality measure, after a switch to nonattainment status. Pro-environment states, which ceteris paribus spend relatively more on pollution abatement, also have cleaner air. A 1 percent increase in typical annual state pollution abatement expenditures leads to about a 0.04 percent improvement in ground level ozone readings. Heavily polluting industries tend to move to counties with a record of clean air, where they are less likely to be hassled. A county switching to a three-year record of attainment experiences a 7–9 percent growth in the number of heavily polluting establishments. This implies that polluting industries are spreading out geographically from nonattainment (polluted) areas to attainment (initially less polluted) areas. Finally, in terms of ozone, localities may improve the annual hourly extreme value reading used to officially measure local air quality without improving measures (mean, medians, medians of daily maximum) of more typical ozone conditions. This occurs by spreading out economic activity over the day to dampen peaks of ozone-inducing activity and subsequent daily ozone peaks.

The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation

Steven D. Levitt

NBER Working Paper No. 5119
May 1995
JEL Nos. K42, H72, D61
Public Economics

Previous studies of the impact of changes in prisoner populations on crime rates have failed to control adequately for the simultaneity between those two variables. While increases in the number of prisoners are likely to reduce crime, rising crime rates also translate into larger prison populations. To break that simultaneity, this paper uses the status of prison overcrowding litigation in a state as an instrument for changes in the prison population. Overcrowding litigation is shown to have a negative impact on prison populations, but is unlikely to be related to fluctuations in the crime rate, except through its effect on prison populations. This methodology results in estimates of the elasticity of crime with respect to the number of prisoners that are two to three times greater than those of previous studies. The results are robust across all of the crime categories I examine. For each prisoner reduction induced by overcrowding litigation, the total number of crimes committed increases by approximately 15 per year. The social benefit from eliminating those 15 crimes is approximately $45,000; the annual per-prisoner costs of incarceration are roughly $30,000.

Capital Mobility, Fiscal Policy, and Growth Under Self-Financing of Human Capital Formation

Willem H. Buiter and Kenneth M. Kletzer

NBER Working Paper No. 5120
May 1995
JEL Nos. F21, E62, F43
International Finance and Macroeconomics

This paper considers the effects of fiscal and financial policy on economic growth in open and closed economies, when human capital formation by young households is constrained by the illiquidity of human wealth. We analyze both endogenous and exogenous growth versions of the basic OLG model. We find that intergenerational redistribution policies that discourage physical capital formation may encourage human capital formation. Despite common technologies and perfect international mobility of financial capital, the fact that human capital is not traded and the illiquidity of human wealth make for persistent differences in productivity growth rates (in the endogenous growth version of the model), or in their levels (in the exogenous growth version). We also consider the effects on productivity growth (or levels) of public spending on education and of the distortionary taxation of financial asset income.

Foreign Investment, Outsourcing, and Relative Wages

Robert C. Feenstra and Gordon H. Hanson

NBER Working Paper No. 5121
May 1995
JEL Nos. F14, F21
International Trade and Investment, Labor Studies

We examine the reduction in the relative employment and wages of unskilled workers in the United States during the 1980s. We argue that a contributing factor to this decline was rising imports reflecting the outsourcing of production activities. In a theoretical model, we show that any increase in the southern capital stock relative to that of the North, or neutral technological progress in the South, will increase the relative wage of skilled workers in *both* countries caused by a shift in production activities to the South. Corresponding to this change in the relative wage is an increase in the price index of northern activities within each industry, relative to that of the South. We confirm that this change in relative prices occurred for the United States and other industrialized countries relative to their trading partners. We also estimate that 15–33 percent of the increase in the relative wage of nonproduction (or skilled) workers in the United States during the 1980s is explained by rising imports.

Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras

Robert C. Feenstra and Gordon H. Hanson

NBER Working Paper No. 5122
May 1995
JEL Nos. F14, F21
Growth, International Trade and Investment, Labor Studies

We examine the increase in the relative wages of skilled workers in Mexico during the 1980s. We argue that rising wage inequality in Mexico is linked to capital inflows from abroad. The effect of these capital inflows, which correspond to an increase in outsourcing by multinationals from the United States and other northern countries, is to shift production in Mexico toward relatively skill-intensive goods, thereby increasing the relative demand for skilled labor.

We study the impact of foreign direct investment (FDI) on the share of skilled labor in total wages in Mexico using state-level data on two-digit industries from the *Industrial Census* for 1975 to 1988. We measure the state-level growth in FDI using data on the regional activities of foreign-owned assembly plants. We find that growth in FDI is positively correlated with the relative demand for skilled labor. In the regions where FDI has been most concentrated, growth in FDI can account for over 50 percent of the increase in the skilled labor share of total wages that occurred during the late 1980s.

Employment, Unemployment, and Problem Drinking

John Mullahy and Jody L. Sindelar

NBER Working Paper No. 5123
May 1995
Health Economics, Labor Studies

The misuse of alcoholic beverages ("problem drinking") results in enormous economic costs; most of these costs reduce productivity in the labor market. This paper presents sound structural estimates of the relationship between various measures of problem drinking and employment and unemployment. The sample of approximately 15,000 observations is drawn from the 1988 Alcohol Survey of the National Health Interview Survey, the first dataset that enables nationally representative estimates of alcohol abuse and dependence consistent with generally accepted medical criteria. The structural estimates of the effects of problem drinking on employment and labor market participation are obtained using methods proposed by Amemiya, and by Heckman and MaCurdy.

For our sample of males aged 25 to 59, we find that the negative impact of problem drinking on employment is even greater using instrumental variables (IV) than was estimated using ordinary least squares (OLS). Interestingly, the IV estimates on the samples of females change the sign on the impact of problem drinking on employment from positive to negative. Thus, although the conclusions drawn from raw data comparisons and OLS regressions differ by gender, the IV estimates are very similar for men and women. For women, the unobserved heterogeneity masks the negative impact of problem drinking on employment when using OLS estimation methods.

The Role of Premarket Factors in Black–White Wage Differences

Derek A. Neal and William R. Johnson

NBER Working Paper No. 5124
May 1995
JEL Nos. J31, J71
Labor Studies

Many attempts to measure the wage effects of current labor market discrimination against minorities include controls for worker productivity that: 1) themselves could be affected by market discrimination; and 2) are very imprecise measures of worker skill. The resulting estimates of residual wage gaps may be biased. Our approach is a parsimoniously specified wage equation that controls for skill by using the score on a test administered as teenagers prepared to leave high school and embark on work careers or post-secondary education. Independent evidence shows that this test score is a racially unbiased measure of the skills and abilities these teenagers were about to bring to the labor market.

We find that this one test score explains all of the black–white wage gap for young women and much of the gap for young men. For today's young adults, the black–white wage gap primarily reflects a skill gap, which in turn can be traced, at least in part, to observable differences in the family backgrounds and school environments of black and white children.

While our results provide some

evidence of current labor market discrimination, skill gaps play such a large role that we believe future research should focus on the obstacles that black children face in acquiring productive skills.

Capital Utilization and Returns to Scale

Craig Burnside, Martin Eichenbaum, and Sergio T. Rebelo

NBER Working Paper No. 5125
May 1995
JEL No. E32
Economic Fluctuations

This paper studies the implications of procyclical rates of capital utilization for cyclical movements in labor productivity and returns to scale. Using a measure of capital services based on electricity consumption, we organize our investigation around five questions: 1) Are near or actual short-run increasing returns to labor an artifact of the failure to accurately measure capital utilization rates? 2) Can we find a significant role for capital services in aggregate and industry-level production technologies? 3) Is there evidence against the hypothesis of constant returns to scale? 4) Can we reject the notion that the residuals in our estimated production functions represent technology shocks? 5) How does correcting for cyclical variations in capital services affect the statistical properties of estimated aggregate technology shocks? The answer to the first two questions is yes; the answer to the third and fourth questions is no. The answer to the fifth question is "a lot."

Differential Mortality and Wealth Accumulation

Orazio P. Attanasio and Hilary W. Hoynes

NBER Working Paper No. 5126
May 1995
JEL Nos. D1, E2, H0
Aging, Economic Fluctuations, Public Economics

The issue of asset accumulation and decumulation is central to the life-cycle theory of consumer behavior and to many policy questions. One of the main implications of the life-cycle model is that assets are spent down in the last part of life. Most empirical studies in this area use cross-sectional data of estimated mean or median wealth–age profiles. But using cross sections to estimate the age profile of assets is full of pitfalls. For example, if wealth and mortality are related, in that poorer individuals die younger, then using cross-sectional data overestimates the last part of the wealth–age profile because means (or other measures of location) are taken over a population that becomes "richer" as it ages.

This paper examines the effect of differential mortality on cross-sectional estimates of wealth–age profiles. Our approach is to quantify the dependence of mortality rates on wealth, and to use these estimates to "correct" wealth–age profiles for sample selection caused by differential mortality. We estimate mortality rates as a function of wealth and age for a sample of married couples drawn from the Survey of Income and Program Participation. Our results show that accounting for differential mortality produces wealth profiles with significantly more dissaving among the elderly.

Are Lots of College Graduates Taking High School Jobs? A Reconsideration of the Evidence

John Tyler, Richard J. Murnane, and Frank Levy

NBER Working Paper No. 5127
May 1995
JEL No. J24
Labor Studies

Several recent published papers have asserted that a growing proportion of workers with college degrees are either unemployed or employed in jobs requiring only high school-level skills. Using data from the 1980 and 1990 Censuses of Population and Housing, we show that this assertion does not reflect labor market trends accurately for young (25–34-year-old) male or female college graduates, or for older (45–54-year-old) female college graduates. For all of these groups, real earnings increased during the 1980s, and the percentage in "high school jobs" declined. The assertion is valid only for older male college graduates. Young college graduates improved their labor market position during the 1980s by increasingly obtaining degrees in fields that had high earnings at the beginning of the decade, and had the highest earnings growth over the decade.

GARCH Gamma

Robert F. Engle and Joshua V. Rosenberg

NBER Working Paper No. 5128
May 1995
Asset Pricing

This paper addresses the issue of hedging option positions when the underlying asset exhibits stochastic volatility. By parameterizing the volatility process as GARCH, and using risk-neutral valuation, we estimate hedging parameters (delta and gamma) using Monte Carlo simulation. We estimate hedging parameters for options on the Standard & Poor's 500 index, a bond futures index, a weighted foreign exchange rate index, and an oil futures index.

We find that Black–Scholes (B–S) and GARCH deltas are similar for all the options considered, while GARCH gammas are significantly higher than B–S gammas for all options. For near-the-money options, GARCH gamma hedge ratios are higher than B–S hedge ratios when hedging a long-term option with a short-term option. Away from the money, GARCH gamma hedge ratios are lower than B–S.

Testing Option Pricing Models

David S. Bates

NBER Working Paper No. 5129
May 1995
JEL No. G13
Asset Pricing

This paper discusses the commonly used methods for testing option pricing models, including Black–Scholes, constant elasticity of variance, stochastic volatility, and jump-diffusion models. Since options are derivative assets, the central empirical issue is whether the distributions implicit in option prices are consistent with the time-series properties of the underlying asset prices. I discuss three relevant aspects of consistency, corresponding to whether time-series-based inferences and option prices agree with respect to volatility, *changes* in volatility, and higher moments. I also survey the extensive empirical literature on stock options, options on stock indexes and stock index futures, and options on currencies and currency futures.

Financial Intermediation and the Great Depression: A Multiple Equilibrium Interpretation

Russell Cooper and João Ejarque

NBER Working Paper No. 5130
May 1995
JEL Nos. E32, E44, N12
Economic Fluctuations

This paper explores the behavior of the U.S. economy during the interwar period from the perspective of a model in which nonconvexities in the intermediation process give rise to multiple equilibriums. The resulting indeterminancy is resolved with a sunspot process that leads to endogenous fluctuations in aggregate economic activity. From this perspective, the Depression is a regime shift associated with a financial crisis.

Our model economy has properties that are broadly consistent with observations over the interwar period. Contrary to observation, though, the model predicts a negative correlation of consumption and investment, as well as a highly volatile capital stock. Our model of financial crisis reproduces many aspects of the Great Depression, although the model predicts a much sharper fall in investment than is observed in the data. Modifications to our model (for example, adding durable goods and a capacity utilization choice) do not overcome these deficiencies.

Sovereign Debt

Jonathan Eaton and Raquel Fernandez

NBER Working Paper No. 5131
May 1995
JEL No. F34
International Trade and Investment, International Finance and Macroeconomics

We review the literature on sovereign debt, organizing our survey around three central questions: 1) Why do sovereign debtors ever repay their debts? 2) What burdens, in the form of distortions and inefficiencies, does sovereign debt impose? 3) How might debt be restructured to reduce these burdens? In grappling with the first question, the literature has pointed to and argued about the roles of reputation, punishments, rewards, and renegotiation. In addressing the second, the literature has asked whether sovereign debtors tend to borrow too much or too little, and how debt can distort the domestic economy. Answers to the third question include measures by creditors, by debtors, and by public institutions to reduce debt burdens.

The Law of One Price over 700 Years

Kenneth A. Froot, Michael Kim, and Kenneth Rogoff

NBER Working Paper No. 5132
May 1995
JEL No. F30
International Trade and Investment, International Finance and Macroeconomics

This paper examines annual commodity price data from England and Holland over a span of seven centuries. Our dataset incorporates transactions prices on eight commodities: barley, butter, cheese, eggs, oats, peas, silver, and wheat. We also have pound/shilling nominal exchange rates going back, in some cases, to 1273. We find that the volatility and persistence of deviations from the law of one price have been remarkably stable over time. These deviations are highly correlated across commodities (especially at annual horizons) and, for most pairwise comparisons in most centuries, at least as volatile as relative prices across different goods within the same country. Our analysis challenges the conventional view that the modern floating exchange rate experience is exceptional in terms of the behavior of relative (exchange rate adjusted) prices across countries.

Measuring Gross Worker and Job Flows

Steven J. Davis and John C. Haltiwanger

NBER Working Paper No. 5133
May 1995
JEL Nos. J63, C81
Labor Studies

We combine information from several different studies and datasets to assemble a fuller, more accurate picture of job flows and worker flows in U.S. labor markets. Our picture characterizes the magnitudes of job and worker flows, the connections between them, their cyclical behavior, differences among identifiable groups of workers and employers, the spatial concentration of job flows, and other aspects of labor market dynamics. We also assess the relative strengths and weaknesses of the U.S. datasets that are currently available for measuring labor market flows. We also clarify the relationships among various measures of labor market flow that appear in the literature. Finally, we discuss prospects for using administrative records maintained by U.S. government agencies to develop new longitudinal datasets that would permit timely, detailed, and comprehensive measures of gross job and worker flows.

The Relationship Between State and Federal Tax Audits

James Alm, Brian Erard, and Jonathan S. Feinstein

NBER Working Paper No. 5134
May 1995
Public Economics

We present an econometric analysis of state and federal tax audits. Using a survey of state tax administrators, we find that most state tax audit programs are small and rely extensively on information provided by the IRS, although some of them are large and sophisticated. Then we present results from a detailed econometric analysis of state and federal tax returns and tax audits from Oregon for tax year 1987.

We conclude first that Oregon state and IRS selection criteria are similar, but not identical. This suggests that both tax agencies might benefit from greater sharing of information, especially in some audit classes. Second, Oregon state and IRS audit assessments are strongly positively correlated, as expected. Third, the shadow values associated with providing additional audit resources to the Oregon Department of Revenue and the IRS in various audit classes range from two to five dollars for the IRS and from one to three dollars for Oregon.

Factor Mobility and Income Growth: Two Convergence Hypotheses

Assaf Razin and Chi-Wa Yuen

NBER Working Paper No. 5135
May 1995
JEL No. F0
Growth, International Finance and Macroeconomics

While technologies and policy fundamentals presumably are different internationally, thus inducing differences in growth rates, capital mobility is a powerful force in achieving complete equalization of growth *rates* across countries. We provide evidence in support of this effect, showing that restrictions on capital flows tend to make growth rates for individual countries more divergent. In the context of regional growth, however, labor mobility is capable of generating equalization of income *level* across regions in the presence of knowledge spillovers. There is some supporting evidence for this effect, showing that restrictions on labor flows tend to make individual region/country per capita income more divergent.

How Does Privatization Work? Evidence from the Russian Shops

Nicholas Barberis, Maxim Boycko, Andrei Shleifer, and Natalia Tsukanova

NBER Working Paper No. 5136
May 1995
Corporate Finance, Labor Studies, Public Economics

We use a survey of 452 Russian shops, most of which were privatized between 1992 and 1993, to measure the importance of alternative channels through which privatization promotes restructuring. Restructuring is measured as capital renovation, change in suppliers, increase in hours that stores stay open, and layoffs. There is strong evidence that the presence of new owners and new managers raises the likelihood of restructuring. In contrast, there is no evidence that equity incentives for old managers promote restructuring. New human capital appears to play a critical role in economic transformation.

Do Labor Rents Justify Strategic Trade and Industrial Policy?

William T. Dickens

NBER Working Paper No. 5137
May 1995
JEL Nos. H21, J41, F13
International Trade and Investment, Labor Studies

Several efficiency-wage theories of wage determination assume that identical workers are more productive in high-wage industries, and that the promotion of employment in high-wage industries can increase GDP (and some measures of welfare). I argue that while policies to favor high-wage industries may increase productivity, their effects in developed economies are likely to be very small. This is mainly because the workers who fill the high-wage vacancies come from fairly high-wage jobs.

How Much Better Is Bigger, Faster, and Cheaper? Buyer Benefits from Innovation in Mainframe Computers in the 1980s

Kenneth H. Brown and Shane M. Greenstein

NBER Working Paper No. 5138
May 1995
JEL Nos. H57, L63, C50
Productivity

This paper develops and estimates cost-of-living indexes (for example, Fisher and Griliches, 1995) for measuring the buyer benefits from technical change in the commercial mainframe computer industry in the 1980s. We use a microeconometric model of demand for product characteristics that are embodied in a computer system. The model highlights buyers' benefits from technical change when innovation either increases the price of characteristics or increases the range of available characteristics. (This is in the spirit of Trajtenberg, 1989.)

We find that our utility-based cost-of-living index declines rapidly: approximately 10–15 percent per year. By historical standards for innovation, this is quite a rapid rate. Second, our estimates contrast with the rate of change in quality-adjusted prices in mainframe computers, approximately 25–30 percent per year. Third, while large declines in price have induced increases in purchasing, most buyers began the 1980s with a "small" mainframe system and still bought a small system at the end of the decade, despite rapidly declining mainframe prices and large extensions in computing capacity. The experience of the majority outweighs the benefits received by a few (with elastic demand) who took advantage of lower prices and extensions in the product space.

Investment, Pass-Through, and Exchange Rates: A Cross-Country Comparison

Jose Campa and Linda S. Goldberg

NBER Working Paper No. 5139
June 1995
International Trade and Investment, International Finance and Macroeconomics

Although large changes in real exchange rates have occurred during the past decades, we do not know the real implications of these movements. Using detailed data from the United States, Canada, the United Kingdom, and Japan, we examine the implications of exchange rates for sectoral investment over time. We show both theoretically and empirically that the responsiveness of investment to exchange rates varies over time, positively in relation to sectoral reliance on export share, and negatively with respect to imported inputs into production. The quantitative importance of each of these channels of exposure is a function of a set of exchange rate pass-through and demand elasticities. There are important differences in the endogeneity of investment across high- and low-markup sectors: investment in low-markup sectors is significantly more responsive to exchange rates. Unlike pass-through elasticities, which are viewed as industry-specific, investment endogeneity to exchange rates is a country-specific phenomenon.

A Center-Periphery Model of Monetary Coordination and Exchange Rate Crises

Willem H. Buiter, Giancarlo Corsetti, and Paolo A. Pesenti

NBER Working Paper No. 5140
June 1995
JEL Nos. F31, F33, F41
International Finance and Macroeconomics, Monetary Economics

We analyze the modalities and consequences of a breakdown in cooperation among the monetary authorities of inflation-prone "Periphery Countries" that use an exchange rate peg as an anti-inflationary device when an aggregate demand shock hits the "Center." Cooperation in the periphery is constrained to be symmetric: costs and benefits must be equal for all. Our model suggests that there are at least two ways in which a generalized crisis of the exchange rate system may emerge:

1) When the constrained cooperative response of the periphery is a moderate common devaluation, while the noncooperative equilibrium has large devaluations by a few countries, an exchange rate crisis will emerge if periphery countries give in to their individual incentives to renege on the cooperative agreement. 2) If the center shock is not large enough to trigger a general devaluation in the constrained cooperative equilibrium, yet some of the periphery countries would devalue in the Nash equilibrium, making the monetary stance in the system more expansionary, then reversion to Nash is collectively rational. We offer this model as a useful parable for interpreting the collapse of the European Monetary Regime in 1992–3.

Economic Implications of Changing Share Ownership
Benjamin M. Friedman

NBER Working Paper No. 5141
June 1995
JEL No. G1
Asset Pricing, Monetary Economics

Institutional investors, including especially pension funds and mutual funds, are steadily replacing individuals as owners of equity shares in the United States. Forty years ago individual investors owned 90 percent of all equity shares outstanding. Today the individually owned share is just 50 percent.

The arguments and evidence surveyed in this paper suggest four ways in which this shift in share ownership could affect the functioning of the equity market: 1) Increasing institutional ownership could either enhance or impair the market's ability to provide equity financing for emerging growth companies. 2) Increasing institutional ownership, especially in the form of open-end mutual funds, probably has increased the market's volatility in the context of occasional large price movements. 3) The increasing prevalence of defined-contribution (as opposed to defined-benefit) pension plans, and especially of 401(k) plans, probably has resulted in an increased market price of risk. 4) Increasing institutional ownership has facilitated a greater role for shareholders in the governance of U.S. corporate business, and correspondingly reduced the independence of corporate managements.

The Collapse of the Mexican Peso: What Have We Learned?
Jeffrey D. Sachs, Aaron Tornell, and Andrés Velasco

NBER Working Paper No. 5142
June 1995
International Finance and Macroeconomics

In the first quarter of 1995 Mexico found itself in the grip of an intense financial panic. Foreign investors fled Mexico despite very high interest rates on Mexican securities, an undervalued currency, and financial indicators that pointed to long-term solvency. The fundamental conditions of the Mexican economy cannot account for the entire crisis. The crisis was caused by unexpected shocks that occurred in 1994, and the inadequate policy response to those shocks. In the aftermath of the March assassination, the exchange rate experienced a nominal devaluation of around 10 percent, and interest rates increased by around 7 percentage points. However, the capital outflow continued. In response, policymakers maintained the exchange rate rule, and to prevent further increases in interest rates, expanded domestic credit and converted short-term peso-denominated government liabilities (Cetes) falling due into dollar-denominated bonds (Tesobonos). The result was a fall in international reserves and an increase in short-term dollar-denominated debt. The government simply ended up illiquid, and therefore financially vulnerable. Illiquidity exposed Mexico to a self-fulfilling panic.

The Paradox of Liquidity
Stewart C. Myers and Raghuram G. Rajan

NBER Working Paper No. 5143
June 1995
JEL Nos. G20, G32, G33
Corporate Finance

The more liquid a company's assets are, the greater their value in a short-notice liquidation. Liquid assets generally are viewed as increasing debt capacity, other things being equal. This paper focuses on the dark side of liquidity: greater liquidity reduces the ability of borrowers to commit to a specific course of action. We examine the effects of differences in asset liquidity on debt capacity, and suggest an alternative theory of financial intermediation and disintermediation.

Intraschool Variation in Class Size: Patterns and Implications
Michael Boozer and Cecilia Rouse

NBER Working Paper No. 5144
June 1995
JEL No. J0
Labor Studies

Economists attempting to explain the widening black–white wage gap of the late 1970s in terms of differences in school quality have been faced with a problem: using a variety of measures, recent data reveal virtually no gap in the quality of schools attended by blacks and whites. In this paper, we reexamine racial differences in school quality using the pupil–teacher ratio, rather than the school's average class size, in an education production function. We then consider the importance of using actual class size rather than school-level measures of class size.

We find that while the pupil–teacher ratio and average class size are correlated, the pupil–teacher ratio is systematically less than or equal to average class size. Mathematically, part of the difference is caused by the intraschool allocation of teachers to classes. As a result, while the pupil–teacher ratio suggests no black–white differences in class size, measures of the school's average class size suggest that blacks are in larger classes.

Further, the two measures result in different estimates of the importance of class size in an education production function.

We also conclude that school level measures may obscure important variation in class size within schools caused by the smaller compensatory education classes. Since black students are more likely to be assigned to these classes, a kind of aggregation bias results. Blacks are not only in schools with larger average class sizes, but they also are in larger classes within schools, conditional on the type of class. The class size patterns within schools suggest that using within-school variation in education production functions is not a perfect solution to aggregation problems: students are not randomly assigned to classes of differing sizes. However, once the selection problem has been addressed, it appears that smaller classes at the eighth grade lead to larger gains in test scores from eighth to tenth grade. Differences in class size also can explain approximately 15 percent of the black–white difference in educational achievement.

Measuring Monetary Policy

Ben S. Bernanke and Ilian Mihov

NBER Working Paper No. 5145
June 1995
JEL No. E52
Monetary Economics

Extending the approach of Bernanke and Blinder (1992), Strongin (1992), and Christiano, Eichenbaum, and Evans (1994), we develop and apply a vector autoregression (VAR)-based methodology for measuring the stance of monetary policy. More specifically, we develop a "semi-structural" VAR approach, which extracts information about monetary policy from data on bank reserves and the federal funds rate, but leaves the relationships among the macroeconomic variables in the system unrestricted. The methodology nests earlier VAR-based measures, and can be used to compare and evaluate these indicators. It also can be used to construct measures of the stance of policy that optimally incorporate estimates of the Fed's operating procedure for any given period.

Among existing approaches, we find that innovations to the federal funds rate (Bernanke–Blinder) are a good measure of policy innovations during 1965–79 and 1988–94. For 1979–94 as a whole, innovations to the component of nonborrowed reserves that is orthogonal to total reserves (Strongin) seems to be the best choice. We develop a new measure of policy stance that conforms well to qualitative indicators of policy, such as the Boschen–Mills (1991) index. Innovations to our measure lead to reasonable and precisely estimated dynamic responses by variables such as real GDP and the GDP deflator.

Inside the Black Box: The Credit Channel of Monetary Policy Transmission

Ben S. Bernanke and Mark Gertler

NBER Working Paper No. 5146
June 1995
JEL Nos. E44, E51
Economic Fluctuations,
Monetary Economics

The "credit channel" theory of monetary policy transmission holds that informational frictions in credit markets worsen during periods of tight money. The resulting increase in the external finance premium—the difference in cost between internal and external funds—enhances the effects of monetary policy on the real economy. We document the responses of GDP and its components to monetary policy shocks and describe how the credit channel helps explain the facts. We then discuss two main components of this mechanism: the balance-sheet channel and the bank-lending channel. We argue that forecasting exercises using credit aggregates are not valid tests of this theory.

Tax Subsidies to Employer-Provided Health Insurance

Jonathan Gruber and James M. Poterba

NBER Working Paper No. 5147
June 1995
JEL Nos. H24, H51, I11
Aging, Health Care, Public Economics

This paper investigates the current tax subsidy to employer-provided health insurance, and presents new evidence on the economic effects of various tax reforms. We argue that previous analyses have overstated the tax subsidy to employer-provided insurance by neglecting the substantial and growing importance of aftertax employee payments for employer-provided insurance, as well as the tax subsidy for extreme medical expenses, which discourages the purchase of insurance. Even after considering these factors, however, the net tax subsidy to employer-provided insurance is substantial, with tax factors generating an average reduction of approximately 30 percent in the price of this insurance. Reducing the tax subsidy, either by capping the value of employer-provided health insurance that could be excluded from taxation, or eliminating the exclusion entirely, would have substantial effects on the level of employer-provided insurance and on tax revenues.

Does the AIDS Epidemic Really Threaten Economic Growth?

David E. Bloom and Ajay S. Mahal

NBER Working Paper No. 5148
June 1995
JEL Nos. I1, O1
Health Care, Labor Studies

This study examines the claim that the AIDS epidemic will slow the pace of economic growth. For 51 developing and industrial countries for which we were able to assemble data, we examine the association between changes in the prevalence of AIDS and the rate of growth of GDP per capita. We use well-established empirical growth models to control for a variety of factors possibly correlated with the prevalence of AIDS that might also influence growth. We also account for possible simultaneity in the relationship between AIDS and economic growth.

Our main finding is that the AIDS epidemic has not had a significant effect on the growth rate of per capita income, nor is there evidence of reverse causality. We also find that the insignificant effect of AIDS on income per capita is qualitatively similar to the insignificant effect on wages of the Black Death in England and France during the Middle Ages, and the insignficant effect on output per capita of influenza in India during 1918–9.

Does Welfare Play Any Role in Female Headship Decisions?

Hilary Williamson Hoynes

NBER Working Paper No. 5149
June 1995
Public Economics

During the last 30 years, the composition of white and black families in the United States has changed dramatically. In 1960, less than 10 percent of families with children were headed by a single mother, while in 1990 more than 20 percent of families with children were headed by a female.

A large body of research has focused on the role of the U.S. welfare system, and in particular the Aid to Families with Dependent Children (AFDC) program, in contributing to these dramatic changes in family structure. Most studies use cross-sectional data, and identify the effect of welfare on female headship through interstate variation in the AFDC program. But recent research finds that controlling for state effects has a large impact on the estimated effect of welfare.

This paper examines why state effects matter by examining the importance of individual effects and policy endogeneity. One explanation for why state effects matter is that the composition of the population across states differs, and is related to the generosity of the state's welfare program. If that is true, then controlling for individual effects should have the same result as controlling for state effects. Second, I examine the endogeneity of AFDC policy by including controls that represent the determinants of state welfare generosity. My results show that after controlling for individual effects, there is no evidence that welfare contributes to increasing propensities to form female-headed households, either for whites or blacks. Further, my results suggest that migration among blacks induced by welfare leads to an upward bias in the estimated welfare effect found in previous studies.

Would Reducing Tenure Probabilities Increase Faculty Salaries?

Ronald G. Ehrenberg, Paul J. Pieper, and Rachel A. Willis

NBER Working Paper No. 5150
June 1995
JEL No. J44
Labor Studies

The simplest competitive labor market model asserts that if tenure is a desirable job characteristic for professors, then they should be willing to pay for it by accepting lower salaries. Conversely, if an institution unilaterally reduces the probability that its assistant professors receive tenure, then it will have to pay higher salaries to attract new faculty.

Our paper tests this theory. We use data on salary offers accepted by new assistant professors at economics departments in the United States between 1974–5 and 1980–1, along with data on the proportion of new Ph.D.s hired by each department between 1970 and 1980 who ultimately received tenure in the department, or at a comparable or higher-quality department. We find that a trade-off did exist. Equally important, departments that offer low probabilities of tenure to assistant professors also pay higher salaries to their tenured faculty. We attribute this to their need to pay higher salaries to attract tenured faculty from the external market.

Technological Diffusion, Convergence, and Growth

Robert J. Barro and Xavier Sala-i-Martin

NBER Working Paper No. 5151
June 1995
JEL Nos. O40, O14
Growth, Economic Fluctuations

We construct a model that combines elements of endogenous growth with the convergence implications of the neoclassical growth model. In the long run, the world growth rate is driven by discoveries in the technologically leading economies. Followers converge toward the leaders, because copying is cheaper than innovation over some range. A tendency for the costs of copying to increase reduces the growth rate of followers, and thereby generates a pattern of conditional convergence. We discuss how countries are selected to be technological leaders, and we assess the welfare implications. Poorly defined intellectual property rights imply that leaders have insufficient incentive to invent, and followers have excessive incentive to copy.

Habit and Heterogeneity in the Youthful Demand for Alcohol

Michael J. Moore and Philip J. Cook

NBER Working Paper No. 5152
June 1995
JEL Nos. O12, I12, I18
Health Care

Observed patterns of youthful drinking indicate substantial persistence; this paper analyzes how much of that persistence reflects the actual development of a habit, and how much is caused by unobserved aspects of the individual and the environment. We also explore the role of restrictions on the availability of alcohol, both in the current period and in adolescence. We find that much of the observed persistence represents habit formation, and not unobserved characteristics. Consequently, restrictions on the availability of alcohol, particularly at an early age, alter subsequent patterns of alcohol consumption and abuse.

Death and Tobacco Taxes

Michael J. Moore

NBER Working Paper No. 5153
June 1995
JEL Nos. H23, I12, I18
Health Care

This study analyzes the effects of changes in the tobacco excise tax on mortality attributable to heart disease, cancer, and asthma. Reduced-form regressions of mortality rates on tax data for 1954–88, with controls for state, year, income, and unobserved persistence, indicate that tax increases lead to statistically significant decreases in mortality. A 10 percent increase in the tax is projected to save approximately 5200 lives a year.

Identifying the Output Effects of Monetary Policy

John H. Cochrane

NBER Working Paper No. 5154
June 1995
Economic Fluctuations,
Monetary Economics

What are the relative effects of anticipated versus unanticipated monetary policy? I examine the effect of an identifying assumption on vector autoregression estimates of the output response to money, assuming that anticipated monetary policy can have *some* effect on output in much shorter and smaller estimates of output response, estimates closer to the predictions of most monetary models.

The Taxation of Two-Earner Families

Martin Feldstein and Daniel R. Feenberg

NBER Working Paper No. 5155
June 1995
JEL Nos. H24, H21
Public Economics

This paper examines the efficiency and revenue effects of several alternative tax treatments of two-earner families, using estimates of the compensated elasticities of the labor supply of married women based on the experience with the 1986 tax rate reductions. The analysis of alternative options relies on the NBER TAXSIM model, which has been modified to incorporate separate estimates of the earnings of husbands and wives. The marginal tax rates explicitly incorporate Social Security payroll taxes, net of the present actuarial value of future retirement benefits.

Three general conclusions emerge from the simulations of the various options: First, the high existing marginal tax rates on married women cause substantial deadweight losses that could be reduced by alternative tax rules that would lower their marginal rates. Second, behavioral responses to lower marginal tax rates induce additional tax payments that offset large fractions of the "static" revenue losses. Third, there are substantial differences in cost effectiveness, that is, in the revenue cost per dollar of reduced deadweight loss, among these options. Several of the options are cost effective enough that they probably could be combined with other ways of raising revenue to produce a net reduction in the deadweight loss of the tax system as a whole.

However, we are aware that the current framework is very restrictive in three important ways. First, it ignores the response of the primary earner in the couple to any change in tax rates on spousal income. Second, it defines the labor supply response very narrowly in terms of participation and hours, excluding such important dimensions of labor supply as choice of occupation and of particular job, effort, location, travel requirements, riskbearing, assumption of responsibility, and so forth. More generally, taxes not only affect the labor supply of men and women but also change taxable income by changing excluded income (fringe benefits, and so forth) and taxpayer deductions. These changes in taxable income are the key to influencing tax revenue and the deadweight loss of alternative tax rules. We plan to extend the current work to merge evidence on the effects of taxes on the hours and participation of married women with the more general evidence on the sensitivity of taxable income to marginal tax rates.

Liberalized Portfolio Capital Inflows in Emerging Markets: Sterilization, Expectations, and the Incompleteness of Interest Rate Convergence

Jeffrey A. Frankel and Chudozie Okongwu

NBER Working Paper No. 5156
June 1995
International Finance and Macroeconomics, Monetary Economics

This paper examines interest rates in nine Latin American and East Asian countries during 1987–94. Our goal is to discover why interest rates have remained high, failing to converge to U.S. levels, despite capital market liberalization and a resurgence of portfolio capital inflows during the second half of this sample period. Related questions are whether portfolio capital flows are strong enough to equalize expected returns between these "emerging markets" and the United States, and whether there is any scope left for the authorities to sterilize inflows. We conclude that the largest single component of the gap in interest rates is expectations of depreciation of the local currencies against the dollar. Key to the analysis is the use of survey data on exchange rate forecasts by market participants. Indicative of integrated financial markets, there is also a big effect of U.S. interest rates on local interest rates, and a highly significant degree of capital flow offset to monetary policy.

Consumer Product Safety Regulation in the United States and the United Kingdom: The Case of Bicycles

Wesley A. Magat and Michael J. Moore

NBER Working Paper No. 5157
June 1995
JEL Nos. I18, I12
Health Care, Industrial Organization

We study the effects of U.S and U.K. bicycle safety regulations on bicycle accident rates for various age groups in the population. We find small, statistically significant decreases in accident rate as more bicycles come into compliance with the regulations. This result is independent of country, season, and trend effects, and holds across a range of age groups. The results run counter to those of similar studies. This appears to reflect our focus on a specific standard, rather than on broad enabling legislation, and our reliance on the longer time series available.

Labor Supply Response to the Earned Income Tax Credit

Nada Eissa and Jeffrey B. Liebman

NBER Working Paper No. 5158
June 1995
JEL Nos. H2, I3, J2
Public Economics

In a series of major expansions starting in 1987, the earned income tax credit (EITC) has become a central part of the federal government's anti-poverty strategy. In this paper, we examine the impact of the Tax Reform Act of 1986 (TRA86), which included an expansion of the EITC, on labor force participation and hours of work. The expansion of the credit affected an easily identifiable group, single women with children, but is predicted to have had no effect on another group, single women without children. Other features of TRA86, such as the increase in the value of dependent exemptions and the large increase in the standard deduction for head-of-household filers, are predicted by economic theory to have reinforced the impact of the EITC on the relative labor supply outcomes of single women with and without children. Therefore we compare the change in labor supply of single women with children to the change in labor supply of single women without children.

We find that between 1984–6 and 1988–9 single women with children increased their participation in the labor force by 1.4 percentage points (from a base of 73.1 percent) relative to single women without children. We explore a number of possible explanations for this finding and conclude that the 1987 expansion of the EITC and the other provisions of TRA86 are the most likely explanations. We find no effect of the EITC expansion on the hours of work of single women with children who were already in the labor force. Compared to other elements of the welfare system, the EITC appears to produce little distortion of work incentives.

Race and Education Differences in Disability Status and Labor Force Attachment

John Bound, Michael Schoenbaum, and Timothy Waidmann

NBER Working Paper No. 5159
June 1995
JEL Nos. J26, J14, J15
Aging, Labor Studies

The labor force participation rates of older, working age black men and of men with relatively low levels of education historically have been significantly lower than those of white men and/or men with more education. This paper uses data from the new Health and Retirement Survey to examine the extent to which variation in health and job characteristics can account for these differences. Our analysis suggests that race and education differences in the health status of middle-aged men can explain a substantial fraction of black/white differences in labor force attachment, and essentially all of the gap among men with different levels of education.

Why Is There Multilateral Lending?

Dani Rodrik

NBER Working Paper No. 5160
June 1995
JEL Nos. F21, F34, F35
International Trade and Investment, International Finance and Macroeconomics

Why should multilateral lending exist in a world where private capital markets are well developed and governments have their own bilateral aid programs? If lending by the World Bank, IMF, and regional development banks has an independent rationale, it must be related to the advantages generated by the multilateral nature of these institutions. In principle there are two such advantages. First, since information on the quality of investment environments in different countries in many ways is a collective good, multilateral agencies are in a better position to internalize the externalities that may arise from it. This creates a rationale for multilateral lending in terms of *information provision,* particularly in terms of monitoring government policies in recipient countries.

Second, as long as multilateral agencies retain some degree of autonomy from the governments that own them, their interaction with recipient countries, although official in nature, can remain less politicized than intergovernmental links. This in turn endows multilateral agencies with an advantage in the exercise of *conditionality* (that is, in lending that is conditional on changes in government policies). Neither of these two potential advantages has much to do with lending per se. However, multilateral lending may be required to make these agencies' tasks compatible in terms of incentives. I find little evidence that multilateral lending has acted as a catalyst for private capital flows.

Inflation Indicators and Inflation Policy

Stephen G. Cecchetti

NBER Working Paper No. 5161
June 1995
JEL Nos. E31, E37, E52
Monetary Economics

In recent years, central bankers throughout the world have advocated a shift in monetary policy toward inflation targeting. Recent actions in the United States serve to highlight the desire of the Federal Reserve to keep inflation low and stable, while downplaying the likely consequences for output and employment. But control of inflation requires that one be able to forecast the future path of the price level and estimate what impact changes in policy have on that path. Unfortunately, inflation is very difficult to forecast even at very near horizons. This is because the relationship between potential indicators of inflation and inflation itself is neither very strong nor very stable. Beyond this, the relationship between monetary policy instruments, including the Federal Funds rate, and inflation also varies substantially over time, and cannot be estimated precisely.

Policy rules can take these difficulties into account. I examine several such rules, and find that they have the following interesting properties: First, since prices take time to respond to all types of impulses, the object of price stability implies raising the Federal Funds rate immediately following a shock, rather than waiting for prices to rise before acting. Second, comparison of the results of price level targeting with nominal income targeting suggests that the difficulties inherent in forecasting and controlling the former provide an argument for focusing on the latter.

Cyclical Versus Secular Movements in Employment Creation and Destruction

Edward Montgomery and Randall W. Eberts

NBER Working Paper No. 5162
June 1995
JEL Nos. J63, E24, R1
Labor Studies

This paper offers an analysis of cyclical and secular patterns in job turnover based on establishment-level data. We provide evidence from multiple datasets showing that the job turnover process is markedly different over time and across regions. Over time, employment fluctuations are associated primarily with job destruction. Across regions, employment differences are associated more with job creation. Differences exist between the cyclical (within) and secular (across state) responses in job creation and destruction to output shocks. Movements in job creation and destruction also are related to the types of human capital externalities or technological spillovers used to explain long-run differences in regional or national growth rates.

Are Ghettos Good or Bad?

David M. Cutler and Edward L. Glaeser

NBER Working Paper No. 5163
June 1995
JEL Nos. H70, I30, J70
Public Economics, Growth

Theory suggests that spatial separation of racial and ethnic groups can have both positive and negative effects on the economic performance of minorities. Racial segregation may be damaging because it curtails informational connections with the larger community, or because concentrations of poverty deter human capital accumulation and encourage crime. Alternatively, racial segregation might ensure that minorities have middle-class role models, and thus it may promote good outcomes. We examine the effects of segregation on African-Americans in terms of schooling, employment, and single parenthood. We find that African-Americans in more segregated areas do significantly worse, particularly in central cities. We control for the endogeneity of location choice using instruments based on political factors, topographical features of cities, and residence before adulthood. Some, but never more than 40 percent of this effect, stems from lack of role models and long commuting times.

Historical Factors in Long-Run Growth

Peopling the Pampa: On the Impact of Mass Migration to the River Plate, 1870–1914

Alan M. Taylor

NBER Historical Paper No. 68
May 1995
JEL Nos. N16, N36, N56

The Argentine economy was transformed in the late nineteenth century by the mass migration of millions of Europeans. Various ideas have surfaced concerning the likely impact of this labor inflow; that it: favored the wheat revolution on the pampas, promoted urbanization and the rapid growth of Buenos Aires, paved the way for Argentine industrialization, and caused slack in the labor markets, thus lowering wages. This paper analyzes the impact of migration on the scale and structure of the Argentine economy, and attempts to resolve various competing hypotheses. I present a new social accounting matrix for Argentina, and use it to calibrate a CGE model. Both tools show promise for further exploration of growth and structural change during and after the *Belle Époque.*

Irregular Production and Time Out of Work in American Manufacturing Industry in 1870 and 1880: Some Preliminary Estimates

Jeremy Atack and Fred Bateman

NBER Historical Paper No. 69
June 1995
JEL Nos. J64, N31, N61

This paper uses previously untabulated data from the Censuses of Manufacturing for 1870 and 1880 to investigate the extent to which firms operated at less than their full capacity year round in those census years. Thus we provide some evidence of the extent to which workers may have faced temporary or permanent layoff. We conclude that firms nationwide operated for the equivalent of 254 days (out of perhaps 309 possible working days) during the 1870 census year from the end of May 1869 to the beginning of June 1870, and for 261 days during the 1880 census year from the beginning of June 1879 to the end of May 1880. Workers put in slightly more days of work in each of these years in their customary industrial employment, because larger firms were more likely to operate for more days per year. However, there were significant regional and industry differences. Although our estimates are broadly consistent with independent estimates and are generally in accord with expectations, they raise important questions about economic performance in the late nineteenth century that remain unanswered here.

Technical Papers

Dynamic Equilibrium Economies: A Framework for Comparing Models and Data

Francis X. Diebold, Lee E. Ohanian, and Jeremy Berkowitz

NBER Technical Paper No. 174
February 1995
JEL Nos. C1, E1, E3
Economic Fluctuations

We propose a constructive, multivariate framework for assessing agreement between (generally misspecified) dynamic equilibrium models and data. The framework enables a complete second-order comparison of the dynamic properties of models and data in both graphical and numerical ("goodness-of-fit") form. We propose bootstrap algorithms to evaluate the significance of deviations between models and data. We use the goodness-of-fit criteria to produce estimators that optimize economically relevant loss functions, and again approximate finite-sample properties using bootstrap procedures. We provide a detailed illustrative application to modeling the U.S. cattle cycle.

Investment Under Alternative Return Assumptions: Comparing Random Walks and Mean Reversion

Gilbert E. Metcalf and Kevin Hassett

NBER Technical Paper No. 175
March 1995
JEL Nos. C6, E2
Public Economics

Many recent theoretical papers have come under attack for modeling prices as Geometric Brownian Motion. This process can diverge over time, implying that firms facing this price process can earn infinite profits. We explore the significance of this attack, and contrast investment under Geometric Brownian Motion with investment assuming mean reversion. While analytically more complex, mean reversion in many cases is a more plausible assumption, allowing for supply responses to increasing prices. We show that cumulative investment is generally unaffected by the use of a mean reversion process rather than Geometric Brownian Motion, and provide an explanation for this result.

A Comparison of Alternative Instrumental Variables Estimators of a Dynamic Linear Model

Kenneth D. West and David W. Wilcox

NBER Technical Paper No. 176
March 1995
JEL Nos. C13, C15, C32
Economic Fluctuations

Using a dynamic linear equation that has a conditionally homoskedastic moving average disturbance, we compare two parameterizations of a commonly used instrumental variables estimator [Hansen (1982)] to one that is asymptotically optimal in a class of estimators that includes the conventional one [Hansen (1985)]. We find that for some plausible data generating processes, the optimal estimator is distinctly more efficient asymptotically. Simulations indicate that in samples of typical size, asymptotic theory describes the distribution of the parameter estimates reasonably well, but that test statistics are sometimes poorly sized.

Small Sample Properties of GMM for Business Cycle Analysis

Lawrence J. Christiano and Wouter J. den Haan

NBER Technical Paper No. 177
March 1995
JEL Nos. C12, C15, E32
Economic Fluctuations

Using Monte Carlo methods, we investigate the finite sample properties of GMM procedures for conducting inference about statistics that are of interest in the business cycle literature. These statistics include the second moments of data filtered using the first difference and Hodrick–Prescott filters, and they include statistics for evaluating model fit. Our results indicate that, for the procedures considered, the existing asymptotic theory is not a good guide in a sample the size of quarterly postwar U.S. data.

Nonparametric Demand Analysis with an Application to the Demand for Fish

Joshua D. Angrist, Kathryn Graddy, and Guido W. Imbens

NBER Technical Paper No. 178
April 1995
JEL Nos. C30, L66, Q11
Labor Studies

Instrumental variables (IV) estimation of a demand equation using time-series data produces a weighted average derivative of heterogeneous potential demand functions. This result adapts recent work on the causal interpretation of two-stage least squares estimates to the simultaneous equations context, and generalizes earlier research on average derivative estimation to models with endogenous regressors. We also show how to compute the weights underlying IV estimates of average derivatives in a simultaneous equations model. We illustrate these ideas using data from the Fulton Fish Market in New York City and estimating an average elasticity of wholesale demand for fresh fish. We graph and interpret the weighting function underlying IV estimates of the demand equation. Our empirical example illustrates the essentially local and context-specific nature of IV estimates of structural parameters in simultaneous equations models.

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1050 Massachusetts Avenue
Cambridge, Massachusetts 02138-5398
(617) 868-3900

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