

find that "juvenile delinquents" or those from socially disadvantaged backgrounds fare badly in terms of employment and unemployment, and their social disadvantages persist and still have a strong effect, even at

age 33. For women, the position is somewhat less bleak than for men, though. There are gender based differences after age 23, with disadvantaged men doing worse than women in terms of economic success.

It is anticipated that these papers will be published by the University of Chicago Press in a conference volume. Its availability will be announced in a future issue of the *NBER Reporter*.



Bureau News

Bureau Researchers Win TIAA-CREF Awards

NBER research associates won all three prizes for research awarded by TIAA-CREF at the recent meetings of the American Economics Association in New Orleans. Robert J. Shiller, of NBER and Yale University, won the 1996 Paul A. Samuelson Award for Outstanding Scholarly Writing on Lifelong Financial Security for his book *Macro Markets: Creating Institutions for Managing Society's Largest Economic Risks*. TIAA-CREF

CEO John H. Biggs, in presenting the award, said "Dr. Shiller's book is full of fundamental new ideas for future market developments that could do much to build financial security for individuals in the 21st century."

The Samuelson Award also includes Certificates of Excellence, which were given to the authors of the following papers: "Precautionary Saving and Social Insurance"(NBER

Reprint No. 1969) by R. Glenn Hubbard and Stephen P. Zeldes of NBER and Columbia University, and Jonathan Skinner of NBER and Dartmouth College; and "Do 401(k) Contributions Crowd Out Other Personal Saving?" (NBER Reprint No. 2026) by James M. Poterba, NBER and MIT, Steven F. Venti, NBER and Dartmouth College, and David A. Wise, NBER and Harvard University.

Reprints Available

The following NBER Reprints, intended for nonprofit education and research purposes, are now available. (Previous issues of the *NBER Reporter* list titles 1–2056 and contain abstracts of the Working Papers cited below.)

These reprints are free of charge to Corporate Associates. **For all other there is a charge of \$5.00 per reprint requested. (Outside of the United States, add \$10.00 for postage and handling.) Advance payment is required on all orders. Please do not send cash.** Reprints must be requested by number, in writing, from: Reprints, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.

2057. "France and the Bretton Woods International Monetary System: 1960 to 1968," by **Michael D. Bordo**, **Dominique Simard**, and **Eugene N. White** (NBER Working Paper No. 4642)

2058. "Specification Testing in Panel Data with Instrumental Variables," by **Gilbert E. Metcalf** (NBER Technical Paper No. 123)

2059. "Gender Differences in Departures from a Large Firm," by **Nachum Sicherman** (NBER Working Paper No. 4279)

2060. "Tax Subsidies to Employer-Provided Insurance," by **Jonathan Gruber** and **James M. Poterba** (NBER Working Paper No. 5147)

2061. "Did 401(k) Plans Replace Other Employer-Provided Pensions?" by **Leslie E. Papke**, **Mitchell Petersen**, and **James M. Poterba** (NBER Working Paper No. 4501)

2062. "Wage Structure and Gender Earnings Differentials: An International Comparison," by **Francine D. Blau** and **Lawrence M. Kahn** (NBER Working Paper No. 4224)

2063. "Accuracy in the Assessment of Damages," by **Louis Kaplow** and **Steven Shavell** (NBER Working Paper No. 4287)

2064. "Automobile Prices in Market Equilibrium," by **Steven T. Berry**,

James A. Levinsohn, and **Ariel Pakes** (NBER Working Paper No. 4264)

2065. "Is Fixed Investment the Key to Economic Growth?" by **Magnus Blomstrom**, **Robert E. Lipsey**, and **Mario Zejan** (NBER Working Paper No. 4436)

2066. "Diversification, Integration, and Emerging Market Closed-End Funds," by **Geert Bekaert** and **Michael S. Urias** (NBER Working Paper No. 4990)

2067. "Veblen Effects in a Theory of Conspicuous Consumption," by **Laurie Simon Bagwell** and **B. Douglas Bernheim** (NBER Working Paper No. 4163)

2068. "Dividends and Profits: Some Unsubtle Foreign Influences," by **James R. Hines, Jr.** (NBER Working Paper No. 3730)

2069. "Problems in the Measurement and Performance of Service-Sector Productivity in the United States," by **Robert J. Gordon** (NBER Working Paper No. 5519)

2070. "Optimal Distribution and the Family," by **Louis Kaplow** (NBER Working Paper No. 4189)

2071. "Markup Pricing in Mergers and Acquisitions," by **G. William Schwert** (NBER Working Paper No. 4863)

2072. "Why Have Separate Environmental Taxes?" by **Don Fullerton** (NBER Working Paper No. 5380)

2073. "The High Cost of Eating: Causes of International Differences in Consumer Food Prices," by **Robert E. Lipsey** and **Birgitta Swedenborg** (NBER Working Paper No. 4555)

2074. "International Differences in Male Wage Inequality: Institutions Versus Market Forces," by **Francine D. Blau** and **Lawrence M. Kahn** (NBER Working Paper No. 4678)

2075. "Uncertainty, Investment, and Industry Evolution," by **Ricardo J. Caballero** and **Robert S. Pindyck** (NBER Working Paper No. 4160)

2076. "Heterogeneity, Stratification, and Growth: Macroeconomic Implications of Community Structure and

School Finance," by **Roland Benabou** (NBER Working Paper No. 4311)

2077. "Equity and Efficiency in Human Capital Investment: The Local Connection," by **Roland Benabou** (NBER Working Paper No. 4798)

2078. "Do National Borders Matter for Quebec's Trade?" by **John F. Helliwell** (NBER Working Paper No. 5215)

2079. "Turning Points in the Civil War: Views from the Greenback Market," by **Kristen L. Willard**, **Timothy W. Guinnane**, and **Harvey S. Rosen** (NBER Working Paper No. 5381)

2080. "The Time Variation of Risk and Return in Foreign Exchange Markets: A General Equilibrium Perspective," by **Geert Bekaert** (NBER Working Paper No. 4818)

2081. "A Cross-Sectional Test of an Investment-Based Asset Pricing Model," by **John H. Cochrane** (NBER Working Paper No. 4025)

2082. "Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience," by **Francesco Giavazzi** and **Marco Pagano** (NBER Working Paper No. 5332)

2083. "Economic Implications of Changing Share Ownership," by **Benjamin M. Friedman** (NBER Working Paper No. 5141)

2084. "The Distribution of Exchange Rates in the EMS," by **Charles M. Engel** and **Craig S. Hakkio** (NBER Working Paper No. 4834)

2085. "A Comparison of the United States and Canadian Banking Systems in the Twentieth Century: Stability Versus Efficiency?" by **Michael D. Bordo**, **Angela Redish**, and **Hugh T. Rockoff** (NBER Working Paper No. 4546)

2086. "Taxation and Corporate Investment: The Impact of the 1991 Swedish Tax Reform," by **Alan J. Auerbach**, **Kevin Hassett**, and **Jan Sodersten** (NBER Working Paper No. 5189)

Economic Fluctuations and Growth

Nearly 60 members and guests of the NBER's Program on Economic Fluctuations and Growth (EFG) gathered at the Federal Reserve Bank of Chicago on October 25 for their fall research meeting. It was organized by Lars P. Hansen, NBER and the University of Chicago, and Michael Woodford, NBER and Princeton University. The following papers were discussed:

Jeffrey R. Campbell, NBER and University of Rochester, and **Jonas Fisher**, Federal Reserve Bank of Chicago, "Aggregate Employment Fluctuations with Microeconomic Asymmetries" (NBER Working Paper No. 5767)

Discussant: Ricardo J. Caballero, NBER and MIT

Garey Ramey and **Joel Watson**, University of California, San Diego, "Contractual Fragility, Job Destruction, and Business Cycles" Discussant: Robert E. Hall, NBER and Stanford University

Eran Yashiv, Tel Aviv University, "The Determinants of Equilibrium Unemployment"

Discussant: Dale Mortenson, Northwestern University

Jordi Galí, NBER and New York University, "Technology, Employment, and the Business Cycle: Do Technology Shocks Explain Aggregate Fluctuations?"

(NBER Working Paper No. 5721)

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

Larry E. Jones, NBER and Northwestern University, and **Rodolfo Manuelli**, NBER and University of Wisconsin, "Policy Uncertainty and Informational Monopolies: The Case of Monetary Policy"

Discussant: Robert E. Lucas Jr., NBER and University of Chicago

Peter Ireland, Rutgers University, "A Small Structural Quarterly Model for Monetary Policy Evaluation"

Discussant: Martin S. Eichenbaum, NBER and Northwestern University

Campbell and **Fisher** provide a simple explanation for the observation that the variance of job destruction is greater than the variance of job creation: job creation is costlier at the margin than job destruction. They construct a model in which certain employment policies respond to aggregate shocks. The microeconomic asymmetries in their model can dampen the response of total job creation to an aggregate shock, and can cause total job creation to be less volatile than total job destruction.

Ramey and **Watson** develop a theory of labor contracting in which negative productivity shocks lead to costly job loss, despite unlimited possibilities for renegotiating wage contracts. Such fragile contracts emerge from firms' tradeoffs between robustness of incentives in ongoing employment relationships and costly specific investment. In a matching market equilibrium, contractual fragility serves as a powerful mechanism for propagating underlying productivity shocks.

Yashiv explores the determinants of equilibrium unemployment. Using the search and matching framework and a dataset of unique quality — Israeli employment service data — he studies the search behavior of firms and workers, and their matching process. He finds that a major reason for the rise in unemployment was the reduction in firms' dynamic demand for labor in response to a fall in profitability levels and a rise in the discount rate.

Using data for the G7 countries, **Galí** estimates conditional correlations of employment and productivity, based on a decomposition of the two series into technology and non-technology components. The picture that emerges is hard to reconcile with the predictions of the standard real business cycle model. For a majority of countries, the following results stand out: 1) technology shocks appear to induce a negative comovement between productivity and employment, counterbalanced by a positive comovement generated by

demand shocks; 2) the impulse responses show a persistent decline of employment in response to a positive technology shock; and 3) measured productivity increases temporarily in response to a positive demand shock. More generally, the pattern of economic fluctuations attributed to technology shocks seems to be largely unrelated to major postwar cyclical episodes. A simple model with monopolistic competition, sticky prices, and variable effort accounts for the empirical findings.

Jones and **Manuelli** study the effects of monetary uncertainty on the level of output. They show that in a world in which trading partners have asymmetric information about the current state of monetary policy, monetary uncertainty can result in reduced trade and a loss in welfare. When the gathering of information is treated endogenously, high inflation results in two sources of welfare loss: in addition to the reduction in trade, agents will spend time and effort

gathering socially useless (but privately useful) information.

Ireland develops a small, structural model of the U.S. economy, and estimates it with quarterly data on output, prices, and money from 1959

through 1995. His estimates reveal that the Federal Reserve has insulated the economy successfully from the effects of demand-side disturbances, so that most of the observed variation in aggregate output reflects the

impact of supply-side shocks. Indeed, Federal Reserve policy has responded efficiently to these shocks, although the rate of inflation on average has been too high.

Higher Education

Members and guests of the NBER's Working Group on Higher Education met in Cambridge on October 25 to discuss their recent and ongoing research. NBER Research Associate Charles T. Clotfelter, also of Duke University, organized the following agenda:

T. Aldrich Finegan and **John J. Siegfried**, Vanderbilt University, "Would a Shortage of New Economics Ph.D.s Hurt College Teaching?"

William F. Becker, **John R. Powers**, and **Phillip Saunders**, Indiana University, "Problems of Missing Student Data in the TUCE

III Data Set and the Importance of Class Size in Student Achievement" Discussant for both papers: **Richard Murnane**, NBER and Harvard University

Andrew W. Dick, University of Rochester, and **Aaron S. Edlin**, NBER and University of California, Berkeley, "The Implicit Taxes from College Financial Aid" (NBER Working Paper No. 5316)

Discussant: **James R. Hines, Jr.**, NBER and Harvard University

Michael S. McPherson, Williams College, and **Morton O. Schapiro**, University of Southern California, "Are We Keeping College

Affordable? Student Aid, Access, and Choice in American Higher Education"

Discussant: **Charles T. Clotfelter**

Presentations of Work in Progress:

Charlotte Kuh, National Research Council, "The Market for New Ph.D.s: Mechanisms and Measures" Discussant: **Paula Stephan**, Georgia State University

Thomas J. Kane, NBER and Harvard University, "Policy Issues in Student Financial Aid"

Discussant: **Sandra Baum**, Skidmore College

Using data from the third edition of the Test of Understanding College Economics (TUCE) collected from 117 classes in introductory economics taught at 34 different colleges, **Finegan** and **Siegfried** ask whether students taught by regular faculty with Ph.D. degrees learn more than students taught by faculty with only M.A. degrees. After controlling for other characteristics of instructors, schools, and students, the authors find no significant association between an instructor's final degree and several objective measures of student learning in introductory macroeconomics classes. Further, students in introductory microeconomics taught by instructors with Ph.D.s learned substantially and significantly less. In neither course was there a significant net association between the instruc-

tor's degree and student assessments of amount learned or instructor effectiveness. This suggests that a future shortage of Ph.D. economists would not reduce student learning in introductory economics courses.

Becker, **Powers**, and **Saunders** use an uncensored TUCE dataset to assess the importance of class size and other class-specific variables on student attrition during a course. They also consider how this attrition and other variables influence scores on the "posttest". Finally, they consider the problems of missing data that are associated with the self-reported student questionnaire information contained in the TUCE dataset. Contrary to others, these authors find that once missing data problems are addressed, the class size at the beginning of the term is

related negatively and significantly to the post-micro TUCE score. In part this is the result of students in larger classes being significantly more likely than students in smaller classes to withdraw from the course before taking the posttest.

Families who earn more, or who heed the advice of "experts" and save for college, typically receive less financial aid. The financial aid system therefore implicitly taxes both income and assets. **Dick** and **Edlin** use awards data to estimate these implicit taxes, and find that at average-priced colleges the marginal income tax ranges from 2 percent to 16 percent, and the marginal levy on assets from 8 percent to 26 percent. A typical family loses aid worth about \$11,000 at average-priced colleges and \$15,000 at expensive colleges by

accumulating an extra \$50,000 in assets.

McPherson and **Schapiro** begin with an overview of changes over time in the financing of American colleges and universities, focusing on the role of governments, institutions, and families in meeting college costs. They then turn to a consideration of the implications of these recent

financing trends for the issue of access to college for people of all economic backgrounds. Their focus is on the demand for college enrollment. They find that students' choices about where to go to school seem to be increasingly constrained by finances.

Also participating in this meeting were: Julie Berry Cullen, MIT; Mal-

colm Getz, Vanderbilt University; Zvi Griliches, Caroline Minter Hoxby, and Lawrence F. Katz, NBER and Harvard University; Stephen A. Hoenack, University of Minnesota; Judith Li, Harvard University; Linda Loury, Tufts University; Sarah Turner, University of Michigan; and Gordon Winston, Williams College.

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Health Economists Meet

The NBER's Program on Health Care, directed by Alan M. Garber of Stanford University, held its fall meeting in Cambridge on October 30. The following papers were discussed:

Aaron Yelowitz, NBER and University of California at Los Angeles, "Public Policy and Health Care Choices of the Elderly: Evidence from the Medicare Buy-in Program"

Charles Mullin and **Tomas Philipson**, University of Chicago, "Market-Based Old-Age Mortality Forecasts"

Richard Frank, NBER and Harvard University, and **David S. Salkever**, NBER and Johns Hopkins University, "Relationships between Price Behavior in Private and Public Markets: The Case of Vaccines"

William Encinosa, University of Michigan, Martin Gaylor, NBER and Carnegie Mellon University, and **James B. Rebitzer**, MIT

"The Sociology of Groups and the Economics of Incentives: an Empirical Analysis of Pay Systems"

Paul Gertler, NBER and University of California, Berkeley, and

Jonathan Gruber, NBER and MIT, "Health Shocks and Consumption"

During the past decade, the Medicaid program has undergone a series of changes relating to eligibility. In particular, two new categories of elderly Medicaid recipients, known as Qualified Medicare Beneficiaries (QMBs) and Specified Low Income Medicare Beneficiaries (SLMBs), were created. The income and asset limits to qualify under these programs were less strict than the limits under existing Medicaid categories, and 1.9 million senior citizens were enrolled in the QMB program in 1993. **Yelowitz** finds that actual Medicaid eligibility increased dramatically, from 8 percent in 1987 to 12.5 percent in 1995. The expansions for the elderly resulted in dramatically higher Medicaid take-up rates than similar expansions for children. For every 100 elderly who became eligible, 55 took it up. Approximately one-half of the new Medicaid recipients had some private form of supplemental insurance coverage, resulting in crowdout of 50 percent. Crowdout was concentrated among the youngest of senior citizens (aged 65 to 69). Among this younger group, crowdout was 66 percent. Among the oldest in the sample (aged 75 and older), crowdout was much smaller (25 percent). As expected, crowdout appears to come from individuals dropping privately purchased health insurance rather than dropping employer provided retiree health

insurance. Finally, there is weak evidence that expansions increased health care utilization.

The future course of old-age mortality is of extreme importance to the public sector expenditures in many countries in which programs such as Social Security and Medicare involve large fractions of the public budget. **Mullin** and **Philipson** argue that the competitive market prices of mortality contingent claims, such as annuities and life-insurance, contain useful information about the market's opinion of the course of future old-age mortality. They find that the market reveals a continued fall in cohort-specific hazard functions that is larger than that predicted by government bureaucrats.

The U.S. market for vaccines is characterized by the federal government's large role as a purchaser and distributor; small numbers of supplier firms; and limits on short-run expansion of production capacity. Interactions between pricesetting for public and private sales in this market can be interrelated in various ways. **Frank** and **Salkever** explore these interactions and find that private prices strongly affect prices negotiated by the federal government. Further, the direct effect of increasing numbers of suppliers occurs mainly in the private pricing process; the effect on government

prices is not strong (holding private sector prices constant).

Encinosa and his co-authors incorporate the sociological concept of "group norms" — the social interactions that result from individuals' comparisons of their effort and pay level with those of their coworkers — into an economic analysis of pay systems. Using a behavioral model and a unique survey of medical groups, they find that norms are binding constraints in the choice of pay practices. But while group norms matter, they are not all that matters. Among a sample of physicians, income insurance and multi-task considerations also shape pay policies. The authors conclude that the concept of group norms augments rather than replaces more conventional economic analyses of pay practices.

Gertler and **Gruber** investigate the ability of households in Indonesia to smooth their consumption around major changes in the health status — measured by an index of activities of daily living (ADL) — of the household head. Using data from 1991 and 1993, they find that household heads who see reductions in their ADL index are likely to drop out of the labor force, significantly lowering the income of their family. Indonesian families appear able to smooth only about 1/3 of the income lost because of a major illness.

Fall Meeting of Asset Pricing Program

The NBER's Program on Asset Pricing, directed by John Y. Campbell of Harvard University, held its fall meeting on November 4 at Northwestern University as guests of Campbell's co-organizer for the meeting, John C. Heaton of NBER and Northwestern. The day's agenda was:

Nicholas Barberis, University of Chicago; **Andrei Shleifer**, NBER and Harvard University; and **Robert W. Vishny**, NBER and University of Chicago, "A Model of Investor Sentiment"

Discussant: Kenneth J. Singleton, NBER and Stanford University

Kent Daniel, University of

Chicago; **David Hirshleifer**, University of Michigan; and **Avanidhar Subrahmanyam**, University of California, Los Angeles

"A Theory of Overconfidence, Self-Attribution, and Security-Market Under- and Overreactions"

Discussant: Blake D. McBaron, NBER and University of Wisconsin

Giorgio DeSantis and **Bruno Gerard**, University of Southern California, "How Big is the Premium for Currency Risk?"

Discussant: Angel Serrat, University of Chicago

Andrew W. Lo and **Jiang Wang**, NBER and MIT, "Trading Volume, Part I: Definitions, Data Analysis,

and Implications of Portfolio Theory"

Discussant: Torben Andersen, Northwestern University

John Y. Campbell and **Luis M. Viciara**, "Consumption and Portfolio Decisions when Expected Returns are Time Varying" (NBER Working Paper No. 5857)

Discussant: Stanley E. Zin, NBER and Carnegie-Mellon University

Erzo G.J. Luttmer, Northwestern University, "Consumption and Portfolio Choice in the Presence of Fixed Costs"

Discussant: John H. Cochrane, NBER and University of Chicago

Barberis, Shleifer, and Vishny point out that recent empirical research in finance has uncovered two pervasive facts: underreaction of stock prices to news, such as earnings announcements, and overreaction of stock prices to a series of good or bad news. They model investor sentiment — that is, how investors form beliefs — consistent with these empirical findings. Their model is based on psychological evidence, and produces both under- and overreaction under a wide range of circumstances.

Daniel, Hirshleifer, and Subrahmanyam propose a theory based on investor overconfidence and biased self-attribution to explain several of the securities returns patterns that seem anomalous from the perspective of efficient markets with rational investors. The premise of the theory is that individuals are overconfident about their ability to evaluate securities, in the sense that they overestimate the precision of their private information signals. As a result, there is overreaction to the

arrival of private information and underreaction to the arrival of public information.

DeSantis and Gerard focus on the role of currency risk in international financial markets. They find a role for both market and foreign exchange risk. However, both sources of risk are detected only when their prices are allowed to change over time. The evidence also indicates that, with the exception of the U.S. equity market, the premium for bearing currency risk often represents a significant fraction of the total premium.

Lo and Wang examine the implications of portfolio theory for the cross-sectional behavior of equity trading volume. They test the theory using weekly turnover data for NYSE and AMEX securities from 1962 to 1994, and find strong evidence against two-fund separation. Volume appears to be driven by a two-factor linear model.

Campbell and Viciara propose a new approach to a classic unsolved problem in financial economics: the

optimal choice of consumption and portfolio on the part of a long-lived investor facing time-varying investment opportunities. When their model is calibrated to U.S. stock market data, it implies that intertemporal hedging motives greatly increase, and may even double, the average demand for stocks by investors whose risk-aversion coefficients exceed one.

Luttmer defines a lower bound on the fixed cost that is required for observations of consumption choices to be consistent with data on asset returns and a given set of preferences. He estimates that a consumer with "log utility" who consumes at the level of U.S. per capita consumption must face a fixed cost of at least 3 percent of monthly per capita consumption. The fixed cost bound declines rapidly with increases in risk aversion, or when certain restrictions on short selling are included.

Labor Studies Program Meeting

Members of the NBER's Program in Labor Studies, directed by Richard Freeman of Harvard University, met in Cambridge on November 1 to discuss this recent research.

Jonathan Gruber, NBER and MIT, "Disability Insurance Benefits and the Labor Supply of Older Persons" (NBER Working Paper No. 5866).

Aaron Yelowitz, NBER and University of California, Los Angeles, "Did Recent Medicaid Reforms Cause the Caseload Explosion in the Food Stamp Program?"

Li Hao, University of Chicago, and **Sherwin Rosen**, NBER and the University of Chicago, "Unraveling in Assignment Markets" (NBER Working Paper No. 5729).

Alan B. Krueger, NBER and Princeton University, "Do Markets Respond More to More Reliable Labor Market Data? A Test of Market Rationality" (NBER Working Paper No. 5769).

Jennifer Hunt, NBER and Yale University, "Has Work-sharing Worked in Germany?" (NBER Working Paper No. 5724).

Do workers quit their jobs when disability benefits increase? To try to answer this question, **Gruber** studies the Canadian experience, which involves two distinct disability insurance (DI) programs, one for Quebec and the other for the rest of Canada. The latter program raised its benefits by 32 percent in January 1987, while benefits remained constant in Quebec. Gruber finds that there was a sizeable labor supply response to the policy change; he estimates that the elasticity of labor force nonparticipation with respect to DI benefits is 0.32. This response may be large enough to wipe out any welfare gains from the increase in benefits.

Using data from the Survey of Income and Program Participation, **Yelowitz** shows that expanding eligibility for Medicaid during the 1980s increased participation in the food stamp program: the expansions explain approximately 10 percent of the growth in food stamps between 1987 and 1995. He concludes that this effect came mainly through increased awareness of the food stamp program, with decreased labor supply explaining only a small portion of the growth. One implication of this finding, Yelowitz notes, is that scaling back Medicaid eligibility is not likely to reduce the food stamp

rolls, even though expanding Medicaid eligibility increased them.

Hao and **Rosen** model the market for job assignments with uncertainty about applicants' productivity in the first period. They use their model to understand incentives toward early contracts or "unraveling" in labor markets for entry-level professionals. The economic benefit of unraveling is to provide insurance in the absence of complete markets, but it can come at the cost of inefficient assignments. Without reentry, unraveling need not occur. If unsuccessful early contracts can be bought out by the employer, then inefficiencies in assignments are eliminated, and unraveling always occurs between firms and the more promising applicants. The efficiency gains of buyouts can be distributed unevenly, though, and sometimes firms benefit from a ban on buyouts.

Since 1979, the Bureau of Labor Statistics (BLS) has nearly quadrupled the size of the sample it uses to estimate monthly employment changes. The magnitude of sampling variability has declined in proportion to the increase in the sample size. Still, there is no evidence that the bond market's reaction to employment news intensified in the late 1980s or early 1990s. For the time period as a

whole, **Krueger** reports, an unexpected increase of 200,000 jobs is associated with an 8-basis point increase in the interest rate on 30-year Treasury bonds, and a 9-basis point increase in the interest rate on 3-month bills, all else equal. Additionally, announced hourly wage increases are associated with higher long-term interest rates, while announced changes in the unemployment rate and revisions to past months' employment estimates have a statistically insignificant effect on long-term interest rates.

Starting in 1985, (West) German unions began to reduce standard hours on an industry-by-industry basis in an attempt to lower unemployment. Using both individual data from the German Socio-Economic Panel and industry data, **Hunt** finds that in 1984-9, employment rose by 0.3 to 0.7 percent in response to a one-hour fall in standard hours, but that total hours worked fell by 2 to 3 percent, implying possible output losses. As a group, workers were better off, however, because the wage bill rose. Still, the growth in employment — at most 1.1 percent — was not enough to bring Germany close to the U.S. rate, and the results for 1990-4 were even more pessimistic, Hunt reports.

Well-Being of Children

Members of the NBER's Program on the Well-being of Children, directed by Jonathan Gruber of NBER and MIT, held their fall meeting in Cambridge on November 2. They discussed the following research:

Janet Currie, NBER and University of California, Los Angeles (UCLA), and **Duncan Thomas**, UCLA,

"Does Subsequent School Quality Affect the Long-Term Gains from Head Start?"

John Cawley, Lance Lochner,

and **Edward Vytalil**, University of Chicago, and **James J. Heckman**, NBER and University of Chicago, "Ability, Education, Job Training, and Earnings"

Caroline M. Hoxby, NBER and Harvard University, "When Parents Can Choose, What Do They Choose? The Effect of Greater School Choice on Curriculum"

David M. Blau, University of North Carolina, "The Effect of Income on Child Development"

Jay P. Greene, Leesa Boeger, and Curtis L. Frazier, University of Houston, and **Paul E. Peterson** and **Jiangtao Du**, Harvard University, "The Effectiveness of School Choice in Milwaukee: A Secondary Analysis of Data from the Program's Evaluation"

Cecilia E. Rouse, NBER and Princeton University, "Revisiting the Milwaukee Evidence" (work in progress)

Using data from the 1988 "wave" of the National Educational Longitudinal Survey, **Currie** and **Thomas** show that black and Hispanic children who attended Head Start go on to poorer quality schools than other minority children (that is, all minority children do poorly in these schools.) Some aspects of school quality do influence gains for black children from the Head Start program: hours of homework; average attendance; standards for promotion to next grade; and whether the school is public or private. Class size and teacher qualifications have little effect on how well black children who attended Head Start do in school, though. Currie and Thomas conclude that "the effects of Head Start fade out more rapidly among minority students than among whites, because minority Head Start children are more likely to subsequently attend 'bad' schools."

Heckman and his co-authors examine the role of ability in explaining the rise in the economic return to education. They find mild evidence that the college-high school premium by age has increased most for persons of high ability. They also note that the available evidence on the role of ability in reducing the growth

in the return to schooling is for young people. In an economic environment that shifts in favor of skilled labor, the return to ability increases, but the college-high school wage differentials by age increase uniformly across all ability levels. A shift in demand towards high skill workers reduces the college-high school differential for young workers. Thus, the evidence for young workers which is featured in discussions of the effect of ability on returns to schooling, is a poor guide to the effect of ability on wages and the return to education over the life cycle.

Using data on 769 school districts' curricular and extracurricular policies along with data on the demographics of these districts, **Hoxby** finds that what parents say they want out of schools is what they really choose when they have the opportunity to choose among schools. Schools operating in metropolitan areas where parents have more choice among school districts (through residential decisions) exhibit: more parental involvement; more challenging curricula; stricter academic requirements; and more structured and discipline-oriented environments.

Blau estimates the effects of family income on child development, as

measured by scores on tests of cognitive, social, and emotional development. He finds that the effects are small. Fixed family background characteristics play a much more important role than income in determining child outcomes. Thus, policies that affect family income will have little direct impact on child development.

Greene and his co-authors examine the results of the Milwaukee school choice plan, approved by the Wisconsin state legislature in 1990. They find that students in choice schools, in their third and fourth years, scored from 3 to 5 percentage points higher on average in reading and 5 to 12 points higher in mathematics than a randomly selected control group. By way of comparison, a difference of 8 points wipes out half the observed difference between the performance of whites and minorities on nationally standardized tests.

In 1990, Wisconsin became the first state in the country to provide vouchers to low-income students to attend nonsectarian private schools. **Rouse** estimates the effect of the program on math and reading scores. She compares the academic achievement of students who were selected to those who were not selected, and then estimates the effectiveness of

private schools relative to public schools. She finds that the Milwaukee Parental Choice Program had a posi-

tive effect on the math achievement of those who attended a private

school, but had no benefit for reading scores.

Program Meeting on Public Economics

Roughly 50 members of the NBER's Program on Public Economics, directed by James M. Poterba of NBER and MIT, met in Cambridge on November 7 and 8. They discussed the following papers:

Mark B. McClellan, NBER and Stanford University, and **Jonathan S. Skinner**, NBER and Dartmouth College, "The Distribution of Medicare Benefits: A Lifetime Perspective"

Discussant: Hilary W. Hoynes, NBER and University of California, Berkeley

Don Fullerton, NBER and University of Texas, and **Gilbert E. Metcalf**, NBER and Tufts University, "Environmental Controls, Scarcity Rents, and Pre-existing Distortions"

Lawrence H. Goulder, NBER and Stanford University, and **Ian W.H. Parry** and **Dallas Burtraw**,

Resources for the Future, "Revenue Raising Versus Other Approaches to Environmental Protection: The Critical Significance of Pre-Existing Tax Distortions"

Discussants (for both papers): Richard J. Arnott, NBER and Boston College, and Louis Kaplow, NBER and Harvard University

David M. Cutler, NBER and Harvard University, and **Mark B. McClellan**, "The Determinants of Technological Change in Heart Attack Treatment" (NBER Working Paper No. 5751)

Discussant: Burt Weisbrod, Northwestern University

James R. Hines, Jr., NBER and Harvard University, "Tax Credits, Bond Prices, and Investment"

Discussant: Alan J. Auerbach, NBER and University of California, Berkeley

Jonathan Gruber, NBER and MIT

"Disability Insurance Benefits and the Labor Supply of Older Persons" (NBER Working Paper No. 5866 — see "Labor Studies Program Meeting" earlier in this section of the NBER Reporter for a description of this paper.)

Discussant: John Bound, NBER and University of Michigan

Patric H. Hendershott, NBER and Ohio State University, **Dennis R. Capozza**, University of Michigan, and **Richard Green**, University of Wisconsin, Madison, "Taxes, House Prices, and Housing Competition"

Discussant: James M. Poterba

Hans-Werner Sinn, NBER and University of Munich, "Subsidiarity Principle and Market Failure in Systems Competition" (NBER Working Paper No. 5411)

Discussant: Stephen Coate, NBER and University of Pennsylvania

McClellan and **Skinner** use claims data from the 1990 Medicare 5 percent sample of beneficiaries to measure overall Medicare spending and mortality experiences for a sample of roughly 1.4 million people over age 65. They find that expenditures are typically higher for high income households, with nearly 40 percent difference between the top and bottom income deciles among those age 85 and over. For the younger groups, mortality rates among low income households are substantially higher than among households with more income. However, procedures used largely by higher income groups may have little

marginal impact on health status. Hence, finding that higher income groups receive more in Medicare benefits does not address the harder question of whether higher income groups enjoy greater improvements in health relative to poorer groups.

Fullerton and **Metcalf** show that whether policies raise revenue or not, they can increase welfare through environmental protection without exacerbating the distortion of labor. These favorable effects can be achieved by taxes that raise revenue, through certain regulations that raise no revenue, and even with subsidies that cost revenue. Policies that generate privately-retained scarcity rents

which raise the costs of production and equilibrium output prices, and thus reduce the real net wage, will exacerbate the pre-existing distortion of the labor tax. Such policies include both quantity-restricting command and control policies, and marketable permit policies.

Goulder and his co-authors find that interactions with pre-existing taxes fundamentally influence the costs of regulation and seriously militate against pollution abatement policies that do not raise revenue. These results are relevant to government regulation outside the environmental area as well, they note. To the extent that government regulations of

international trade or agricultural production raise the costs of output and thereby reduce real factor returns, these regulations exacerbate the labor market distortions from pre-existing taxes and thus can involve higher social costs than would be indicated by partial equilibrium analyses.

Cutler and **McClellan** examine the sources of expenditure growth in heart attack treatment. First they show that essentially all of the cost growth is a result of the diffusion of particular intensive technologies; the prices paid for a given level of technology have been constant or falling over time. Examining a number of factors, they conclude that insurance variables, technology regulation, and provider interaction have the largest effect on technological diffusion.

Hines examines the effect of tax

incentives on corporate investment. Tax benefits for certain assets encourage firms to shift their investments toward those assets. Such shifting reduces the expected pretax profitability of investment, thereby reducing payoffs to bondholders in the event of bankruptcy. Anticipation of this asset substitution raises the risk premium on corporate debt, which in turn discourages investment. The interaction between interest rates and tax policy can be so powerful that targeted tax incentives have little effect on aggregate business investment, and in some circumstances may even reduce total investment.

Hendershott and his co-authors assess the impact of income and property taxes on house prices using data for 63 metropolitan areas from 1970 to 1990. They find that marginal

income and property tax rates are capitalized fully in house prices and explain a significant proportion of the regional variation in those prices. They show that the removal of the interest and property tax deduction will reduce the average house price by 14 percent and could result in house price declines of up to 30 percent in some locations.

According to **Sinn**, systems competition cannot work when governments respect the Subsidiarity Principle, which implies that governments will step in where markets fail. He presents three models which illustrate this point: one concerned with congestion-prone public goods; a second which considers the insurance function of redistributive taxation; and a third which studies the role of quality regulation.

Corporate Finance Program Meeting

Forty members and guests of the NBER's Program in Corporate Finance, directed by Robert W. Vishny of NBER and the University of Chicago, attended the fall program meeting in Cambridge on November 15. Their agenda was:

Stuart C. Gilson, Harvard University, and **Jerold B. Warner**, University of Rochester, "Junk Bonds, Bank Debt, and Financial Flexibility"

Discussant: Steven N. Kaplan, NBER and University of Chicago

David S. Scharfstein and **Jeremy C. Stein**, NBER and MIT, "The Dark Side of Internal Capital Markets: Divisional Rent-seeking and Inefficient Investment"

Discussant: Luigi Zingales, NBER and University of Chicago

Benjamin Esty, Harvard University, "Liability Rules and Risk-Taking in Commercial Banks"

Discussant: Raghuram G. Rajan, NBER and Northwestern University

Josh Lerner, NBER and Harvard University, "The Government as

Venture Capitalist: The Long-Run Impact of the SBIR Program" (NBER Working Paper No. 5753)

Discussant: Michael J. Barclay, NBER and University of Rochester

Roni Michaely, Cornell University,

Richard H. Thaler, NBER and

University of Chicago; and **Shlomo Benartzi**, University of California,

Los Angeles, "Do Dividend Changes Signal the Future or the Past?"

Discussant: Krishna Palepu, Harvard University

Gilson and **Warner** investigate why firms issue junk bonds and then use the proceeds to pay down their bank debt. They suggest that firms undertake these substitutions to preserve financial flexibility. Junk bond substitutions typically occur around negative earnings surprises. Since junk bonds contain substantially fewer and less restrictive covenants

than bank debt, and also because they mature later, these substitutions reduce the probability of default and increase the range of activities in which firms can engage. The earnings surprises are short term, and firms eventually reborrow from banks. Junk bond issues convey negative information about sample firms' prospects and cause stock prices to

fall, but the decline is less severe for firms that benefit more from the increased financial flexibility.

Scharfstein and **Stein** show how rent-seeking behavior on the part of division managers can subvert the workings of an internal capital market. In an effort to stop rent-seeking, corporate headquarters will be forced into effectively paying bribes to some

division managers. And, because headquarters is itself an agent of outside investors, the bribes may take the form not of cash, but rather of preferential capital budgeting allocations. One interesting feature of their model is a kind of "socialism" in internal capital allocation, whereby weaker divisions tend to get subsidized by stronger ones.

From 1863–1933, commercial bank shareholders were subject to a broad range of liability rules ranging from limited liability to unlimited liability for creditor obligations. By increasing shareholder liability, the regulators hoped to reduce the incentives for risk shifting in these highly leveraged institutions. Using data from 1911–15, **Esty** finds that equity trades as if contingent liability were in effect, and that portfolio allocation is

a function of the severity of liability. This shows that the shape of the equityholders' payoff function has a significant impact on incentives, particularly with regard to risk taking. More generally, contingent liability could be an effective complement to existing bank regulations.

Lerner examines the impact of the largest U.S. public venture capital initiative, the Small Business Innovation Research (SBIR) program, which has provided over \$6 billion to small high technology firms between 1983 and 1995. Using a unique database of awardees compiled by the U.S. General Accounting Office, he shows that SBIR awardees grew significantly faster than a matched set of firms over a 10-year period. The positive effects of SBIR awards were confined to firms based in zip codes with sub-

stantial venture capital activity.

Many dividend theories imply that changes in dividends contain information about the future earnings of the firm. **Benartzi, Michaely, and Thaler** investigate this implication, and find little support for it. Firms that increase dividends in a given year have significant earnings increases in that year and the prior year, but show no subsequent unexpected earnings growth. Also, the size of the dividend increase does not predict future earnings. However, dividend changes do have predictive power for future returns. Firms that increase dividends have significantly positive excess returns for the next three years, while firms that cut dividends experience (less significant) negative excess 3-year returns.

NBER's Monetary Economists Meet

The NBER's Program on Monetary Economics, led by N. Gregory Mankiw of NBER and Harvard University, met in Cambridge on November 15. Nearly 40 members and invited guests discussed these papers:

Alberto Alesina, NBER and Harvard University, and **Roberto Perotti**, Columbia University, "Fiscal Adjustments in OECD Countries: Composition and Macroeconomic Effects" (NBER Working Paper No. 5730)

Discussant: Allen Drazen, NBER and University of Maryland

V.V. Chari, University of Minnesota; **Patrick J. Kehoe**, NBER and University of

Pennsylvania, and **Ellen R. McGrattan**, NBER and University of Minnesota, "Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem?" (NBER Working Paper No. 5809)

Discussant: Julio J. Rotemberg, NBER and MIT

Frederic S. Mishkin, Federal Reserve Bank of New York, "Understanding Financial Crises: A Developing Country Perspective" (NBER Working Paper No. 5600)

Discussant: Aaron Tornell, NBER and Harvard University

John Shea, NBER and University of Maryland, "Does Parents' Money Matter?"

Discussant: Caroline M. Hoxby, NBER and Harvard University

Alan B. Krueger, NBER and Princeton University, "Do Markets Respond More to More Reliable Labor Market Data? A Test of Market Rationality" (NBER Working Paper No. 5769 — See "Labor Studies Program Meeting" earlier in this section of the *NBER Reporter* for a description of this paper.)

Discussant: Owen Lamont, NBER and the University of Chicago

Ben S. Bernanke and **Michael Woodford**, NBER and Princeton University, "Inflation Forecasts and Monetary Policy"

Discussant: Lars E.O. Svensson, NBER and Stockholm University

Alesina and **Perotti** study how the composition of fiscal adjustments influences their likelihood of "success", defined as a long-lasting deficit

reduction, and their macroeconomic consequences. They find that fiscal adjustments which rely primarily on spending cuts on transfers and the

government wage bill have a better chance of being successful and are expansionary; fiscal adjustments which rely primarily on tax increases

and cuts in public investment tend not to last and are contractionary.

Chari, Kehoe, and McGrattan ask whether staggered price setting can generate persistent fluctuations in output following monetary shocks. They construct a business cycle version of a standard sticky price model in which imperfectly competitive firms set nominal prices in a staggered fashion. They assume that prices are exogenously sticky for a short period of time. They find the amount of endogenous stickiness to be small. As a result, such a model cannot generate persistent movements in output following monetary shocks.

Mishkin explains how a developing economy can shift dramatically from a path of reasonable growth before a financial crisis, as in the case in Mexico in 1994, to a sharp decline

in economic activity after a crisis. Using an asymmetric information framework, he shows why the banking sector is so important to the economy, particularly in developing countries, and he provides a rationale for bank regulation and supervision. The appropriate institutional structure is critical to preventing banking and financial crises in developing countries and to reducing their undesirable effects if they should occur.

Shea asks whether parents' income per se has a positive impact on children's human capital accumulation. He focuses on income variation attributable to factors that arguably represent luck: father's union status; industry status; and job loss because of "establishment death." He finds that changes in parents' income attributable to luck have at best a negligible impact on children's skills.

Bernanke and Woodford address the issue of existence and uniqueness of rational expectations equilibria when the central bank uses private-sector forecasts as a guide to policy actions. They show that strict targeting of inflation forecasts is typically inconsistent with the existence of rational expectations equilibria, and that policies approximating strict inflation-forecast targeting are likely to have undesirable properties. They also show that economies with more general forecast-based policy rules are particularly susceptible to multiple equilibria. They conclude that while private-sector forecasts may contain information useful to the central bank, ultimately the monetary authorities must rely on an explicit structural model of the economy to guide their policy decisions.

Workshop on Behavioral Macroeconomics

NBER Research Associate Robert J. Shiller of Yale University and George A. Akerlof of the University of California, Berkeley, organized a workshop on behavioral macroeconomics which took place in Cambridge on November 16. The program was:

Gil Mehrez, Georgetown University, "Output, Employment, and Prices in an Economy with Adjustment Costs"

Discussant: Ricardo J. Caballero, NBER and MIT

Robert J. Shiller, "Why are People so Indifferent to Indexation?"
Discussant: Anil K. Kashyap, NBER and University of Chicago

Eldar Shafir, Princeton University, and **Amos Tversky**, "Thinking through Uncertainty: Nonconsequential Reasoning and Choice"
Discussant: John Geanakoplos, Yale University

Carl Campbell, Dartmouth College, and **Kunal Kamani**, IIT Corporation, "The Reasons

for Wage Rigidity: Evidence from a Survey of Firms"

Discussant: Truman Bewley, Yale University

George A. Akerlof and **William T. Dickens**, and **George I. Perry**, The Brookings Institution, "The Macroeconomics of Low Inflation"
Discussant: Olivier J. Blanchard, NBER and MIT

Mehrez investigates the dynamics of output, employment, and prices in an economy with costs of adjusting labor and prices. He develops a model with infrequent price and labor adjustments. He derives the firms' multivariate distribution of prices and the deviation of employment from its optimal level and uses them to determine the dynamics of

the price level, aggregate employment, and aggregate output. He shows that in such an economy, money is not neutral.

Shiller presents and analyzes the results of informal interviews and formal questionnaire surveys of 274 people in the United States and Turkey to help understand why the general public appears not very inter-

ested in plans to manage consumer price index risk by indexation of contracts. He chooses Turkey for study because it has very high inflation, no legal barriers to indexation, and yet almost no indexation.

The paper by **Shafir** and **Tversky** notes that when thinking under uncertainty, people often do not consider appropriately each of the rele-

vant branches of a decision tree, as required by consequentialism. As a result, they sometimes violate "Savage's sure-thing principle." In the Prisoner's Dilemma game, for example, many subjects compete when they know that the opponent has competed and when they know that the opponent has cooperated, but cooperate when they do not know the opponent's response. The authors also interpret "Newcomb's Problem" and "Wason's selection task" as manifestations of nonconsequential decisionmaking and reasoning. They discuss the causes and implications of such behavior, and the notion of quasi-magical thinking.

Campbell and **Kamlani** conduct

a survey of 184 firms to discriminate among competing theories of wage rigidity. They find the strongest support for models in which effort depends on wages, and for the adverse selection model. In addition, reducing turnover appears to be an important explanation of wage rigidity, particularly for white-collar workers. Other significant findings are that respondents felt that wages had a greater impact on the effort of low-skilled workers than of high-skilled workers; that workers' effort was more affected by wage changes than by wage levels; and that effort responded more strongly to wage decreases than to wage increases.

Akerlof and his co-authors dem-

onstrate the prevalence of downward wage rigidity in the U.S. economy and model its significance for the economy's performance. Downward rigidity interferes with the ability of some firms to make adjustments in real wages, leading to inefficient reductions in employment. The authors estimate that the difference in the sustainable rate of unemployment between operating with a steady 3 percent inflation rate and with zero inflation is between 1 and 2.6 percentage points. Thus, they conclude that targeting zero inflation will lead to inefficient allocation of resources as reflected in a sustainable rate of unemployment that is unnecessarily high.

Productivity Program Meeting

Around 35 members and guests of the NBER's Program on Productivity met in Cambridge on December 13 to discuss pricing and productivity in the health care industry. The meeting's organizers were David Cutler, NBER and Harvard University, and Ernst Berndt, NBER and MIT. The discussion centered around the following works in progress:

Ernst Berndt; **Iain M. Cockburn**, NBER and University of British Columbia; and **Richard Frank** and **Zvi Griliches**, NBER and Harvard University, "Price Indices for the Treatment of Depression"
Sara Ellison, MIT, and **Judith Hellerstein**, NBER and University of Maryland, "Issues in Antibiotics Pricing"

Iain M. Cockburn, "Hedonic Analysis of Arthritis Drugs"

David Cutler; **Mark B. McClellan**, NBER and Stanford University; and **Joseph Newhouse**, Harvard University, "Prices and Productivity in Managed Care Insurance"

Frank R. Lichtenberg, NBER and Columbia University, "The Effect of Health Care Financing on the Practice of Outpatient Medicine"

Scott Stern, NBER and MIT, and **Manuel Trajtenberg**, NBER and Tel-Aviv University, "Calculating the Patient Welfare Benefits from Pharmaceutical Innovation"

The program concluded with a panel discussion on "Issues in

Accounting for Medical Sector Output and Prices." The panelists were: Dennis S. Fixler, Bureau of Labor Statistics; Jack E. Triplett, Bureau of Economic Analysis; Joseph Newhouse; and Zvi Griliches.

In addition to these authors and panelists, representatives of the pharmaceuticals industry; the U.S. Bureau of Labor Statistics — whose Consumer Price Index must depend, at least in part, on the accuracy of measurement of drug prices; and the National Institutes of Health, all joined in the discussion, along with other academic economists.

Bureau Books

The following volumes may be ordered directly from the University of Chicago Press, Order Department, 11030 South Langley Avenue, Chicago, IL 60628-2215; 1-800-621-2736. Academic discounts of 10 percent for individual volumes and 20 percent for standing orders for all NBER books published by the University of Chicago Press are available to university faculty; orders must be sent on university stationery.

The Economics of New Goods

The Economics of New Goods, edited by Timothy F. Bresnahan and Robert J. Gordon, is now available from the University of Chicago Press for \$75.00. The eleven essays in this volume, which is part of the NBER's Series of Studies on Income and Wealth, analyze and discuss how to quantify the effects of new goods on economic well being. The various authors explore how to convert the broad notion that new goods improve human welfare into specific, quantitative ideas about measurable improvements in welfare. They also provide case studies of the problems encountered in the process.

Bresnahan is an NBER research

associate in the programs in industrial organization and productivity, and a professor of economics at Stanford University. Gordon is an NBER research associate in the programs in economic fluctuations and growth, productivity, and international finance and macroeconomics; he is also a professor of economics at Northwestern University.

The Economic Effects of Aging in the United States and Japan

The Economic Effects of Aging in the United States and Japan, edited by Michael D. Hurd and Naohiro Yashiro, is available from the University of Chicago Press for \$65.00. This book should be of interest to gerontologists and sociologists, as well as economists.

The volume is the result of a conference, cosponsored by the NBER and the Japan Center for Economic Research (JCER), which explored the similarities and differences in the effects of aging on the economies in the two countries. The essays, written by leading U.S. and Japanese specialists in the field of aging, point out that there will be substantial similarities between the countries; any differences will be more of degree than type, as a result of the different cultures and institutions.

Hurd is an NBER research associate in the program on aging and a

professor of economics at State University of New York, Stony Brook. Yashiro is a professor of economics at Sophia University and a senior economist at the JCER.

The Effects of U.S. Trade Protection and Promotion Policies

The Effects of U.S. Trade Protection and Promotion Policies, edited by Robert C. Feenstra, will be available this spring from the University of Chicago Press for \$58.00. The twelve essays in this volume examine three main themes: trade and investment with Japan; the U.S. response to "unfair" trading practice; and industry- and country-specific trade policies. Among the interesting findings are that some policies can act simultaneously as import protection and export promotion; that the threat of protection often can be as effective as protection itself; and that domestic policy has as much effect on trade and investment as trade policy does.

This volume should be of interest to government policymakers in the area of trade, representatives of multinational businesses, and international economists. Feenstra, its editor, is an NBER research associate and director of the Bureau's Program of Research on International Trade and Investment. He is also a professor of economics at University of California, Davis.

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Journal of Economic Literature (JEL) subject codes, when available, are listed after the date of the paper, followed by the program(s) of research represented by each paper. Papers not associated with an NBER program are listed as Miscellaneous. All Historical Factors in Long-Run Growth Papers are in the Development of the American Economy program.

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Abstracts of all papers issued since September 1996 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.

NBER Working Papers

The Long-Run U.S./U.K. Real Exchange Rate

Charles M. Engel and
Chang-Jin Kim

NBER Working Paper No. 5777

September 1996

JEL No. F40

International Finance and
Macroeconomics

We investigate the behavior of the long-run U.S./U.K. real exchange rate from 1885 to 1995. Our long-run real exchange rate series is derived from an unobserved components model that divides the real exchange rate into permanent and transitory components. The transitory component has variances that switch, according to a Markov process, among low-, medium- and high-variance states. The underlying assumptions of our time-series model are based on an economic theory in which the permanent component represents real influences, while the transitory component represents primarily short-run movements caused by fluctuations in the nominal exchange rate. Because the model is difficult to estimate by standard methods, we describe how the method of Gibbs sampling can handle this difficulty. We find that our long-run real exchange rate series moves similarly to other measures proposed in the literature based on economic models.

Children and their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size

Joshua D. Angrist and William N. Evans

NBER Working Paper No. 5778

September 1996

JEL Nos. J0, J2

Labor Studies

Although theoretical models of labor supply and the family are well developed, there are few credible estimates of the key empirical relationships in the work-family nexus. This study uses a new instrumental variable, the sex of the first two children of families with two or more children, to estimate the effect of additional children on parents' labor supply. Instrumental variables estimates using the children's sex are substantial, but smaller than the corresponding ordinary least squares (OLS) estimates. Moreover, unlike the OLS estimates, there appear to be no effects on the female labor supply based on children's sex among more educated women and women with high-wage husbands. We also find that married women who have a third child reduce their labor supply by as much as women in the full sample, while there is no relationship between wives' childbearing and husbands' labor supply. Finally, we compare these results to estimates produced with twins as instruments. The estimates based on twins are very close to the estimates based on children's sex, once they are corrected for differences in the ages of the children. The estimates imply that the labor supply consequences of childbearing disappear by the time the child is about 13 years old.

Executive Compensation and the Optimality of Managerial Entrenchment

Gary B. Gorton and Bruce D. Grundy

NBER Working Paper No. 5779

September 1996

JEL No. G13

Corporate Finance

Firms are more complicated than standard principal-agent theory allows: they have assets in place; they endure through time, allowing for the possibility of replacing a shirking manager; they have many managers, constraining the amount of equity that can be awarded to any one; and, a firm's owner can transfer some control to a manager, thereby entrenching him or her. Recognizing these characteristics, we solve for the vesting dates, wage, equity, and options components, and control rights of an optimal contract. Managerial entrenchment makes the promise of deferred compensation credible. Deferring compensation by delaying vesting reduces a manager's ability to free-ride on a replacement's effort.

Pension System Reform: The Mexican Case

Carlos Sales-Sarrapy, Fernando Solís-Soberón, and Alejandro Villagómez-Amezcu

NBER Working Paper No. 5780

September 1996

Public Economics

This paper analyzes the Mexican pension reform of December 1995. Essentially, the reform substituted a defined-benefit pay-as-you-go system with a fully funded defined-contribution system based on individual accounts with a minimum pension guarantee provided by the government. Total contributions to the accounts will amount to 13.5 percent of salary for the average worker, plus 2.5 percent for disability and life

insurance that will still be managed by the government's Social Security Institute (IMSS). The new system, while sharing many common elements with other Latin American experiences, has some advantages and disadvantages over them. As an advantage, the new system completely substitutes for the old system; it reduces administrative costs by limiting the number of transfers between pension fund managers to one per year; pension managers are allowed to operate several funds; the law does not establish a minimum guaranteed rate of return for pension funds; and there is a centralized contributions collection agency. Among its disadvantages are the prohibition of funds from investing in foreign securities; the IMSS as the sole provider of disability and life insurance; the IMSS being able to operate as a pension fund manager; the housing subaccount offering low returns; limits on market share; and portability problems. Finally, the fiscal cost of the transition to the new system is relatively low compared to similar reforms in other Latin American countries, we find.

Child Support and Fathers' Remarriage and Fertility

David E. Bloom, Cecilia Conrad, and Cynthia Miller

NBER Working Paper No. 5781

October 1996

JEL No. J1

Aging, Health Care, Labor Studies

We test the hypothesis that child support obligations impede remarriage among nonresident fathers. Hazard models fitted to data from the National Longitudinal Survey of Youth and from the Survey of Income and Program Participation reveal that child support obligations do deter remarriage among low-income nonresident fathers. The benefits to children of stricter child support enforcement thus are dimin-

ished by the negative effects of child support on remarriage, because a substantial share of nonresident fathers remarry and help to support women with children. Indeed, simple calculations based on our findings suggest that the financial benefits to children in single-parent families of improved enforcement may be offset substantially or completely by the negative effects of enforcement that operate indirectly through diminished remarriage. Our results provide no evidence that child support influences the nature of matches in the remarriage market, or the likelihood of subsequent fertility.

A Critical Assessment of the Role of Imperfect Competition in Macroeconomics

Dennis W. Carlton

NBER Working Paper No. 5782

October 1996

JEL Nos. D43, E12, L16, O34

Economic Fluctuations and Growth,
Industrial Organization

New Keynesian models and some models of growth rely on market power for their results. This sole focus on market power as the source for certain macroeconomic phenomena is misguided both theoretically and empirically. New Keynesian multipliers are related closely to standard measures of deadweight loss used in the public finance literature. The theoretical analysis shows that a standard competitive model with taxes exactly reproduces the multipliers in the new Keynesian models. The empirical evidence strongly suggests that taxes, not market power, will be the far more important influence on explaining short-run fluctuations in GNP. Theory and the empirical evidence suggest that the existence of intellectual property rights is likely to be a more important determinant of innovation than market power. Finally, I show how models that

incorporate the cost of marketmaking, durability and dynamic policies, and timing based on the option value of resolving uncertainty can yield more valuable insights into macroeconomic phenomena than models with market power.

DM-Dollar Volatility: Intraday Activity Patterns, Macroeconomic Announcements, and Longer-Run Dependencies

Torben G. Andersen and Tim Bollerslev

NBER Working Paper No. 5783

October 1996

JEL Nos. C22, F31, G14, G15

Asset Pricing

We use an annual sample of five-minute returns to characterize the volatility in the DM-dollar foreign exchange market. Our approach explicitly captures the pronounced intraday activity patterns, the strong macroeconomic announcement effects, and the volatility persistence that are familiar from lower frequency returns. We quantify the different features separately and show that together they account for a substantial fraction of the realized return variability, both at the intradaily and the daily levels. Moreover, we demonstrate how the high frequency returns, when modeled properly, constitute an extremely valuable and vastly underutilized resource for better understanding the volatility dynamics at the daily or lower frequencies.

Do Nontraded Goods Explain the Home Bias Puzzle?

Paolo Pesenti and Eric van Wincoop

NBER Working Paper No. 5784

October 1996

International Finance and
Macroeconomics

Interpretations of the home bias puzzle in international finance frequently have focused on the role of fluctuations in domestic nontraded output, through their effects on the marginal utility of consumption of tradables. We assess the empirical relevance of this approach by deriving an explicit solution for the optimal international portfolio, and applying our model to a set of 14 OECD countries. Computing asset returns according to a "fundamentals" approach, we can account for an average gap of no more than 10–15 percentage points between estimated domestic ownership shares and domestic shares under full diversification. When stock market data are used directly, the predicted coefficient of home bias shrinks to 3 percent.

Linear Probability Models of the Demand for Attributes with an Empirical Application to Estimating the Preferences of Legislators

James J. Heckman and James M. Snyder, Jr.

NBER Working Paper No. 5785

October 1996

JEL Nos. C25, D72, D78

Public Economics

We formulate and estimate a rigorously-justified linear probability model of binary choices of alternatives characterized by unobserved attributes. We apply the model to estimating the preferences of Congressmen as expressed in their

votes on bills. We find the effective dimension of the attribute space characterizing votes to be larger than what has been estimated in recent influential studies of Congressional voting by Poole and Rosenthal. Congressmen vote on more than ideology; issue-specific attributes are an important determinant of Congressional voting patterns. The estimated dimension is too large for the median voter model to describe Congressional voting.

Measuring Short-Run Inflation for Central Bankers

Stephen G. Cecchetti

NBER Working Paper No. 5786

October 1996

JEL Nos. E31, E52

Monetary Economics

As central bankers intensify their focus on inflation as the primary goal of monetary policy, it becomes increasingly important to have accurate and reliable measures of changes in the aggregate price level. Measuring inflation is surprisingly difficult, as it involves two types of problems. Commonly used indexes, for example the Consumer Price Index (CPI), contain both transitory noise and bias. Noise causes short-run changes in measured inflation to reflect movements in long-run trends inaccurately, while bias leads the long-run average change in the CPI to be too high.

In this paper I propose methods of reducing both the noise and the bias in the CPI. Noise reduction is achieved by average monthly inflation in measures called "trimmed means" over longer horizons. Trimmed means are similar to medians calculated by ignoring the CPI components with extreme high and low changes each month, and averaging the rest. I find that using three-month averages halves the noise, while removing the highest and low-

est 10 percent of the cross-sectional distribution of inflation reduces the monthly variation in inflation by one-fifth.

Testing for the Fundamental Determinants of the Long-Run Real Exchange Rate: The Case of Taiwan

Hsiu-Ling Wu

NBER Working Paper No. 5787

October 1996

JEL No. F3

This paper reports that the real exchange rates between the Taiwanese and the U.S. dollar did not move as PPP predicts, according to cointegration tests and analysis of the impulse response function. Also, through the analyses of impulse response functions, I find that innovation in the nominal exchange rate, domestic, and foreign prices results in permanent changes in the real exchange rate. Finally, in the long run, differential productivity growth between traded and nontraded goods, and changes in relative unit labor cost, can lead to changes in real exchange rates.

Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis

Christopher D. Carroll

NBER Working Paper No. 5788

October 1996

JEL Nos. D91, E21

Economic Fluctuations and Growth,
Monetary Economics

This paper argues that saving by the typical household is described better by a "buffer-stock" version than by the traditional version of the Life Cycle/Permanent Income Hypothesis model. Buffer-stock behavior occurs if consumers with uncertainty about their income are sufficiently impatient. In the traditional model, consumption growth is

determined solely by tastes; in the buffer-stock model, consumers set their average consumption growth equal to the average growth of their labor income, regardless of tastes. The buffer-stock model can explain three empirical puzzles: the "consumption/income parallel" of Carroll and Summers; the "consumption/income divergence" first documented in the 1930s; and the stability of the household age/wealth profile over time, despite the unpredictability of idiosyncratic changes in wealth.

Speculative Attacks: Fundamentals and Self-Fulfilling Prophecies

Robert P. Flood and

Nancy P. Marion

NBER Working Paper No. 5789

October 1996

We develop a modified "first-generation model" in order to better understand the 1994 Mexican peso crisis and aspects of the European currency crises in 1992-3. We introduce the assumption that the domestic monetary authority sterilizes the speculative attack; we incorporate a stochastic risk premium; and we allow for some price stickiness. The modified model shows that macroeconomic policies not consistent in the longer run with a fixed exchange rate inevitably can push the economy towards a currency crisis, but it also demonstrates how a government currently following consistent macroeconomic policies suddenly can face a speculative attack triggered by a large shift in speculative opinion. However, the ability of a sudden shift in speculative opinion to trigger an attack is limited by the position of fundamentals. Thus, an attack does not require a later change in policies to make it profitable.

Index Number and Factor Demand Approaches to the Estimation of Productivity

David H. Good, M. Ishaq Nadiri, and Robin C. Sickles

NBER Working Paper No. 5790

October 1996

JEL Nos. O3, O4, L1, L6, L8

Productivity

We review a number of analytical methods and issues related to identifying and estimating the source of productivity growth. We also briefly discuss the two major methods used in measuring productivity growth: index numbers and econometric estimation. We examine a number of substantive issues, including the contribution of R and D capital and R and D spillovers, infrastructure capital, allocative distortions, the nature of the market structure, and technological advancement on productivity growth at various levels of aggregation. We describe the attributes of the static and dynamic factor demand models used to estimate the contribution of different inputs to productivity growth, and discuss the evaluation of changes in the production process changes in response to exogenous factors, and their impact on productivity growth. We also briefly note econometric issues and data considerations for proper estimation of the underlying structural models.

Current Account Sustainability: Selected East Asian and Latin American Experiences

Gian Maria Milesi-Ferretti and Assaf Razin

NBER Working Paper No. 5791

October 1996

JEL Nos. F32, F34

International Finance and Macroeconomics

A number of developing countries have run large and persistent current

account deficits in both the late 1970s/early 1980s and in the early 1990s, raising the issue of whether these persistent imbalances are sustainable. This paper puts forward a notion of current account sustainability and compares the experience of three Latin American countries (Chile, Colombia, and Mexico) and three East Asian countries (Korea, Malaysia, and Thailand). We identify a number of potential indicators of sustainability and discuss their usefulness in predicting external crises.

Understanding Equilibrium Models with a Small and a Large Number of Agents

Wouter J. den Haan

NBER Working Paper No. 5792

October 1996

JEL Nos. E21, E43, E44

Economic Fluctuations and Growth

In this paper, I compare a two-agent asset pricing model with a corresponding model with a continuum of agents. In a two-agent economy, interest rates respond to "idiosyncratic" income shocks because each agent represents half of the population. These interest rate effects facilitate consumption smoothing. However, an agent in a two-agent economy can never lend more than the other agent is allowed to borrow, which prevents the former from building a buffer stock of assets. For most parameter values, the first effect is more important. For some parameter values, the interest rate effects in the two-agent economy are so strong that a relaxation of the borrowing constraint reduces an agent's utility. In contrast to these differences, for most parameter values there are no large differences in average interest rates across the two types of economies. In addition, I analyze the business cycle behavior of interest rates in an economy with incomplete markets and a continuum of agents. The dynamic response of interest

rates to aggregate shocks is a lot more complicated than the response in an economy with complete markets, and the magnitude of the response is bigger.

Inflation and the Distribution of Price Changes

Michael F. Bryan and Stephen G. Cecchetti

NBER Working Paper No. 5793

October 1996

JEL Nos. E31, C12

Monetary Economics

This paper reconsiders the empirical evidence connecting inflation to its higher order moments, and in particular, its third moment: the skewness of the price change distribution. Evidence on correlations between inflation and its moments goes back over 30 years, and was first used to reject the independence of relative price changes and inflation that is assumed in neoclassical models. More recently, New Keynesian macroeconomists have shown that the strong positive correlation between inflation and the skewness of the price change distribution is consistent with menu-cost models of price setting behavior. This is a fairly controversial result, prompting other researchers to demonstrate that the same correlation can be found in a multi-sector, flexible price (real business cycle) model.

We examine the small-sample properties of the main empirical finding on which this work is based: the positive correlation between the sample mean and sample skewness of price change distributions. Our results show that this particular statistic suffers from a large positive small-sample bias, and we demonstrate that the entirety of the observed correlation can be explained by this bias. To the extent that we find any relationship at all, it is that the correlation is negative. In

other words, we establish that one of the most accepted stylized facts in the literature on aggregate price behavior, that inflation and the skewness of the price change distribution are linked positively, need not be a fact at all.

A Tale of Two Crises: Chile and Mexico

Sebastian Edwards

NBER Working Paper No. 5794

October 1996

JEL Nos. E32, E31, F31

International Trade and Investment,

International Finance and

Macroeconomics

The Mexican peso crisis of December 1994 sent shock waves through the world's financial and policy communities. What is to some extent surprising, however, is not that the Mexican economy faced a major currency crisis, but that so many analysts and observers were shocked by this turn of events. Mexico had a remarkable historical precedent: merely a dozen years earlier, Chile suffered a prophetically similar crisis. Like Mexico during the 1980s, Chile during the 1970s undertook major structural reforms characterized by a drastic opening of the economy, a sweeping privatization program, and a major deregulation effort aimed at creating a modern financial sector. In Chile, as in Mexico more than a decade later, the use of a predetermined exchange rate to eliminate inflation, combined with very large capital inflows that were intermediated by a weak banking system, generated a situation of exchange rate overvaluation, a vulnerable financial sector, and eventually the collapse of the currency.

This paper provides a comparative analysis of some macroeconomic aspects of the Chilean and Mexican crises. The discussion emphasizes a question of increasing concern in academic circles: to what extent are

exchange-rate-based stabilization programs successful in reducing, or even eliminating, inflationary inertia? The paper provides a brief overview of the Chilean and Mexican reform and stabilization programs initiated in 1975 and 1985. I develop a theoretical model on the effects of exchange-rate-based stabilization programs on inflationary inertia. The model emphasizes the roles of government preferences and credibility. I use detailed data on Chile and Mexico to assess whether these programs affected the time-series properties of inflation; more specifically, I investigate whether they reduced inflationary inertia.

Star Scientists, Institutions, and the Entry of Japanese Biotechnology Enterprises

Michael R. Darby and

Lynne G. Zucker

NBER Working Paper No. 5795

October 1996

JEL No. O31

Productivity

Advance of science and its commercial applications are in a close, symbiotic relationship in the U.S. biotechnology industry. Comparing Japan and the United States, the structure of the science appears broadly similar, but the organization of the biotechnology industry is quite dissimilar. In the United States, some 77 percent of new biotechnology enterprises (NBEs) were dedicated new biotechnology firms (NBFs), started for this purpose, while 88 percent of Japanese biotech firms in our database were subunits of existing firms (NBSs). We report estimates of the relation of NBE births in Japan to top-producing "star" scientists and other variables. While a similar process is at work in Japan and America, stars in Japan induce entry of significantly fewer NBEs than in the United States, and preexisting economic activity plays a greater

role. We find no such significant difference for entry of keiretsu-member and nonmember firms within Japan. We relate the significant Japan-U.S. differences to Japan's relatively compact geography and institutional differences between the higher education and research funding systems, the venture capital and IPO markets, cultural characteristics and incentive systems that affect scientists' entrepreneurialism, and tort liability exposures. The relative importance of these factors, and whether differences in organization of biotechnology result in substantial differences in productivity and international competitiveness, are issues for future research.

Paying for Health Insurance: The Tradeoff Between Competition and Adverse Selection

David M. Cutler and Sarah Reber

NBER Working Paper No. 5796

October 1996

Health Care, Public Economics

This paper uses data on health insurance choices by employees of Harvard University to examine the effect of alternative pricing rules on market equilibrium. In the mid-1990s, Harvard moved from a system of subsidizing more expensive insurance to a system of contributing an equal amount to each plan. We estimate a substantial demand response to the policy change, with a short-run elasticity of about -2. The reform also induced substantial adverse selection: because of this, the long-run demand response is three times the short-run response. Price variation induced by adverse selection is inefficient; we estimate the magnitude of the welfare loss from adverse selection at 2 percent of baseline health spending. Finally, as insurance choice was made more competitive, premiums to Harvard fell relative to premiums in the Boston area by nearly 10 per-

cent. This savings was large enough to compensate for the inefficiency induced by adverse selection, so that overall, reform was welfare enhancing.

Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets

Lars E. O. Svensson

NBER Working Paper No. 5797

October 1996

JEL Nos. E42, E52, E58

International Finance and

Macroeconomics, Monetary Economics

Inflation targeting implies inflation *forecast* targeting: the central bank's inflation forecast becomes an explicit intermediate target. Inflation forecast targeting simplifies both the implementation and the monitoring of monetary policy. The weight on output stabilization determines how quickly the inflation forecast is adjusted towards the inflation target. Money growth or exchange rate targeting is generally inferior to inflation targeting, and leads to higher variability of inflation. Commitment to "target rules" may be more effective than commitment to "instrument rules."

Convergence and International Factor Flows in Theory and History

Alan M. Taylor

NBER Working Paper No. 5798

October 1996

JEL Nos. F02, F43, O41, N10

Development of the American Economy

Standard neoclassical growth models rarely admit that there is international factor mobility: convergence may result from factor accumulation in a closed economy, or from technology transfer. Thus, conventional models are poorly equipped to explain the contribution of international factor flows to con-

vergence in history. I develop a general model with many goods and multiple mobile and fixed factors. In response to recent historical research, I study a four-factor case, with labor, capital, and resources as potentially mobile factors, and land as a fixed factor. I then explore the model in the context of recent historical analyses of the sources of long-run convergence and divergence.

Australia's Retirement Income System: Implications for Saving and Capital Markets

Malcolm Edey and John Simon

NBER Working Paper No. 5799

October 1996

JEL Nos. E21, G23, G28, H55, O56

Public Economics

Australia is in the early stages of introducing a system of self-provision for retirement through mandatory contributions to private superannuation funds. For most employees, the scheme eventually will replace, either fully or partially, the government age pension, which is currently relied upon by a large majority of retirees. The scheme has been implemented reasonably smoothly by building on existing financial infrastructure for voluntary superannuation. This paper summarizes the historical background of mandatory superannuation in Australia, reviews its potential impact on saving and capital markets, and highlights some remaining policy issues. Perhaps the most important of these is the impact of the system on retirement decisions. A number of features of the system contribute to incentives favoring early retirement and continued reliance on the government pension. Also important is the increasing complexity of the system, a result of the layering of rule changes and the grandfathering of existing rights at each stage of the process.

Are Knowledge Spillovers International or Intranational in Scope? Microeconomic Evidence from the U.S. and Japan

Lee G. Branstetter

NBER Working Paper No. 5800

October 1996

JEH Nos. O14, F12

International Trade and

Investment, Productivity

In a number of theoretical models, technological externalities can generate multiple equilibriums in the global pattern of specialization and trade, with different consequences for the relative welfare of the trading countries. In such models, temporary government policies can have lasting effects by pushing the global economy into a particular equilibrium. However, the prediction of multiple equilibriums generally hinges on the assumption that the technological externalities are *intranational* rather than international in scope.

In this paper, I point out important shortcomings in previous attempts to estimate the effects of intranational and international knowledge spillovers. Then, I provide new estimates of the relative impact of intranational and international knowledge spillovers on innovation and productivity at the firm level, using previously unexploited panel data from the United States and Japan which provide a rich description of the firms' technological activities and allow for potentially much more accurate measurement of spillover effects.

My estimates indicate that knowledge spillovers are primarily *intranational* in scope, providing empirical confirmation of a crucial assumption in much of the theoretical literature. This finding has important implications for the theoretical literature and the public debate on "strategic trade policy."

International R and D Spillovers, Trade, and Productivity in Major OECD Countries

M. Ishaq Nadiri and Seongjun Kim

NBER Working Paper No. 5801

October 1996

JEL Nos. F41, F43, O31, O47, O57

Productivity

In this paper we: 1) estimate the effects of international R and D spillovers on total factor productivity growth in the seven largest industrialized countries; 2) analyze the effect of spillovers on the structure of production, that is on the demand for factors including labor and investment, and on the supply of output; 3) examine the effect of technological transfers on the pattern of trade, that is, on imports and exports and; 4) calculate the private rates of return on physical capital and R and D investment, as well as the social rates of return on foreign R and D spillovers. To achieve our objectives, we develop a framework that integrates several strands of the available approaches in the literature: the GNP function approach suggested by Burgess (1974) and Kohli (1978); the spillover models proposed by Bernstein and Nadiri (1988), Bernstein and Mohnen (1994), Coe and Helpman (1995), and Park (1995); and the familiar interrelated factor demand and cost models.

What Happens within Firms? A Survey of Empirical Evidence on Compensation Policies

Canice Prendergast

NBER Working Paper No. 5802

October 1996

JEL No. J3

Labor Studies

This paper provides an overview of empirical work on the compensation policies of firms. I consider the

literature from the perspective of three major theories: human capital; learning; and incentives. Our understanding of the effect of compensation on behavior and of firms' motivations in choosing certain policies has been constrained up until now by two important problems. First, the absence of data on contracts and performance has limited the ability of researchers to ask even the most basic question: do incentives matter? Second, the available theoretical work has not been oriented sufficiently towards distinguishing among plausible alternatives, so that many observed facts are consistent with any of the major theories.

Effort, Wages and the International Division of Labor

Edward E. Leamer

NBER Working Paper No. 5803

October 1996

JEL Nos. F11, J22, J31

International Trade and Investment

This paper embeds variable effort into a traditional multi-sector model. Effort enters a production function (like total factor productivity) and, on the assumption that effort doesn't affect capital depreciation, the capital-cost savings from high effort operations are passed on to workers. The labor market thus offers a set of contracts with higher wages compensating for higher effort. Among the implications of the model are: 1) The capital savings from effort are greatest in the capital-intensive sectors, where the high-effort high-wage contracts occur. 2) Communities of industrious workers have high returns to capital and comparative advantage in capital-intensive goods. 3) Capital accumulation in a closed economy causes reductions in effort; capital accumulation in an open economy creates new high-wage high-effort jobs and higher effort levels. 4) Price declines of labor inten-

sive goods twist the wage-effort offer curve, lowering the compensation for low-effort work but increasing the reward for hard work. 5) A deterioration in the terms of trade causes an economy-wide reduction in effort. 6) A minimum wage does not cause unemployment. It forces effort in local services up high enough to support the higher wage. This acts like an increase in labor supply which increases the return on capital. A minimum wage, by forcing greater effort, increases GDP and reduces earnings inequality, but it makes workers worse off, since they prefer the contracts offered by the free market.

Sticky Price and Limited Participation Models of Money: A Comparison

Lawrence J. Christiano, Martin S. Eichenbaum, and Charles L. Evans

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Economic Fluctuations and Growth, Monetary Economics

This paper provides new evidence that models of the monetary transmission mechanism should be consistent at least with the following facts: in response to a contractionary monetary policy shock, the aggregate price level responds very little; aggregate output falls; interest rates initially rise; real wages decline, although by a modest amount; and profits fall. We argue that neither sticky price nor limited participation models can account convincingly for these facts. The key failing of the sticky price model is that it implies that profits rise after a contractionary monetary policy shock. This finding is robust to a variety of perturbations of the benchmark sticky price model that we consider. In contrast, the limited participation model can account for all of the facts mentioned earlier. But

it can do so only if one is willing to assume a high labor supply elasticity (for example, 2) and a high average markup (40 percent). The shortcomings of both models reflect the absence of other frictions, such as wage contracts, which dampen movements in the marginal cost of production after a monetary policy shock.

Does Head Start Help Hispanic Children?

**Janet Currie and
Duncan Thomas**

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Labor Studies, Well-Being of Children

Poor educational attainment is a persistent problem among Latino children, relative to non-Latinos. This paper examines the effects of participation in the Head Start program on Latinos. We find that large and significant benefits accrue to Head Start children when we compare them to siblings who did not participate in the program. On average, Head Start closes at least one quarter of the gap in test scores between Latino children and non-Hispanic white children, and two thirds of the gap in the probability of grade repetition. Latinos are not a homogenous group, and we find that the benefits of Head Start are not distributed evenly across subgroups. Relative to siblings who attend no preschool, children of Mexican origin and children of native-born mothers, especially those whose mothers have more human capital, gain most from Head Start. In contrast, Latino children whose mothers are foreign-born and Puerto Rican children appear to reap little benefit from attending Head Start, relative to their siblings.

Sources of Convergence in the Late Nineteenth Century

Alan M. Taylor

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Development of the American Economy

Although the empirical growth literature has yielded many findings on postwar convergence patterns, it has had little to say about the determinants of convergence in earlier epochs. This paper investigates convergence for the Group-of-Seven countries during 1870–1914, the last great phase of global convergence before the present postwar era. The Augmented Solow Model, which includes physical and human capital accumulation, proves unsatisfactory in this setting. Its shortcomings appear to lie in a failure to control for changes in land endowments, a feature of the endogenous frontier dynamics of the period. I propose an alternative neoclassical open-economy factor accumulation model, which admits capital and labor migration, and may be extended to include a moving frontier. The model explains the observed convergence pattern in the sample, and suggests that factor accumulation patterns were the prime sources of labor productivity convergence from 1870 to 1914. The analysis gives little role to human capital, trade, or technological catch-up as important convergence mechanisms in this group of countries during the era studied. Since factor accumulation was influenced heavily by factor migration in the late nineteenth century, the findings also point to the limited use of conventional closed-economy growth models in this historical setting.

The Effect of Teen Childbearing and Single Parenthood on Childhood Disabilities and Progress in School

**Joshua D. Angrist and
Victor Lavy**

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JEL Nos. J12, J13

Labor Studies, Well-Being of Children

Teen and out-of-wedlock childbearing often are thought to be responsible for poor health and low levels of schooling among the children of young mothers. This paper uses special disability and grade repetition questions from the school enrollment supplement to the 1992 Current Population Survey (CPS) to estimate the effect of maternal age and single parenthood on children's disability status and school progress. Our results suggest that there is little association between maternal age at birth and children's disabilities. But the children of teen mothers are much more likely to repeat one or more grades than other children, and within-household estimates of this relationship are even larger than ordinary-least-squares estimates. We replicate the grade repetition findings from the CPS using a smaller sample from the National Longitudinal Survey of Youth. Another finding of interest is that having a father in the household is associated with lower prevalence of disability and fewer grade repetitions. But many of the effects of single parenthood on disability, as well as the effect on grade repetition, appear to be explained by higher incomes in two-parent families.

Firm Heterogeneity, Jobs, and International Trade: Evidence from Chile

James A. Levinsohn

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JEL No. F14

International Trade and Investment

This paper is about jobs and international trade. It is also about what researchers can learn about the relationship between the two using firm-level data. And, it is about the particular experience of Chile following a broad trade liberalization, and spanning a significant macroeconomic contraction and expansion. Finally, this paper is about discerning patterns in the data that might later influence how international economists model the interaction between international trade and employment.

Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem?

V. V. Chari, Patrick J. Kehoe, and Ellen R. McGrattan

NBER Working Paper No. 5809

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JEL Nos. E32, E52

Economic Fluctuations and Growth,
Monetary Economics

In this paper, we construct a quantitative equilibrium model with price setting, and ask whether staggered price setting can generate persistent fluctuations in output following monetary shocks. Our business cycle version of a standard sticky price model allows imperfectly competitive firms to set nominal prices in a staggered fashion. We assume that prices are exogenously sticky for a short period of time. Persistent fluctuations in output require endogenous price stickiness, in the sense that firms choose not to change prices very much even when they can do so. We find little

endogenous stickiness. As a result, such a model cannot generate persistent movements in output following monetary shocks.

Balance Sheets, Multinational Financial Policy, and the Cost of Capital at Home and Abroad

Rosanne Altshuler and Harry Grubert

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Public Economics

We use data from the balance sheets of controlled foreign corporations (CFCs) to study the real and financial behavior of U.S. multinational corporations. The previous literature on repatriations for the most part has been restricted to the choice between dividend distributions to the parent and further real investment in the CFC. The balance sheet data allows us to study a broader range of financial flows between CFCs and parents. Our theoretical work considers models that depart from the previous work in several important ways. We drop the standard arbitrage condition in which the aftertax return to equity and debt is equalized on the margin, and instead impose a worldwide financial constraint consistent with a rising cost of debt finance. In our model, parents can borrow against financial assets held abroad, and may allocate debt across locations to achieve the lowest cost of capital at home and abroad. We also consider the implications of models in which CFCs can invest in CFCs in other foreign countries. We explain how low-tax CFCs can repatriate tax-free by investing in high-tax CFCs that are repatriating income to parent corporations.

Our theoretical results confirm that financial assets, including the equity or debt of other CFCs, are attractive alternatives to repatriation and invest-

ment in real assets. We show that if the parent can borrow against its CFC's financial assets, it can achieve the equivalent of a dividend repatriation. Our regression results confirm the importance of tax considerations in explaining CFC holdings of financial assets. Low-tax CFCs invest in financial assets, particularly the debt and equity of related CFCs, in order to avoid residual U.S. taxes on repatriations. CFCs in high-tax locations are much more highly leveraged than low-tax CFCs. We also find that CFCs with more debt distribute more dividends. This shows that greater dividend distributions do not necessarily imply lower real investment by CFCs.

The Chilean Pension Reform: A Pioneering Program

Sebastian Edwards

NBER Working Paper No. 5811

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Public Economics

In the mid-1970s, Chile initiated a deep, market-oriented reform program aimed at opening up the economy, privatizing state owned enterprises, and stabilizing the macroeconomy. In the 1980s Chile began to grow at increasingly rapid rates, becoming a star performer: between 1986 and 1995 the average rate of growth bordered 7 percent. Perhaps one of the most admired aspects of the Chilean program has been the reform of the pension system, which replaced an inefficient pay-as-you-go system with a privately administered defined contribution system. This reform has been credited with helping to develop Chile's capital market, with reducing government contingent liabilities, and with helping boost Chile's traditionally anemic savings rate. In this paper, I analyze the most salient aspects of the Chilean program and evaluate its achievements to date. The paper provides a brief back-

ground of the Chilean reforms and describes the old pay-as-you-go system, including its degree of (in)efficiency, its distributive characteristics, and its fiscal consequences. I discuss in detail the functioning of the new privately managed system, and evaluate the system's results up to date. I also discuss transitional issues, including the fiscal consequences of the reforms. Finally, the analysis deals with the effects of the reforms on labor markets and savings.

The Productivity of Nations

**Robert E. Hall and
Charles I. Jones**

NBER Working Paper No. 5812

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JEL Nos. E23, O47

Economic Fluctuations and
Growth, Productivity

Why does output per worker vary enormously across countries? Our analysis shows that differences in governmental, cultural, and natural infrastructure are important sources of this variation. According to our results, a high-productivity country: 1) has institutions that favor production over diversion; 2) is open to international trade; 3) has at least some private ownership; 4) speaks an international language; and 5) is located in a temperate latitude far from the equator. A favorable infrastructure helps a country both by stimulating the accumulation of human and physical capital and by raising its total factor productivity.

Alternative Insurance Arrangements and the Treatment of Depression: What are the Facts?

Ernst R. Berndt, Richard G. Frank, and Thomas G. McGuire

NBER Working Paper No. 5813

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JEL No. I11

Health Care, Health Economics,
Productivity

Using insurance claims data from nine large self-insured employers offering 26 alternative health benefit plans, we empirically examine how the composition and utilization of treatments for depression vary under alternative organizational forms of insurance — indemnity, preferred provider organization networks (PPOs), and mental health carve-outs — and with variations in patient cost sharing, including copayments for psychotherapy and for prescription drugs.

Although total outpatient mental health/substance abuse expenditures per treated individual do not vary significantly across the many forms of insurance, the depressed outpatient is more likely to receive antidepressant drug (ADD) medications in PPOs and carve-outs than under indemnity insurance. Those individuals with higher copayments for psychotherapy also are more likely to receive ADD medications. For those receiving ADD treatment, increases in prescription drug copay tend to increase the share of ADD medication costs accounted for by the newest (and more costly) generation of drugs, the selective serotonin reuptake inhibitors.

Financial and Capital Account Liberalization in the Pacific Basin: Korea and Taiwan during the 1980s

**Menzie D. Chinn and
William F. Maloney**

NBER Working Paper No. 5814

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JEL Nos. F32, F34, F4

International Finance and
Macroeconomics

This paper presents an alternative method of testing for financial capital mobility in the absence of forward exchange markets. We apply a model of domestic interest rate determination during liberalization to Korean

and Taiwanese data. We use a variety of diagnostic and recursive tests to isolate structural breaks in the data. We show that Korean interest rates behave as if they were determined domestically until late 1988 or early 1989, while Taiwanese rates exhibit this behavior until early 1989. Thereafter, these economies' interest rates appear to be linked tightly to the Euroyen rate. These results contrast with those obtained by Reisen and Yeches (1993) which indicated a single opening and closing for Korea, and no structural break for Taiwan. They also differ from those results of Jwa (1994), indicating two temporary openings for Korea. Greater integration of these domestic markets with world financial markets suggests that it will be more difficult for these countries to stabilize their economies in the face of capital inflows and outflows.

The Taxation of Pensions: A Shelter Can Become a Trap

**John B. Shoven and
David A. Wise**

NBER Working Paper No. 5815

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JEL No. H2

Aging, Public Economics

Pensions often are thought to be attractive tax shelters that encourage saving for retirement. They allow people to save before-tax dollars and to compound investment returns without current taxation. However, the taxation of pension assets as they are distributed in retirement, or as they pass through an estate, may turn the shelter into a trap, at least for large pension accumulations. Pension distributions can face marginal tax rates as high as 61.5 percent; pension assets passing through an estate can face virtually confiscatory marginal tax rates between 92 and 99 percent. This paper shows the circumstances under which these extraordinarily