centage points lower than before tax reform. Fourteen percent of taxpayers will see no change in their marginal rates, and many taxpayers will face higher marginal tax rates, even if their total tax bill declines. Over 23 percent will face tax rates that are up to ten percentage points higher than before, and 4 percent will have their marginal rates rise by more than ten percentage points. Because of the increase in the personal exemption, tax bills can fall despite higher marginal tax rates.

Because the majority of taxpayers will experience only a small change in their marginal tax rates, the resulting aggregate change in labor supply and saving is likely to be small. Hausman and Poterba estimate that the marginal tax rate of a typical married man earning $11.15 per hour will fall from 18 percent to 15 percent. As a result, he will increase by less than 1 percent per year the total number of hours he wishes to work. They also estimate that a married man earning $45,000 per year will increase his labor supply by 1.5 percent, while the average married woman will increase her labor supply by 2.6 percent. The aggregate increase in labor supply will be about 1 percent, they calculate.

Other participants in the tax meeting were: Lawrence Goulder, Louis Kaplow, and N. Gregory Mankiw, NBER and Harvard University; Michael Graetz, Yale University; Jane Gravelle, Congressional Research Service; Bruce Greenwald, Bell Communications Research; David G. Hartman, NBER and DRI; James R. Hines, Jr., and Joseph E. Stiglitz, NBER and Princeton University; Laurence J. Kotlikoff, NBER and Boston University; Rosemary Marcuss, Congressional Budget Office; Robert Moffitt, NBER and Brown University; James Nunns, U.S. Department of the Treasury; Davis Reishus, Harvard University; Michael Rothschild, NBER and University of California at San Diego; Joel Slemrod, NBER and University of Minnesota; Emil Sunley, Deloitte Haskins & Sells; Robert Vishny, University of Chicago; Randall Weiss, Joint Committee on Taxation; and Shlomo Yitzhaki and The World Bank.

International Studies Program Meets

Members and guests of NBER's Program in International Studies met in Cambridge on April 24-25. The program, organized by Sweder van Wijnbergen, NBER and The World Bank, and Lars E. O. Svensson, NBER and New York University, was:

Alberto Giovannini, Columbia University, "Exchange Rates and Prices: An Empirical Analysis"

Joshua Aizenman, NBER and University of Chicago, "Monopolistic Competition and Labor Market Adjustment in the Open Economy"

Lars E. O. Svensson and Sweder van Wijnbergen, "Excess Capacity, Monopolistic Competition, and the Transmission of Monetary Policy"

Harold Cole, University of Pennsylvania, "Financial Structure and International Trade"

Jeremy I. Bulow, NBER and Stanford University, and Kenneth Rogoff, NBER and University of Wisconsin, "A Constant Recontracting Model of Sovereign Debt"

Jeremy Greenwood and Stephen Williamson, University of Western Ontario, "International Financial Intermediation and Aggregate Fluctuations under Alternative Exchange Rate Regimes"

Giovannini presents a model of the determination of the prices of traded goods that stresses the role of exchange rate uncertainty. Correlations between prices of individual traded goods and the exchange rate depend on the time-series properties of the exchange rate, and on demand and cost parameters. These correlations, as well as the stochastic properties of deviations from the "law of one price," are crucially affected by the currency of denomination of export prices. Using data on domestic and dollar export prices of Japanese goods, Giovannini finds that deviations from the "law of one price" can be forecast. He shows that this result is caused both by the presence of price staggering and by ex ante price discrimination.

Aizenman explains the adjustment of prices, output, and employment in an open economy characterized by a monopolistic competitive market structure. Goods prices are flexible, while wages are determined by contracts that preset the wage for several periods. He also investigates the adjustment of the exchange rate to nominal and real shocks and asks how prices, output, and the exchange rate adjust for the market power enjoyed by each producer and the substitutability between domestic and foreign goods.

Aizenman finds that unexpected monetary shocks can generate persistent shocks to aggregate output and relative price, depending on the degree of substitutability between domestic and foreign goods. Greater substitutability induces greater output and employment effects and smaller price effects in the short and the intermediate run. On the other hand, greater substitutability reduces the persistence and duration of the adjustment. If the income elasticity of the demand for money is less than unity, the presence of nominal wage contracts tends to magnify the responsiveness of the economy to real shocks, and a larger degree of substitutability will magnify the short-run and the intermediate-run adjustment of prices and output to real shocks and will reduce the needed adjustment of relative prices.

Svensson and van Wijnbergen develop a two-country model with sticky prices, optimally set by monopolistically competitive firms, and possible excess capacity. They use the model to examine the international spillover effects of monetary disturbances on output. Their main result is that spillover effects of monetary policy may be either positive or negative, depending upon whether the *inter*temporal elasticity of substitution in consumption exceeds the *intra*temporal elasticity of substitution.

Cole discusses how changes in the structure of international financial markets can affect the structure of international trade. The existence of state-contingent securities introduces a channel, in addition to the default-free real interest rate, for cross-country effects of production shocks via the income flows associated with these securities. This reduces the direct income effects of a country's own production shocks at the expense of introducing direct income effects associated with the foreign country's production shocks. In addition, with an incomplete structure of financial markets, the existence of income sources upon which there are no direct trade claims can distort agents' financial portfolios.

Bulow and Rogoff note that few sovereign debtors have repudiated their obligations entirely. But despite the significant sanctions at the disposal of lenders, many borrowers have been able to consistently negotiate for reduced repayments. They present a model of the ongoing bargaining process that determines repayment levels.

Bulow and Rogoff derive a bargaining equilibrium in which countries with large debts achieve a negotiated, partial default. Lenders may not benefit from their ability to threaten more draconian penalties in the event of repudiation. Furthermore, unanticipated increases in world interest rates may actually help the borrowers by making lenders more impatient for a negotiated settlement. Finally, western governments may be induced to make payments to facilitate reschedulings even though efficient agreements would be reached without their intervention,

Greenwood and Williamson construct a two-country model in which financial intermediation is a means of economizing on monitoring costs. Because of the existence of transaction costs, money markets in the two countries are segmented, and investors have differential access to international credit markets. The model predicts the role of international intermediation in economic development and examines the nature of business cycles in different exchange rate regimes. Greenwood and Williamson conclude that the credit allocation mechanism is an essential ingredient in the propagation of aggregate fluctuations in the world economy.

In addition to the authors, other participants at the meeting included: Harry P. Bowen, NBER and New York University; Susan Collins and Kala Krishna, NBER and Harvard University; Bernard Dumas, Richard C. Marston, and Maurice Obstfeld, NBER and University of Pennsylvania; Charles M. Engel, NBER and University of Virginia; Robert P. Flood, Jr., and Robert J. Hodrick, NBER and Northwestern University; Kent Kimbrough, Duke University; Kenneth M. Kletzer, Yale University; Nancy Peregrim Marion, NBER and Dartmouth College; Kiminori Matsuyama and Kevin O'Rourke, Harvard University; and Julio J. Rotemberg, NBER and MIT.

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834. "How Does the Market Value Unfunded Pension Liabilities?" by Jeremy I. Bulow, Randall Mørck, and Lawrence H. Summers, 1987 (NBER Working Paper No. 1602)

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Lawrence H. Summers, 1986 (NBER Working Paper No. 1345)

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848. "Targeted Export Promotion with Several Oligopolistic Industries," by Gene M. Grossman and Avinash K. Dixit, 1986 (NBER Working Paper No. 1344)

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Feldstein Volume Available

The Effects of Taxation on Capital Accumulation, edited by Martin Feldstein, is now available from the University of Chicago Press for $55.00.

NBER has studied capital formation for a number of years because of the crucial role that capital accumulation plays in economic growth. This volume, based on a 1986 NBER conference, shows how taxes influence the profitability of various investments, and how differences in profitability affect the allocation of the capital stock. Further, it shows that capital formation is quite sensitive to tax rules and, in that way, how tax policy can affect the overall economy.

Feldstein is the George F. Baker Professor of Economics at Harvard and President of NBER.

Public Sector Payrolls

Public Sector Payrolls, edited by David A. Wise, is available from the University of Chicago Press for $40.00.

This volume includes papers presented at an NBER conference that was part of the project studying "The Government Budget and the Private Economy." Several of the papers discuss compensation. Others consider employment of youth, especially by the military. There is also an analysis of how wages and employment in the public sector respond to economic conditions; a detailed study of government pension plans; an analysis of comparable worth in the public sector; and a look at the salaries of public schoolteachers in relation to the quality of American education.

This volume is particularly relevant for policymakers, as well as for academic economists. Wise is the John F. Stambaugh Professor of Political Economy at Harvard University and a Research Associate at NBER.

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Journal of Economic Literature (JEL) subject codes, when available, are listed after the date of the Working Paper. Abstracts of all Working Papers issued since March 1987 are presented below. For previous Working Papers, see past issues of the *NBER Reporter*. The 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. Working Papers are not reviewed by the Board of Directors of NBER.

Privatization, Information, and Incentives

David E. M. Sappington and **Joseph E. Stiglitz**
Working Paper No. 2196
March 1987
JEL No. 320

This paper considers the choice between public and private provision of goods and services. In practice, both modes of operation involve significant delegation of authority and thus appear quite similar in some respects. We argue that the main difference between the two modes concerns the transactions costs faced by the government when attempting to intervene in the delegated production activities. Such intervention is generally less costly under public ownership than under private ownership. The greater ease of intervention under public ownership can have its advantages; but the fact that a promise not to intervene is more credible under private production can also have beneficial incentive effects. We present the Fundamental Privatization Theorem (analogous to the Fundamental Theorem of Welfare Economics), providing conditions under which government production cannot improve upon private production. We then evaluate the restrictiveness of these conditions.

City Taxes and Property Tax Bases

Katharine L. Bradbury and **Helen F. Ladd**
Working Paper No. 2197
March 1987

This paper investigates the simultaneous relationship between tax rates and city property tax bases using data for 86 large U.S. cities in 1967, 1972, 1977, and 1982. We find that a 10 percent increase in the city's property tax rate decreases the city tax base by about 1.5 percent. In addition, local income taxes and taxes levied by overlying jurisdictions (such as county and state governments) also have negative impacts on the city's property tax base. Local sales taxes, in contrast, appear to have little impact. We conclude that taxes affect local property values more than is typically implied by previous studies that have investigated the impacts of state and local taxes on firms' location decisions.

The Gold Exchange Standard and the Great Depression

Barry J. Eichengreen
Working Paper No. 2198
March 1987
JEL No. 400

A number of explanations for the severity of the Great Depression focus on the malfunctioning of the international monetary system. One such explanation emphasizes the deflationary monetary consequences of the liquidation of foreign exchange reserves following competitive devaluations by Great Britain and her trading partners. Another emphasizes instead the international monetary policies of the Federal Reserve and the Bank of France. This paper analyzes both the exceptional behavior of the United States and France and the shift out of foreign exchange after 1930. While both Franco-American gold policies and systemic weaknesses of the international monetary system emerge as important factors in explaining the international distribution of reserves, the first of these factors turns out to play the more important role in the monetary stringency associated with the Great Depression.

Why Was There Mandatory Retirement? Or, the Impossibility of Efficient Bonding Contracts

Kevin Lang
Working Paper No. 2199
March 1987
JEL No. 821

Lazear has argued that hours constraints in general, and mandatory retirement in particular, form part of an inefficient labor market contract designed to increase output by inhibiting worker shirking. Since the contract is efficient, legislative interference reduces welfare. However, in any case in which bonding is costly, the hours constraints will not be chosen optimally. Although theoretically bonding may be costless, the earnings profile is indeterminate and monitoring should never be aimed at reducing shirking. Therefore, it appears that bonding should be modeled as having cost. If so, the role of policy depends on the source of bonding costs, the set of feasible contracts, and the policy options that are available to government.

Should Social Security Benefits Increase with Age?

Martin Feldstein
Working Paper No. 2200
March 1987
JEL No. 915

This paper shows that the optimal relationship between Social Security benefits and retiree age depends on balancing the advantage of providing an otherwise unavailable actuarially fair annuity against the lower rate of return earned in a pay-as-you-go Social Security system. The ability of compulsory Social Security programs to provide an actuarially fair annuity implies that benefits should increase with age, while the lower return on Social Security contributions than on private saving implies that a larger fraction of total benefits should be paid during the early years of retirement. In an economy that contains a mixture of rational life-cycle savers and completely myopic individuals who do not save, it is optimal for benefits to decline during the earlier part of the retirement period and then to begin rising. Numerical calculations based on actual macroeconomic parameters and representative survival probabilities suggest that the optimal age for minimum benefits is less than 75.

Imperfect Information and Staggered Price Setting

Laurence Ball and **Stephen G. Cecchetti**
Working Paper No. 2201
April 1987
JEL Nos. 023, 131

Many Keynesian macroeconomic models are based on the assumption that firms change prices at different times. To explain this "staggered" price setting, we develop a model in which firms have only imperfect knowledge of the current state of the economy and can gain information by observing the prices set by others. This gives each firm an incentive to set its price shortly after as many other firms as possible. Staggering can be the equilibrium outcome. In addition, the information gains can make staggering socially optimal, even though it increases aggregate fluctuations.

Successful Adjustment in a Multisectorial Economy

Joshua Aizenman
Working Paper No. 2202
April 1987
JEL No. 400

This study analyzes the adjustment to a fiscal reform in a dependent economy. It evaluates the economic factors that are relevant for making the choice between a cut in employment and a cut in wages as a means of reducing the fiscal wage bill. I demonstrate that in the presence of costly short-run mobility of labor there is a natural advantage to a wage policy over an employment policy. Fiscal deficits can be dealt with successfully by a wage policy and with the corresponding adjustment in government demand. These policies may have only marginal consequences on production of traded goods in the short run in the presence of costs of adjustment. Over time the gain in the production of traded goods is determined by the credibility of the fiscal reform. I show that the absence of credibility may have major consequences on the adjustment, because it will depress the magnitude of the private investment associated with the fiscal reform.

Peso Problems, Bubbles, and Risk in the Empirical Assessment of Exchange Rate Behavior

Maurice Obstfeld
Working Paper No. 2203
April 1987
JEL No. 431

One of the most puzzling aspects of the post-1973 floating exchange rate system has been the apparently inefficient predictive performance of forward exchange rates. This paper explores some aspects of each of three leading explanations of the behavior of the forward rate. The paper first develops a simple rational expectations model of the "peso problem" that generates some key empirical regularities of the foreign exchange market: seemingly predictable and conditionally heteroskedastic forward forecast errors, with possible directional misprediction by the forward premium. Next I discuss the implications of bubbles for tests of forward rate predictive efficiency. I argue that the existence of bubbles is extremely difficult (if not impossible) to establish empirically. Even though some types of bubbles could distort standard tests on the relationship between spot and forward exchange rates, it seems unlikely that these bubbles have been an important factor. Finally, the paper examines foreign exchange asset pricing under risk aversion and suggests that a convincing account of forward rate behavior should also help explain the results found in testing other asset-pricing theories, such as the expectations theory of the term structure of interest rates.

Country Risk and the Organization of International Capital Transfer

Jonathan Eaton and **Mark Gersovitz**
Working Paper No. 2204
April 1987
JEL No. 433

Foreign portfolio investment is threatened by the risk of default and repudiation, while direct foreign investment is threatened by the risk of expropriation. These two contractual forms of investment can differ substantially in: the amount of capital they can transfer from abroad to capital-importing countries; the shadow cost of capital; and their implications for the tax policy of the host. The interaction of public borrowing from abroad with investments abroad by private citizens of the borrowing country can imply multiple equilibriums with very different welfare consequences. One equilibrium involves private inflows and repayment of public debt. Another is characterized by capital flight and default.

Firm Size and R and D Intensity: A Reexamination

Wesley M. Cohen, Richard C. Levin,
and **David C. Mowery**
Working Paper No. 2205
April 1987
JEL No. 620

Using data from the Federal Trade Commission's Line of Business Program and survey measures of technological opportunity and appropriability conditions, this paper finds that overall firm size has a very small, statistically insignificant effect on the R and D intensity of the business unit when either fixed industry effects or measured industry characteristics are taken into account. Business unit size has no effect on the R and D intensity of business units that perform R and D, but it does affect the probability of conducting R and D. Business unit and firm size jointly explain less than 1 percent of the variance in R and D intensity; industry effects explain nearly half the variance.

International Adjustment under the Classical Gold Standard: Evidence for the United States and Britain, 1879-1914

Charles W. Calomiris and **R. Glenn Hubbard**
Working Paper No. 2206
April 1987

Links between disturbances in financial markets and those in real activity have long been the focus of studies of economic fluctuations during the period prior to World War I. We emphasize that domestic autonomy was substantially limited by internationally integrated markets for goods and capital. Such findings are important for studying business cycles during the period; for example, when prices are flexible, observed cyclical movements can be related to a credit market transmission of deflationary shocks.

Recent studies of the classical gold standard have revived interest in the process by which macroeconomic shocks were transmitted internationally during this period. The principal competing approaches—the "price-specie flow" mechanism and the more modern "internationalist" view—differ according to the means by which international equilibrium is reestablished after a disturbance occurs in capital, money, or commodity markets. We present and interpret separate pieces of evidence on gold flows, interest rates, and selected commodity prices, all of which shed light on the alternative assumptions employed in the price-specie flow and modern approaches. We employ a monthly data set for the United States and Britain for the pre-World War I frameworks. Using the "structural VAR" approach of Bernanke and Sims, we compare the actual historical importance of shocks and the observed patterns of short-run adjustment to shocks with the prediction of each of the two models. The evidence supports the "internationalist" view of closed international linkages over the "specie flow" view of circuitous linkages and domestic autonomy in money and capital markets.

Economic Rents Derived from Hospital Privileges in the Market for Podiatric Services

Richard G. Frank, Jonathan P. Weiner, Donald M. Steinwachs, and **David S. Salkever**
Working Paper No. 2207
April 1987
JEL No. 913

This study examines the relative impacts of human capital and market conditions on the economic rents associated with hospital privileges in the market for foot care. We formulate an empirical model of hospital privileges for podiatrists based on the Pauly-Redisch model of hospital behavior. We then incorporate the privilege model into a model of podiatrists' earnings via a selection adjustment as proposed by Heckman and Lee. The results indicate the persistence of economic rents even after we control for unobserved "quality" factors.

U.S. and Foreign Competition in the Developing Countries of the Asian Pacific Rim

Robert E. Baldwin
Working Paper No. 2208
April 1987
JEL No. 421

This paper examines changes since the early 1960s in the export shares of the United States and its major competitors in the markets of the developing countries of the Asian Pacific Rim (APR), defined to include Hong Kong, Korea, Taiwan, Singapore, the Philippines, Malaysia, Thailand, Indonesia, and China. I also use a technique for revealing a country's factor-price advantages or disadvantages in its trade with another country to analyze the U.S. cost position relative to the countries of the region. Among the findings are that the U.S. export share in the APR market has remained roughly constant over the period and that the United States has a relative factor-price advantage with all the developing countries of the region in physical capital and skilled labor and a disadvantage in unskilled labor. For land and natural resources, the picture is mixed.

I also study the competitive performance of these developing countries in the markets of the United States, Canada, Japan, the European Community, Australia, and New Zealand, and in the region itself. The developing countries of the region and Japan have increased their market shares significantly since the 1960s. In addition, I examine the volume and distribution of U.S. and Japanese direct investment in the Asian Pacific Rim.

The Permanent-Income Hypothesis Revisited

Lawrence J. Christiano, Martin S. Eichenbaum, and **David Marshall**
Working Paper No. 2209
April 1987
JEL No. 131

This paper investigates whether there are simple versions of the permanent-income hypothesis that are consistent with the data on aggregate U.S. consumption and output. We conduct our analysis within the confines of a simple dynamic general equilibrium model of aggregate real output, investment, hours of work, and consumption. We study the quantitative importance of two perturbations to the version of our model that predicts that observed consumption follows a random walk: (1) changing the production technology specification that rationalizes the random walk result; and (2) replacing the assumption that agents' decision intervals coincide with the data sampling interval with the assumption that agents make decisions on a continuous-time basis. We find substantially less evidence against the continuous-time models than against their discrete-time counterparts. In fact, neither of the two continuous-time models can be rejected at conventional significance levels. The continuous-time models outperform their discrete-time counterparts primarily because they explicitly account for the fact that the data used to test the models are time-averaged measures of the underlying unobserved point-in-time variables. The net result is that they are better able to accommodate the degree of serial correlation present in the first difference of observed per capita U.S. consumption.

International Capital Flows and Domestic Economic Policies

Jeffrey A. Frankel
Working Paper No. 2210
April 1987
JEL Nos. 441, 431

This paper first traces the history of the capital account in the U.S. balance of payments from 1946 to 1980, when Americans were steadily building up a positive net foreign investment position. It subsequently describes the historic swing of the capital account in the 1980s toward massive borrowing from abroad. Various factors, in addition to expected rates of return, encourage or discourage international capital flows: transactions costs; government controls; taxes; default; and other political risk and exchange risk. I argue that the increase in real interest rates and other expected rates of return in the United States, relative to other countries, in the early 1980s, was the major factor that began to attract large net capital inflows. I conclude that a large increase in the U.S. federal budget deficit, which was not offset by increased private saving, was the major factor behind the increase in real interest rates and therefore behind the switch to borrowing from abroad.

Negotiator Behavior under Arbitration

David E. Bloom and **Christopher L. Cavanagh**
Working Paper No. 2211
April 1987
JEL No. 830

The emerging empirical literature on the economics of arbitration has focused primarily on the behavior of arbitrators under alternative forms of arbitration. This article suggests that it is natural for empirical economists to expand their focus now to include issues related to the behavior of negotiators. In this connection, we discuss three key aspects of negotiator behavior: (1) the decision to settle a dispute voluntarily or to proceed to arbitration; (2) the strategy for selecting an arbitrator; and (3) the final bargaining position to advance before an arbitrator.

Measuring Market Power in U.S. Industry

Matthew D. Shapiro
Working Paper No. 2212
April 1987
JEL Nos. 611, 226, 227

Noncompetitive conduct can be assessed by estimating the size of the markup (or Lerner index) in a market. The markup implies a price elasticity of demand faced by the representative firm. For a given markup, noncompetitive conduct is greater as the market elasticity of demand rises. The ratio of the firm's to the market's elasticity is a measure of noncompetitive conduct that is insensitive to the value of the monopoly. To implement this measure, both the firm's and the market's elasticities of demand must be estimated. Hall shows how to estimate the markup, and therefore the elasticity faced by the firm, from the cyclical behavior of productivity. To estimate the market elasticity, I use an instrumental variables procedure that exploits a covariance restriction between productivity shocks and demand shocks. Results for broad sectors of private industry and for nondurable manufacturing industries display a wide range of monopoly power.

Dynamic Optimization in Two-Party Models

Warwick J. McKibbin, Nouriel Roubini, and **Jeffrey D. Sachs**
Working Paper No. 2213
April 1987
JEL Nos. 131, 311

This paper considers the problem of optimal dynamic policy formulation with competing political parties. We study a general class of problems, in which the two competing political parties have quadratic intertemporal objective functions, and in which the economy has a linear structure and a multidimensional state space. For the general linear quadratic problem, we develop a numerical dynamic programming algorithm to solve for optimal policies of each party taking into account: the party's objectives; the structure of the economy; the probability of future election results; and the objectives of the other political party.

Anticipated Protectionist Policies, Real Exchange Rates, and the Current Account

Sebastian Edwards
Working Paper No. 2214
April 1987
JEL No. 430

In this paper I develop a general equilibrium intertemporal model with optimizing consumers and producers to analyze how the anticipation of future import tariffs affects real exchange rates and the current account. The model is completely real and considers a small open economy that produces and consumes three goods each period. I show that interesting paths for the equilibrium real exchange rate can be generated without imposing rigidities or adjustment costs. In particular, there can be "equilibrium overshooting." I also derive precise conditions under which an anticipated future import tariff will worsen the current account in period 1. Finally, I discuss in detail several ways in which the model can be extended. The results from this model have important implications for the analysis of real exchange rate misalignment and overvaluation.

Capital Gains Taxes under the Tax Reform Act of 1986: Revenue Estimates under Various Assumptions

Lawrence B. Lindsey
Working Paper No. 2215
April 1987

This paper examines the effect of the Tax Reform Act of 1986 on the level of capital gains realizations and tax revenue using a variety of behavioral assumptions. Independent investigations—by Feldstein, Slemrod, and Yitzhaki; the Department of the Treasury; Lindsey; Auten and Clotfelter; and Minarik—all point to a large, but highly variable, response of taxpayers to changes in capital gains tax rates. I reparameterize the econometric results of each of these papers and use them in NBER's TAXSIM model. I then model a total of 13 sets of behavioral assumptions.

The results show that the increase in the capital gains tax rate in the new tax bill is unlikely to produce an increase in capital gains tax revenue. Of the 13 simulations, 12 produce lower tax revenue over five fiscal years. The final simulation suggests a virtually unchanged level of revenue. Two of the models predict extremely large levels of capital gains realizations in late 1986 in anticipation of the tax rate increases in the coming years. None of the simulations predicts any significant increase in the permanent level of capital gains tax revenues.

Short-Term and Long-Term Expectations of the Yen/Dollar Exchange Rate: Evidence from Survey Data

Jeffrey A. Frankel and **Kenneth A. Froot**
Working Paper No. 2216
April 1987
JEL Nos. 431, 441

Three surveys of exchange rate expectations allow us to measure the expected rates of return on yen versus dollars directly. Expectations of yen appreciation against the dollar have been consistently large, variable, and greater than the forward premium, implying that investors were willing to accept a lower expected return on dollar assets. At short-term horizons, expectations exhibit "bandwagon effects"; at longer-term horizons, they show the reverse. For example, a 10 percent appreciation of the yen generates the expectation of a further appreciation of 2.4 percent over the following week, but a *depreciation* of 3.4 percent over the following year. At any horizon, investors would do better to reduce the absolute magnitude of expected depreciation. The true spot rate process behaves more like a random walk.

Have IRAs Increased U.S. Saving? Evidence from Consumer Expenditure Surveys

Steven F. Venti and **David A. Wise**
Working Paper No. 2217
April 1987
JEL Nos. 210, 211

The vast majority of Individual Retirement Account (IRA) contributions represent net new saving, according to evidence from the quarterly Consumer Expenditure Surveys (CES). This result is based on an analysis of the relationship between IRA contributions and other saving in financial assets. The data show almost no substitution of IRAs for other saving.

While the core of the paper is based on cross-sectional analysis, the CES panel of independent cross sections that span the period during which IRAs were introduced is also used. Estimates for the post-1982 period, when IRAs were available to all employees, are based on a flexible constrained optimization model with the principal constraint being the IRA limit. The implications of this model for saving in the absence of the IRA option very closely match the actual non-IRA financial asset saving behavior prior to 1982. IRA saving does not show up as other financial asset saving in the pre-IRA period.

The United States and Foreign Competition in Latin America

Sebastian Edwards
Working Paper No. 2218
April 1987
JEL Nos. 400, 410

This paper analyzes the evolution of U.S. trade relations with Latin America and investigates the possible path that these relations will take in the future. The data show that during the last 15 years or so there has been no significant loss in the U.S. aggregate competitive position in Latin America. However, there has been a significant change in the composition of U.S. exports to the Latin American nations.

The paper also deals with issues related to direct foreign investment in Latin America, comparing the importance of the United States to other nations. Finally, I discuss the role of international trade in the solution of the current American debt crisis and in the reassumption of sustained growth in the region.

Discounting Rules for Risky Assets

Stewart C. Myers and **Richard S. Ruback**
Working Paper No. 2219
April 1987
JEL No. 520

This paper develops a rule for calculating a discount rate to use in valuing risky projects. The rule assumes that asset risk can be measured by a single index (for example, beta) but makes no other assumptions about specific forms of the asset pricing model. It treats all projects as combinations of two assets: Treasury bills and the market portfolio. We know how to value each of these assets under any theory of debt and taxes and under any assumption about the slope and intercept of the market line for equity securities. Our discount rate is a weighted average of the aftertax return on riskless debt and the expected return on the portfolio, where the weight on the market portfolio is beta.

Smuggler's Blues at the Central Bank: Lessons from Sudan

William H. Branson and **Jorge Braga de Macedo**
Working Paper No. 2220
April 1987
JEL Nos. 431, 112

The ineffectiveness of real devaluation as stabilization policy does not imply that the nominal exchange rate should be held constant in the face of a domestic inflation. With domestic inflation, import duties and export subsidies must be raised to counter the potential erosion of the trade balance. This escalation of trade barriers generates a rising black market premium and offers increasing incentives to smuggling, already a pervasive problem in the African countries. As a consequence, the central bank finds it more and more difficult to hold the nominal exchange rate constant. This may require a *passive* exchange rate policy of stabilizing the real exchange rate by moving the nominal rate in line with domestic inflation.

However, if such passive policy is not accompanied by the elimination of trade barriers, the black market premium will not disappear. Unless exchange rate policy and trade policy are consistent, the smuggler's blues will reach the central bank. Indeed, this is not just a theoretical possibility; it is the major lesson from the recent experience of Sudan.

Relative Wage Variability in the United States, 1860–1983

Steven G. Allen
Working Paper No. 2221
April 1987

This paper examines the magnitude of changes in relative wages across industries between 1860 and 1983 and analyzes the macroeconomic determinants of such changes at different intervals during this period. The variance in wage growth across industries was at least four times larger before 1948 than afterward. Except for smaller year-to-year variability in output growth across industries after 1948, macroeconomic factors cannot account for this increased rigidity of relative wages. Increases in average establishment size and improved communication of wage trends are probably partially responsible for the observed increase in relative wage rigidity. No single macroeconomic model was consistent with the year-to-year fluctuations in relative wage rigidity in every historical period examined.

The Effect of Economic Events on Votes for President: 1984 Update

Ray C. Fair
Working Paper No. 2222
April 1987
JEL No. 132

In previous work, I developed an equation explaining votes for president of the United States that seemed to have a remarkable predictive ability. In this paper, I update the equation through the 1984 election and then use it to predict the 1988 election.

Household Saving and Permanent Income in Canada and the United Kingdom

John Y. Campbell and **Richard H. Clarida**
Working Paper No. 2223
April 1987

Recent theoretical research in open-economy macroeconomics has emphasized the connection between a country's current account and the intertemporal saving and investment choices of its households, firms, and governments. In this paper, we assess the empirical relevance of the permanent-income theory of household saving, a key building block of recent theoretical models of the current account. Using the econometric approach of Campbell (1987), we are able to reject the theory on quarterly aggregate data in Canada and the United Kingdom. However, we also assess the economic significance of these statistical rejections by comparing the behavior of saving with that of an unrestricted vector autoregressive (VAR) forecast of future changes in disposable labor income. If the theory is true, then saving should be the best available predictor of future changes in disposable labor income. We find the correlation between saving and the unrestricted VAR forecast to be extremely high in both countries. The results suggest that the theory provides a useful description of the dynamic behavior of household saving in Canada and Britain.

Tax Deductibility and Municipal Budget Structure

Douglas Holtz-Eakin and **Harvey S. Rosen**
Working Paper No. 2224
April 1987
JEL No. 324

This paper investigates the effects of deductibility of local taxes on communities' budgetary decisions. Our focus is on how changes in the tax price of local spending induced by deductibility affect the mix between deductible and nondeductible revenue sources, and affect expenditures. The econometric analysis is based on a rich data set that tracks the fiscal behavior of 172 local governments from 1978 to 1980. We find that the elasticity of deductible taxes with respect to the tax price is in the range -1.2 to -1.6; the tax price has no statistically significant effect on the use of nondeductible revenue sources; and the elasticity of local expenditures with respect to the tax price is about -1.8. Hence, if deductibility were eliminated, we would expect to see a substantial decline in local government spending.

The Financial Impact of Social Security by Cohort under Alternative Financing Assumptions

Michael J. Boskin and **Douglas J. Puffert**
Working Paper No. 2225
April 1987
JEL Nos. 320, 915

This paper analyzes the financial impact of Social Security by age cohort under alternative assumptions about its future financing. We examine the Social Security Administration's intermediate IIB and various combinations of optimistic and pessimistic assumptions about fertility, mortality, and wage growth. We also examine the implications of alternative potential resolutions of the long-term financing deficit and of scenarios of the planned, systematic deviation from pay-as-you-go finance in the retirement and disability funds.

Our results suggest that the Social Security retirement program offers vastly different returns to households in different circumstances, and especially to different cohorts. Most importantly, if Social Security does not maintain the large retirement trust fund surplus currently projected for the next 30 years, then alternative scenarios for the return to pay-as-you-go finance differ dramatically in the taxes, benefits, transfers, and real rates of return that can be offered to different birth cohorts. The implications of cutting taxes, raising benefits, or diverting the surplus to other purposes have a dramatic impact on the overall financial status of the system, the time pattern of taxes, benefits, and surpluses or deficits, and therefore, on the treatment of different age cohorts.

Under the intermediate assumptions, the OASDI surplus is projected to grow to almost as large a fraction of GNP as the current ratio of privately held national debt to GNP. For example, if the OASDI surplus is used to raise benefits, and they remain at higher levels thereafter during the height of the baby-boom generation's retirement, then the long-run actuarial deficit will zoom from $500 billion to over $3 trillion. Correspondingly, if benefits increase, financed by the OASDI surplus over the next 30 years, the expected rate of return on lifetime contributions increases for those currently about 40 years old from 1.9 percent to 2.7 percent, an increase of about 40 percent. If the surplus is dissipated and the subsequent long-run deficit is made up with a tax increase on a pay-as-you-go basis at the time of the projected deficit, then the rate of return relative to the intermediate assumptions for those persons now being born will fall by about 15 percent. In this case, the overall system finances would move from a long-run actuarial deficit of slightly under 0.5 percent of taxable payroll to actuarial balance.

Thus, as Social Security is projected to deviate systematically from pay-as-you-go finance, the potential alternative scenarios with respect to accruing the surplus and/or dissipating it in various ways have potentially large effects on intergenerational redistribution.

Trade and Exchange Rate Policies in Growth-Oriented Adjustment Programs

Jeffrey D. Sachs
Working Paper No. 2226
April 1987
JEL Nos. 420, 430

The search for "growth-oriented adjustment programs" reflects a widespread malaise about IMF stabilization programs in countries suffering from external debt crises. A new orthodoxy emerging from this search links recovery in the debtor countries to a shift to "outward-oriented" development based on trade liberalization. This paper describes many important limitations of this new orthodoxy. The heavy emphasis on liberalization is ahistorical and indeed runs contrary to the experiences of the successful East Asian economies. It also distracts attention from more pressing needs of the debtor economies.

The Postwar Evolution of Computer Prices

Robert J. Gordon
Working Paper No. 2227
April 1987
JEL No. 227

This study constructs new hedonic price indexes for electronic computers covering 1951-84. I estimate regressions for four data sets, two used in previous studies by G. Chow and E. Dulberger and two new data sets used for the first time in this study. Coverage is limited to mainframes until the late 1970s but includes both "supermini" and personal computers (PCs) in the 1980s. The result is a price index that exhibits a 1951 index number, on a base 1984 = 100, of 147,692, implying an annual rate of price change of -19.8 percent over the 33 years.

Price changes for PC processors during 1982-6 appear to have been similar to those for mainframe computers during 1977-84, in the range of -20 to -25 percent per year. Evidence for PC peripheral equipment is limited to 1984-6 and indicates a faster rate of price decline than for processors, particularly if the increasing availability of clones is taken into account.

The paper places considerable emphasis on problems of weighting price indexes for computers with price indexes for other types of "Office, Computing, and Accounting Machinery" (OCA) and other types of producers' durable equipment (PDE). The methodology used to construct the implicit price deflators in the National Income and Product Accounts, with a fixed 1982 base year, leads to a significant downward bias in the implicit OCA and PDE deflators after 1982, and an upward bias prior to 1982. A particularly disturbing aspect of the present national accounts is a spurious rise in the implicit OCA deflator of 157 percent between 1957 and 1971, despite the fact that its computer component exhibits a price decline and its noncomputer component increases by only 8 percent. The paper recommends adoption of a chain-linked Laspeyres index number for any price index aggregate that includes computers. A properly weighted PDE deflator, using our computer price index, declines relative to the official implicit PDE deflator by 0.74 percent per year during 1957-72 and 0.87 percent per year during 1972-84.

Interpreting the Evidence on Money-Income Causality

James H. Stock and **Mark W. Watson**
Working Paper No. 2228
April 1987
JEL Nos. 130, 210

Previous authors have reached puzzlingly different conclusions about the usefulness of money for forecasting real output based on closely related regression-based tests. An examination of this and additional new evidence reveals that innovations in M1 have statistically significant marginal predictive value for industrial production, both in a bivariate model and in a multivariate setting including a price index and an interest rate. This conclusion follows from the trend properties of the data, both stochastic and deterministic, and from inferences that use asymptotic theory which explicitly addresses the implications of these trends for the distributions of the various test statistics.

Stochastic Trends and Economic Fluctuations

Robert G. King, James H. Stock, Charles I. Plosser, and **Mark W. Watson**
Working Paper No. 2229
April 1987
JEL Nos. 210, 226

Recent developments in macroeconomic theory emphasize that transient economic fluctuations can arise as responses to changes in long-run factors—in particular, technological improvements—rather than short-run factors. This contrasts with the view that short-run fluctuations and shifts in long-run trends are largely unrelated. We examine empirically the effect of shifts in stochastic trends that are common to several macroeconomic series. Using a linear time-series model related to a VAR, we consider first a system with GNP, consumption, and investment with a single common stochastic trend; we then examine this system augmented by money and prices and an additional stochastic trend. Our results suggest that movements in the "real" stochastic trend account for one-half to two-thirds of the variation in postwar U.S. GNP.

Real-Financial Linkages among Open Economies

Sven W. Arndt and **J. David Richardson**
Working Paper No. 2230
May 1987
JEL Nos. 423, 431

This paper analyzes and empirically examines linkages between the real and financial variables that themselves link open economies—"linkage" thus has a double meaning. Two types of linkages are discussed. Structural linkages describe differences across economies and among sectors in market structure (competitive/oligopolistic), productivity growth, and openness to trade. Intertemporal linkages describe differences across economies and over time or circumstance in saving preferences and capital formation, government budgets, portfolio shares of "inside" and "outside" assets, and openness to mobile financial flows. Structural linkages are important chiefly for explaining sustained divergences in national competitiveness as measured by purchasing power parity norms. Intertemporal linkages also account for them, as well as for sustained divergences in current and capital account positions, geographical growth rates, and national incomes of residents.

The Marriage Tax Is Down but Not Out

Harvey S. Rosen
Working Paper No. 2231
May 1987
JEL No. 323

The public debate surrounding the Tax Reform Act of 1986 has paid little attention to the tax consequences of being married. Specifically, there has been virtually no discussion of the possible existence of an implicit "marriage tax"—the increase in the joint income tax liability of a man and woman when they marry. This lack of concern appears to be caused by the perception that the new law has lowered marginal tax rates to such an extent that the magnitudes of marriage taxes (and subsidies) are inconsequential. In this paper, I show that, to the contrary, the new law creates large taxes on being married for some couples, and large subsidies for others. On the basis of a tax simulation model, I estimate that in 1988, 40 percent of all couples will pay an annual average marriage tax of about $1100, and 53 percent will receive an average subsidy of about $600.

One striking result that emerges from the analysis is the relatively large marriage tax that will be borne by some low-income couples with children. For such couples, the marriage tax can amount to 10 percent of joint gross income. Hence, the new tax law appears to be quite "antifamily" for some low-income workers.

Loan Commitments and Monetary Policy

Paul Wachtel, George Sofianos, and **Arie Melnik**
Working Paper No. 2232
May 1987
JEL No. 311

This paper examines the impact of loan commitment agreements on the way in which changes in monetary policy affect the economy. In particular, it studies the empirical relevance of quantity credit rationing in the transmission of monetary policy using VAR models. We find evidence of a differential impact of monetary policy on loans under commitment and not under commitment. Our conclusion is that credit rationing for bank loans does occur, although loan commitments effectively protect borrowers from credit rationing. Thus, loan commitments that insulate borrowers from the effects of quantity rationing force monetary policy to work exclusively through interest rate channels.

Econometric Modeling as Information Aggregation

Ray C. Fair and **Robert J. Shiller**
Working Paper No. 2233
May 1987
JEL No. 132

A forecast produced by an econometric model is a weighted aggregate of predetermined variables in the model. In many models, the number of predetermined variables used is very large, often exceeding the number of observations. This paper proposes a method for testing an econometric model as an aggregator of the information in these predetermined variables relative to a specific subset of them. Called the "information aggregation" (IA) test, this method tests whether the model makes effective use of the information in the predetermined variables or whether a smaller information set carries as much information. The method can also be used to test one model against another.

We use the method to test the Fair model as an information aggregator. The Fair model also is tested against two relatively nontheoretical models: a VAR model and an "autogressive components" (AC) model. The AC model, which is new in this paper, estimates an autoregressive equation for each component of real GNP; real GNP is identically determined as the sum of the components. The results show that the AC model dominates the VAR model, although both models are dominated by the Fair model. The results also show that the Fair model seems to be a good information aggregator.

The Social Security Cost of Smoking

John B. Shoven, Jeffrey O. Sundberg, and **John P. Bunker**
Working Paper No. 2234
May 1987
JEL Nos. 915, 913

This paper examines the Social Security cost of smoking from an individual point of view. Smokers have a shorter life expectancy than nonsmokers have; this means that by smoking they are giving up potential Social Security benefits. We estimate the cost of these benefits and consider the effects of smoking on the system as a whole.

We use mortality ratios, which relate the annual death probabilities of smokers and nonsmokers, and the percentage of smokers in each age group, to break down the life tables for men and women born in 1920 into approximate tables for smokers and nonsmokers. We then calculate expected Social Security taxes and benefits for each group, using median earnings as a base. We find that smoking costs men about $20,000 and women about $10,000 in expected net benefits.

Therefore, the prevalence of smoking has a direct effect on the financial viability of the Social Security system. Every decrease in the number of smokers increases the system's liability. As a result, it should be recognized that changes in smoking behavior affect the system.

International Competition in Services

Rachel McCulloch
Working Paper No. 2235
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JEL No. 420

Production of services now dominates economic activity in the United States and in most other nations. Thus it is natural to find that U.S. policymakers pay increasing attention to international competition in services. Yielding to strong pressure from the United States, members of the General Agreement on Tariffs and Trade (GATT) agreed in September 1986 to include services in the new "Uruguay Round" of multilateral trade negotiations. But there remains widespread skepticism regarding the prospects for these negotiations.

This paper surveys the main issues and evidence relating to U.S. international competition in services. It reviews: the forces that have catapulted services to the top of the agenda for the new GATT round; the conceptual issues raised by international competition in services; the growing importance of services in U.S. production and in international transactions; the relationship of services' growth to "deindustrialization" of the U.S. economy; the nature and motivation of barriers to international competition in services and their relationship to nontariff distortions of merchandise trade; and the choices awaiting U.S. officials in forthcoming bilateral and multilateral negotiations.

Country Risk and Contingencies

Joshua Aizenman
Working Paper No. 2236
May 1987
JEL No. 400

This paper studies the role of credit market policies in the presence of country risk from the nationalistic and the global points of view. It addresses the role of endogenous default penalties that are contingent upon the intensity of default on the part of the borrowing nation. It also evaluates the effects of contingency plans that make the interest rate dependent upon variables that are correlated with the default penalty. Consider an economy in which a default will trigger a penalty, in the form of either a trade embargo or effective exclusion of the defaulting nation from future borrowing. Assuming costly enforcement of the penalty, I show that the optimal borrowing tax from the global point of view exceeds the optimal borrowing tax from the nationalistic point of view. The economic principle guiding the borrowing tax is that in the presence of country risk—an activity that changes the probability of default—generates an externality. This principle also applies for investment: if a given investment reduces (increases) the probability of default, it generates positive (negative) externality. Consequently, the social interest rate associated with this activity is lower (higher) than the private one, calling for a subsidy (tax) on borrowing used to finance that investment.

Next, I evaluate the role of endogenous penalties. I design alternative incentive schemes by varying the responsiveness of the penalty to the intensity of default, without changing the total cost applied in the case of a complete default. Then I turn to an assessment of the welfare effect of plans that make the interest rate contingent upon realization of shocks. I conclude by deriving the optimal borrowing plan for an example in which stochastic terms of trade are the source of uncertainty. I show that allowing for contingent payment raises the credit ceiling and the expected income, and stabilizes income across states.

Intergenerational Transfers and Savings

Laurence J. Kotlikoff
Working Paper No. 2237
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In recent years the role of intergenerational transfers in the process of wealth accumulation has been the subject of substantial empirical and theoretical analysis. The key question stimulating this research is: what is the main explanation for savings? Do we save primarily as accumulation for retirement, as claimed by Albert Ando, Richard Brumberg, and Franco Modigliani in their celebrated life-cycle model of savings? Or, is saving primarily an accumulation intended for intergenerational transfers? Or, is it primarily precautionary, so that much saving is eventually bequeathed because of imperfections in annuity markets?

In this paper, the strong conclusion that emerges is that intergenerational transfers play a very important, if not a key, role in aggregate wealth accumulation. However, the precise motivation for such transfers is unclear: intergenerational altruism may be the most likely explanation, but some stylized facts, such as the equal allocation of bequests among children, are strongly at odds with that theory. Other explanations involving imperfect insurance arrangements, or payments for children's services, do not appear capable of explaining the substantial amounts of transfers actually observed.

Constraints on the Choice of Work Hours: Agency versus Specific Capital

Shulamit Kahn and **Kevin Lang**
Working Paper No. 2238
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Most models of implicit lifetime contracts imply that, at any particular time, workers' wages and the value of marginal product (VMP) will diverge. As a result, the contract will have to specify hours as well as wages, since firms will desire to prevent workers from working more when the wage is greater than VMP and from working less when the wage is less than VMP. Combined with the fact that in efficient contracts the hours are set so that VMP equals the marginal value of leisure, this divergence implies that workers will face binding hours constraints. We show that the two major models of lifetime contracts—the agency model and the firm-specific capital model—make opposite predictions regarding the relationship between work hours constraints and job tenure. We then test these predictions. Our results indicate that neither model of efficient long-term contracts explains the observed pattern of hours constraints. Therefore, we briefly consider other explanations.

A Generic Model of Monetary Policy, Inflation, and Reputation

Herschel I. Grossman
Working Paper No. 2239
May 1987
JEL No. 311

This paper analyzes a reputational equilibrium for inflation under the generic assumption that monetary policy reflects proximate preferences for low expected inflation and positive unexpected inflation. The paper stresses the qualitative implication that, in a reputational equilibrium, the policymaker behaves as if concerned about controlling inflation, even though there is no direct preference for a low actual inflation rate. The analysis also shows how the sovereign's prospects for survival and the private agents' memory process play critical roles in determining whether the reputational equilibrium approximates a hypothetical equilibrium with binding commitments.

Changing Patterns of International Investment In and By the United States

Robert E. Lipsey
Working Paper No. 2240
May 1987

The international investment account of the United States has gone through several cycles. Before World War I, the United States was a borrower most of the time and an international debtor. Between the two world wars, it was first a lender and then a refuge for foreign capital. After World War II, the United States became the world's major lender and creditor; and in the last few years, it has become the world's largest borrower and, according to the official accounts, even a net debtor.

U.S. direct investment abroad began while the United States was still an overall borrower and debtor. The technological leaders among U.S. manufacturing firms pioneered this technique for exploiting their particular knowledge and skills by producing in other countries. The peak in the importance of foreign assets relative to the domestic assets of U.S. companies was probably reached during the early 1970s.

While the flow of direct investment from the United States has slowed, there has recently been a large inflow of foreign direct investment into the United States. That inflow has roughly tripled the share of foreign-owned companies in the United States since 1950.

While foreign-owned firms accounted for only about 3.5 percent of total U.S. employment after all the recent growth in foreign direct investment in the United States, their shares in manufacturing and wholesale trade were considerably higher. Foreign firms accounted for almost 40 percent of chemical industry employment, but for less than 10 percent of employment in all the other industries. The foreign shares in service industries, aside from wholesale trade, increased but remained below 3 percent.

Institutional Aspects of High Unemployment in the Federal Republic of Germany

Michael C. Burda and **Jeffrey D. Sachs**
Working Paper No. 2241
May 1987
JEL No. 824

The sustained rise in German unemployment since 1973 poses a problem of critical importance for the world economy. Less than two decades ago, Germany boasted an average unemployment rate of under 1 percent and had to import labor to relieve its chronic labor shortages. By the mid-1980s, unemployment had risen to over 8 percent of the labor force.

This paper investigates some of the reasons for the secular rise in unemployment. We find that while deficient aggregate demand probably can explain some of the current joblessness, the secular rise in unemployment has consisted primarily of an increase in the equilibrium rate of unemployment. We also find little evidence that this increase is caused by changes in frictional unemployment. Rather, after reviewing institutional details of the labor market in Germany, we identify various impediments to the kinds of structural adjustments that have operated to maintain a fairly constant equilibrium rate of unemployment in the United States.

Accounting for Racial Differences in School Attendance in the American South, 1900: The Role of Separate-But-Equal

Robert A. Margo
Working Paper No. 2242
May 1987
JEL No. 042

Everyone knows that public school officials in the American South violated the Supreme Court's separate-but-equal decision. But did the violations matter? Enforcement of separate-but-equal would have narrowed racial differences in school attendance in the early twentieth-century South. But separate-but-equal was not enough. Black children still would have attended school less often than white children did, because black parents were poorer and less literate than white parents were.

Share Repurchases and Acquisitions: An Analysis of Which Firms Participate

John B. Shoven and **Laurie Blair Simon**
Working Paper No. 2243
May 1987
JEL No. 521

Firms can transmit cash to shareholders either by paying dividends or by purchasing shares. Purchases can be either of the firms' own securities or of those of other firms. Recent evidence suggests that there has been a dramatic increase in the use of these nondividend payments to shareholders. This paper reviews the theories behind nondividend payments, including: taxation advantages; adjustment toward optimal debt-equity ratios; antitakeover strategies; free cash flow (agency) considerations; signaling; and habit formation or learning. From these theories, we derive and investigate econometrically the characteristics that predict share purchases for roughly 2000 firms in 1976 and 1984. The theories of free cash flow and habit formation are most consistent with our findings.

International Macroeconomic Policy Coordination

Stanley Fischer
Working Paper No. 2244
May 1987
JEL No. 400

Increasing integration of the world economy, in both trade and capital markets, holds out the promise of mutual gains to countries resulting from the coordination of their macroeconomic policy decisions. In this paper I describe the theoretical case for coordination, evaluate empirical estimates of the potential gains, review the history of macroeconomic policy coordination, and discuss the prospects for increased coordination.

The theoretical argument is seen most clearly in the consideration of fiscal expansion. Any one country that expands will create a current account deficit; this problem is avoided when all countries expand together. In principle, coordination is always better, but empirical estimates suggest that the likely gains are small because the effects of policy in one country on the economies of other countries are small. Further, uncertainties about the effects of policy, reflected in differences among econometric models, mean that countries may have very different views on the likely outcomes of agreements—and therefore that some of them are bound to be disappointed.

Information exchanges and some coordination on trade policy take place in a large number of international organizations and frameworks. But the breakdown of the Bretton Woods system suggests that international differences in policy goals are too large for systematic macroeconomic policy coordination among the major economies to take place anytime soon. Occasional agreements on particular policy packages are possible, and coordination does not take place within the framework of the European Monetary System.

Homeownership and Real House Prices: Sources of Change, 1965-85

Patric H. Hendershott
Working Paper No. 2245
May 1987
JEL Nos. 323, 932

Two phenomena characterized the housing market in the 1970s: a somewhat disguised surge toward homeownership, and a well-publicized sharp increase in the real price of housing. These movements were partially reversed in the first half of the 1980s. In the "standard view," the 1970s changes are attributed to an interaction of the tax system and rising inflation. Given the disinflation of the 1980s, this explanation also seems consistent with the reversals in ownership and real prices.

However, recent work challenges the standard view. It says that inflation disfavors homeownership and that real house prices are determined largely by supply (cost), not demand, factors. This paper considers the data on homeownership and real house prices and evaluates the standard view vis-à-vis its challengers. Data from the 1980s suggest that other factors—probably rising income for ownership and negative productivity growth in construction for real prices—were responsible for at least half of the 1970s increase in ownership and real price.

Implicit Taxation in Lottery Finance

Charles T. Clotfelter and **Philip J. Cook**
Working Paper No. 2246
May 1987
JEL No. 324

State lotteries, as they operate in the United States today, have four distinct aspects: they are legal; the state has a monopoly on their provision; lottery products are marketed; and a portion of the surplus they derive from sales is extracted for state revenue. In this paper, we use conventional tools of applied public finance to examine the implicit tax levied by lottery agencies through this fourth function. We examine the incidence of the implicit lottery tax, focusing on the dominant lottery games used in the 1980s. We find that the implicit tax is regressive in virtually all cases. We then consider whether the implicit tax rate on lotteries is too high, comparing that rate to excise tax rates on alcohol and tobacco.

Intertemporal Constraints, Shadow Prices, and Financial Asset Values

Robert S. Chirinko
Working Paper No. 2247
May 1987
JEL Nos. 130, 300

Hayashi (1982) developed the conditions under which the unobserved shadow price of capital can be equated to the financial value of the firm. Employing a more powerful analytic method, this paper reexamines the shadow price-asset value relationship in a model with a general set of intertemporal constraints. For a model with one capital good, I derive a general relationship between shadow prices and asset values, and highlight the restrictive assumptions implicit in previous work. Of particular importance is the relationship between the marginal and the average survival rates of capital, and the critical role of geometric depreciation. I also explore the impact of a discrete-time framework in specifying and interpreting econometric models.

Self-Selection and the Earnings of Immigrants

George J. Borjas
Working Paper No. 2248
May 1987
JEL No. 823

This paper analyzes how the immigrants' earnings may differ from native Americans' earnings because of the endogeneity of the migration decision. I derive the conditions that determine the nature of the self-selection; they depend on the economic and political characteristics of the sending and receiving countries. The empirical analysis shows that differences in the U.S. earnings of immigrants with the same measured skills, but from different home countries, are attributable to variations in conditions in the country of origin at the time of migration.

Are Exchange Rates Excessively Variable?

Jeffrey A. Frankel and **Richard Meese**
Working Paper No. 2249
May 1987

"Unnecessary variation" is defined as variation not attributable to variation in fundamentals. In the absence of a good model of macroeconomic fundamentals, the question "are exchange rates excessively variable?" cannot be answered by comparing the variance of the actual exchange rate to the variance of a set of fundamentals. The paper notes the failure of regression equations to explain exchange rate movements even using contemporaneous macroeconomic variables. It notes as well the statistical rejections of the unbiasedness of the forward exchange rate as a predictor of the spot rate. It then argues that, given these results, there is not much to be learned from the variance-bounds tests and bubbles tests.

The paper also discusses recent results on variation in the exchange risk premiums arising from variation in conditional variances, both as a source of the bias in the forward rate tests and as a source of variation in the spot rate. It ends with a discussion of whether speculators' expectations are stabilizing or destabilizing, as measured by survey data. The paper concludes that it is impossible that exchange rates have been excessively variable—as, for example, when there are speculative bubbles—but that if policymakers try systematically to exploit their credibility in order to stabilize exchange rates, they may see their current credibility vanish.

Capital Controls and the Timing of Exchange Regime Collapse

Daekuen Park and **Jeffrey D. Sachs**
Working Paper No. 2250
May 1987
JEL Nos. 431, 441

This paper investigates the nature of balance-of-payments crises in regimes with capital controls. We assume that households manage their consumption and asset portfolios to maximize intertemporal utility. Our main result is that capital controls are effective in delaying, but not preventing, a breakdown of a fixed exchange rate regime in the presence of money-financed fiscal deficits.

Efficient "Myopic" Asset Pricing in General Equilibrium: A Potential Pitfall in Excess Volatility Tests

Willem H. Buiter
Working Paper No. 2251
May 1987
JEL Nos. 313, 211

Excess volatility tests for efficiency in the financial market maintain the hypothesis of risk neutrality. This permits the specification of the benchmark-efficient market price as the present discounted value of expected future dividends. By departing from the risk-neutrality assumption in a stripped-down version of Lucas's general equilibrium asset pricing model, I show that asset prices determined in a competitive asset market and efficient by construction nevertheless can violate the variance bounds established under the assumption of risk neutrality. This can occur even without the problems of nonstationarity (including bubbles) and finite samples. Standard excess volatility tests are joint tests of market efficiency and risk neutrality. Failure of an asset price to pass the test may be caused by the absence of risk neutrality rather than by market inefficiency.

The Insensitivity of Consumption to News about Income

Kenneth D. West
Working Paper No. 2252
May 1987
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This paper uses a variance bounds test to determine whether consumption is so sensitive to news about income that it is inconsistent with a standard permanent-income model. The maintained hypothesis is that income has a unit root.

If anything, consumption turns out to be less sensitive than the model would predict. This finding is robust to the representative consumer who has private information about his future income that the econometrician does not have. It is also robust to wealth shocks and to transitory consumption. Future research on the model probably should allow for factors that tend to make consumption smooth.

Implicit Estimates of Natural, Trend, and Cyclical Components of Real GNP

Charles R. Nelson
Working Paper No. 2253
May 1987
JEL No. 130

Estimates of the natural, or full-employment, level of real GNP usually have been obtained by statistical detrending procedures that assume independence between trend and cycle. This paper presents an alternative approach that says that the natural level should be measured in the context of a macro model. If the quantity equation holds with money exogenous, and if the price level is sticky, then observed real GNP will reflect both nominal observed shocks and real unobserved shocks (shifts in the natural level). The path of the natural level is then implicit in the data, given the model. I calculate paths of the natural level of U.S. real GNP and the resulting business cycle.

The Stochastic Properties of Velocity: A New Interpretation

Michael D. Bordo and **Lars Jonung**
Working Paper No. 2255
May 1987
JEL Nos. 311, 312, 132

A number of recent studies have concluded that velocity for the United States for the past century displays the characteristics of a random walk without drift. In this study, we confirm this result for four other countries for which we have over a century of data: Canada, the United Kingdom, Sweden, and Norway.

One implication of a random walk is that past changes in velocity cannot be used to predict future changes. However, this does not mean that past changes in variables that are important determinants of velocity (according to economic theory) cannot be used to predict future changes. In this study, we find that past changes in the traditional determinants of velocity—permanent income and interest rates, as well as a number of institutional variables—can be used to predict future changes in velocity.

Unions and Efficiency in Private Sector Construction: Further Evidence

Steven G. Allen
Working Paper No. 2254
May 1987

Previous studies that used micro data to estimate the impact of unions on productivity in construction in the early 1970s found that productivity was higher for union than for nonunion contractors in the private sector. The validity of these studies has been questioned in light of the declining market share of union contractors. This study reexamines union-nonunion productivity differences for a sample of retail stores and shopping centers built in the late 1970s. It finds that square footage put in place per hour is 51 percent greater for union than for nonunion contractors.

Without data on wage rates by occupation, I can gauge the impact of unions on efficiency only by looking at how they affect costs, profit rates, and prices. This study finds no difference in mean cost per square foot between union and nonunion contractors and offers mixed econometric evidence on translog cost functions. There is no difference in profit rates or prices between union and nonunion contractors in this sample.

Future Social Security Financing Alternatives and National Saving

Michael J. Boskin
Working Paper No. 2256
May 1987
JEL Nos. 320, 915

While the short-run financial status of Social Security is secure, its long-run financial status is very uncertain. The retirement and disability portion of the system (OASDI) shows a long-run actuarial deficit under the Social Security Administration's intermediate economic and demographic forecasts. Hospital Insurance (HI) is expected to run a large deficit beginning in the 1990s.

OASDI is projected to accrue a very large surplus over the next 30 years, peaking at almost 30 percent of GNP. Social Security has never accrued a surplus this large. It may well be dissipated for other purposes, such as to bail out HI, to fund other programs, to raise benefits, or to cut taxes. These alternatives may affect net national saving directly, because Social Security surpluses or deficits are part of the government sector's saving, or indirectly through their effects on private saving or the non-Social Security part of the federal government budget.

This paper documents how various systematic deviations from, or return to, pay-as-you-go financing of the Social Security system may affect net national saving. Under base case assumptions of the non-Social Security deficit, a constant net private saving rate of 6 percent, and long-run budget balance in the state and local government sector, the Social Security deficit offsets 40 percent of other net national saving over the Social Security Administration's 75-year projection period. In the first 25-year subperiod, the Social Security surplus adds one-sixth to other net national saving; in the second subperiod, it offsets almost one-half of other saving; and in the third 25 years, it offsets five-sixths of other net national saving.

Of course, private saving may respond to changes in Social Security's funding as may the non-Social Security balance in the federal budget. This paper presents several alternative scenarios, such as benefits increasing or taxes falling during the OASDI surplus period, various stylized rules concerning the non-Social Security budget deficit, and separate balancing of HI via outlay reductions or tax increases.

The results indicate that OASDI may affect net national saving substantially. For example, if benefits ratchet up during what would have been the period of the OASDI surplus, the OASDI system subsequently may offset virtually all of remaining net national saving. On the other hand, if HI is brought into balance and the OASDI surplus is allowed to accrue, Social Security will offset only about 4 percent of other net national saving.

Changes in private saving may accentuate or ameliorate the swings in the net national saving rate generated by the future financing of OASDI, but the alternative financing options will be an important determinant of net national saving, and therefore of private domestic investment and international capital flows.

Social Security Benefits: An Empirical Study of Expectations and Realizations

B. Douglas Bernheim
Working Paper No. 2257
May 1987
JEL Nos. 915, 918

I use data from the Retirement History Survey to study the accuracy of preretirement expectations of Social Security benefits. My major findings are: (1) Survey responses to questions about expected benefits are reasonably noisy. However, when one filters out the noise properly, reported forecasts appear to explain roughly 60 percent of the variance in realizations. (2) Consumers do not form expectations on the basis of all available information. Proper adjustment of forecasts for information contained in concurrent Social Security entitlements could reduce the residual forecast error variance by roughly 15 percent. The potential gains from incorporating other information are minimal. (3) Individuals do not ignore or forget information that they have used in the past, and they tend to form all expectations on the basis of the same information. (4) Expectations are highly accurate, given the information that people do use. Extreme optimism is uncommon. Surprisingly, expectations are not abnormally inaccurate during periods of rapid legislative change. (5) Of various population subgroups, widows and single women tend to make both the most conservative and the most accurate forecasts. Married men are the least conservative and least accurate. Accuracy and conservatism are not systematically related to wealth or education. Finally, individual behavior appears to conform more closely to the predictions of theory as retirement approaches.

Testing Ricardian Neutrality with an Intertemporal Stochastic Model

Leonardo Leiderman and **Assaf Razin**
Working Paper No. 2258
May 1987

This paper develops and estimates a stochastic-intertemporal model of consumption behavior and uses it to test a version of the Ricardian-equivalence proposition with time-series data. We specify two channels that may give rise to deviations from this proposition: finite horizons and liquidity constraints. In addition, the model incorporates explicitly the roles of taxes, substitution between public and private consumption, and different degrees of consumer goods' durability. The evidence, based on data for Israel in the first half of the 1980s, supports the Ricardian neutrality specification, yielding plausible estimates for the behavioral parameters of the aggregate consumption function.

Nominally Denominated Sovereign Debt, Risk Shifting, and Reputation

Herschel I. Grossman and **John B. Van Huyck**
Working Paper No. 2259
May 1987
JEL No. 311

This paper analyzes a reputational equilibrium in a model in which nominally denominated sovereign debt shifts risk associated with the unpredictability of tax revenues from the sovereign to its lenders. The analysis answers the following questions: Why would a sovereign refrain from inflating when faced with servicing a large quantity of nominal debt? If a sovereign does not plan to use inflation to repudiate its nominal debts, why would it want to issue nominal debt in the first place? What are the distinguishing features of those sovereigns who are willing and able to issue nominal debts?

Who Should Learn What from the Failure and Delayed Bailout of the ODGF?

Edward J. Kane
Working Paper No. 2260
May 1987

In March 1985, the failure of the Ohio Deposit Guarantee Fund (ODGF) sent shock waves reverberating through the financial world. This episode is popularly interpreted as evidence of the dangers of both private deposit insurance and continuing financial deregulation. This paper argues that policies of financial deregulation played little role in the ODGF insolvency. Instead, the failure of the ODGF was a failure of government regulation, rooted in inadequacies in the ODGF information and enforcement systems.

The ODGF may be conceived of as the Federal Savings and Loan Insurance Corporation writ small. Both agencies share many of the same structural imbalances: large, unresolved losses; explicitly mispriced and underreserved services; inadequate information and monitoring systems; insufficient disciplinary powers; and a susceptibility to political pressures to forbear.

Doctors perform autopsies on dead patients to improve their ability to protect living ones. This paper's autopsy of the institutional corpse of the ODGF focuses on the kinds of disturbances that transform structural imbalances into a full-fledged crisis. The research underscores the way that deceptive accounting and underfinanced insurance funds contain crisis pressures in the short run by setting the stage for more severe problems down the line. As financial markets approach more and more closely the perfect and complete markets beloved by finance theorists, the amount of time that can be bought by policies that merely defer crisis pressures is shrinking and becoming hard to use productively.

Tariffs, Employment and the Current Account: Real Wage Resistance and the Macroeconomics of Protectionism

Sweder van Wijnbergen
Working Paper No. 2261
May 1987

Using a standard, complete specialization model of a small, open economy within a rigorous framework of intertemporal optimization with contract-based wage rigidity, I show that permanent tariffs may lead to a current account (CA) *deterioration* and a *fall* in employment. This contradicts most of the literature on macroeconomic effects of import tariffs. This will always be the case if the economy is strong enough. The crucial factor in this complete reversal of standard results is the impact of tariffs on domestic real product wages via wage indexation. Temporary tariffs will have a less negative impact on the CA, or potentially even a positive impact, because they increase the consumption rate of interest (the terms at which future consumption can be traded for current consumption) and so increase private savings.

I also present extensions of this work directed toward incorporating a more general production structure, investment, and the use of tariff revenues to provide wage subsidies.

Excess Capacity, Monopolistic Competition, and International Transmission of Monetary Disturbances

Lars E. O. Svensson and **Sweder van Wijnbergen**
Working Paper No. 2262
May 1987

We develop a stochastic, two-country, neoclassical rational expectations model with sticky prices—optimally set by monopolistically competitive firms—and possible excess capacity. We use this model to examine international spillover effects on output of monetary disturbances. The Mundell-Fleming model predicts that monetary expansion at home leads to recession abroad. In contrast, we find that spillover effects of monetary policy may be either positive or negative, depending upon whether the *inter*temporal elasticity of substitution in consumption exceeds the *intra*temporal elasticity of substitution. In addition, we use the model to determine nominal and real interest rates, exchange rates, and other asset prices.

Longitudinal Analysis of Strike Activity

David Card
Working Paper No. 2263
May 1987
JEL No. 832

This paper presents evidence on two aspects of strike activity associated with the renegotiation of union contracts: the effects of the characteristics of contracts on probabilities of dispute, and the effects of lagged strike outcomes on the incidence and duration of subsequent disputes. The empirical results show that strike probabilities are higher following a longer contract, and lower in situations of limited reopening. Strike probabilities are also higher in summer and fall than in winter and spring. Finally, strike probabilities are significantly affected by lagged strike outcomes. Relative to a peaceful settlement, strike probabilities are ten percentage points higher following a strike of two weeks or less, and five to seven percentage points lower following a longer dispute.

Investment under Uncertainty: Theory and Tests with Industry Data

Robert E. Hall
Working Paper No. 2264
May 1987
JEL No. 641

Under the assumption of constant returns to scale, there is a very simple and easily tested condition for optimal investment under uncertainty. The test requires no parametric assumptions about technology and no assumptions about the competitiveness of the output market. The condition is that the expected marginal revenue product of labor equals the expected rental price of capital. The condition implies a certain invariance property for a modified version of Solow's productivity residual. Tests of the invariance property for U.S. industry data give very strong rejection in quite a few industries. The interpretation of rejection is either that the technology has increasing returns (possibly because of fixed costs) or that firms systematically overinvest.

Consumption

Robert E. Hall
Working Paper No. 2265
May 1987
JEL No. 131

Macroeconomic research on consumption has been influenced profoundly by rational expectations. First, rational expectations with the hypothesis of constant expected real interest rates implies that consumption should evolve as a random walk. Much of the research of the past decade has been devoted to testing the random walk hypothesis and to explaining its failure. Three branches of the literature have developed:

The first relies on the durability of consumption to explain deviations from the random walk property. The second invokes liquidity constraints that block consumers from the credit market transactions needed to make consumption follow a random walk when income fluctuates. The third branch dispenses with the assumption that expected real interest rates are constant. It attempts to explain deviations from the random walk in terms of intertemporal substitution.

Pensions and Firm Performance

Steven G. Allen and **Robert L. Clark**
Working Paper No. 2266
May 1987

This paper examines how pension plans affect employee behavior and firm performance. Theoretically, the impact of pensions on firm performance cannot be predicted. Firms with pensions should have lower turnover rates and more efficient retirement decisions; their employees should be less likely to shirk. On the other hand, pension compensation is not very closely linked to worker performance, and there is some risk that pension compensation causes turnover at the firm to fall too much.

The evidence indicates that wages do not seem to fall with pension compensation and that profit rates are not affected by pension coverage. This suggests that pension coverage is associated with higher productivity; this proposition is supported by indirect evidence on pensions, turnover, and productivity, but not by direct tests of how pension coverage and productivity are correlated.

The Decline of Unionization in the United States: What Can Be Learned from Recent Experience?

Henry S. Farber
Working Paper No. 2267
May 1987
JEL No. 830

This paper investigates the dramatic decline in unionization over the last decade in the context of a supply/demand model of union status. Data from surveys conducted in 1977 and 1984 are used to decompose the decline into a drop in the demand for union representation and a drop in the supply of union jobs relative to demand. I find that there has been a substantial drop in demand that can be accounted for by an increase in the job satisfaction of nonunion workers and a decrease in nonunion workers' beliefs that unions improve wages and working conditions. I also find that there has been a substantial drop in the supply of union jobs relative to demand that is attributed to an increase in employer resistance to unionization. Increased foreign and increased nonunion domestic competition (particularly in deregulated industries) are cited as the likely key underlying causes of these changes.

Stabilization with Exchange Rate Management under Uncertainty

Allen Drazen and **Elhanan Helpman**
Working Paper No. 2268
May 1987
JEL No. 431

Stabilization programs in open economies typically have two stages. First, the rate of currency devaluation is reduced, but the fiscal adjustment does not eliminate the fiscal deficit. This causes growth of debt and loss of reserves, making a future policy change necessary. Only later, at a second stage, is there either an abandonment of exchange rate management or a large cut in the fiscal deficit.

We study how different second-stage policy changes affect economic dynamics during the first stage. These policy changes include tax increases, budget cuts on traded and nontraded goods, and increases in the growth rate of money. Under certainty about the timing and nature of a switch, current account developments provide information about which policy instrument is expected to be used for stabilization. Uncertainty about the timing of a stabilization is important in explaining phenomena such as continuous reserve losses and the possibility that a policy change is accompanied by a surprise discrete devaluation rather than a run on reserves.

The Optimal Collection of Seigniorage: Theory and Evidence

N. Gregory Mankiw
Working Paper No. 2270
May 1987
JEL Nos. 311, 321

This paper presents and tests a positive theory of monetary and fiscal policy. The government chooses the rates of taxation and inflation that minimize the present value of the social cost of raising revenue, given exogenous expenditure and an intertemporal budget constraint. The theory implies that nominal interest rates and inflation are random walks. It also implies that nominal interest rates and inflation move together with tax rates. U.S. data from 1952 to 1985 provide some support for the theory.

Regulation and the Provision of Quality to Heterogeneous Consumers: The Case of Prospective Pricing of Medical Services

Robin Allen and **Paul Gertler**
Working Paper No. 2269
May 1987
JEL No. 913

This paper analyzes the welfare implications of fixed price regulation. It uses a model in which consumers are heterogeneous and a firm can endogenously quality-discriminate. The motivation for this analysis is the current move of third party payers (governmental and private insurers) toward prospective pricing of medical services. Our major result is that prospective pricing causes a distributional welfare loss. Specifically, in our model prospective pricing induces a profit-maximizing medical care provider to simultaneously provide a *smaller* than socially optimal level of quality to more severely ill patients and, surprisingly, a *greater* than socially optimal amount of quality to less severely ill patients. Further, the distributional welfare loss does not disappear when ethically motivated deviation from profit maximization is allowed.

The inefficient distribution of quality occurs because prospective payment regulation fixes the price across patients with different severities of illness but allows providers to quality-discriminate. More complicated DRG pricing rules do not avoid this problem completely. Alternatively, vertical integration of third party payers into the direct provision of medical care bypasses the problem completely. This implies that the recent proliferation of vertically integrated health care organizations, such as health maintenance organizations, preferred provider organizations, and managed care plans by self-insuring employers, improve welfare.

Interindustry Wage Differences and Theories of Wage Determination

William T. Dickens and **Lawrence F. Katz**
Working Paper No. 2271
June 1987
JEL Nos. 821, 832

Numerous studies have shown large differences in wages for apparently similar workers across industries. These findings pose a challenge to standard models of labor market behavior. A problem with past studies of industry wage differences is that they have failed to distinguish between union and nonunion workers. Many economists may expect union workers' wages to be set in a noncompetitive fashion but would be surprised if nonunion wages were.

We examine the differences in wages across industries for both union and nonunion workers. We find that even after controlling for a wide range of personal characteristics and geographic location, large wage differences persist for both union and nonunion workers. Furthermore, the premiums of union and nonunion workers are highly correlated. We review past studies that demonstrate that industry wage premiums are also highly correlated across countries and have been very similar over many decades. We present new evidence that the wages of different occupations are highly correlated across industries—that is, if any occupation in an industry is highly paid, all occupations are. We also review the evidence that suggests that people who move from low- to high-paying industries receive a large fraction of the industry wage premium and that those who move from high- to low-paying industries lose the premium. Finally, we review the evidence on the correlates of industry wage differences. Quit rates, human capital

variables, capital-labor ratios, and market power measures are all positively correlated with industry wage differences individually, although the data are not adequate to determine their independent contributions in multiple regression.

On the basis of all the evidence, we conclude that standard labor market clearing models cannot easily explain all the facts. We discuss several alternative models, including efficiency wage and collective action threat models. We find these to be more consistent with the facts, although some troubling problems remain.

Housing Finance Imperfections and Private Saving: A Comparative Simulation Analysis of the United States and Japan

Fumio Hayashi, Takatoshi Ito, and **Joel Slemrod**
Working Paper No. 2272
June 1987
JEL No. 321

This paper presents a life-cycle simulation analysis of the interaction among savings decisions, housing purchase decisions, and the tax system in the United States and Japan. We first document the stylized fact that the typical Japanese household purchases a house later in the life cycle with a higher down payment ratio than its U.S. counterpart. We then construct a life-cycle simulation model that includes the housing purchase decision and uses it to compare the behavior of typical U.S. and Japanese households. The Japanese household is induced to save more early in the life cycle in order to meet the higher down payment requirement. The saving-consumption pattern resulting from a higher growth rate contributes to a higher *aggregate* saving rate in Japan than in the United States. However, the contribution of the early saving induced by the down payment requirement seems to be too small to explain a large differential in the saving rates of the two countries. The model can generate the observed saving rate in Japan only if we introduce a bequest motive. Finally, tax reform concerning deductibility of mortgage interest payments or the tax-exempt status of interest income has a small impact on the aggregate saving rate in either country. For example, the introduction of tax-exempt saving in the United States would increase the saving rate by only 1.5 percent.

The Impact of Firm Acquisitions on Labor

Charles C. Brown and **James L. Medoff**
Working Paper No. 2273
June 1987
JEL Nos. 820, 520

In this paper, we investigate the changes in wages and employment following a firm's involvement in an acquisition, compared with firms not involved in acquisitions. Contrary to the tenor of popular press coverage of acquisitions, which focuses on hostile takeovers of large firms, we find small (and sometimes positive) changes in wages and employment following an acquisition.

Is the United States a Spendthrift Nation?

Robert E. Lipsey and **Irving B. Kravis**
Working Paper No. 2274
June 1987
JEL No. 220

The belief that the United States is a nation of spendthrifts, unwilling to provide for the future, rests on observations of particular narrow definitions of capital formation, on the use of nominal values that ignore international differences in the relative prices of capital goods, and on concentration on the ratio of capital formation to total output rather than on the amount of capital formation per capita.

By a broad definition of capital formation, the United States has been investing a proportion of its gross output in the last decade and a half that is not far below that of other developed countries, even in nominal terms. In world prices, or real terms, U.S. capital formation was a higher proportion of output than in nominal terms.

Real gross capital formation per capita in the United States, even by a narrow definition of capital formation, was above the average for developed countries. By a broad measure of capital formation, few countries surpassed the United States in per capita real capital formation.

On the Definition and Magnitude of Recent Capital Flight

Robert E. Cumby and **Richard M. Levich**
Working Paper No. 2275
June 1987
JEL No. 440

This paper presents a survey of alternative definitions of capital flight and empirically estimates capital flight using a common database. At the conceptual level, we argue that the definition of capital flight requires a somewhat arbitrary distinction between normal capital flows and those representing capital flight. At the empirical level, our results illustrate the range of estimates of capital flight that are possible and how alternative definitions or databases contribute to the dispersion of estimates. Our results show that for some countries, differences in definitions or databases may have substantial effects, causing some estimates of capital flight to be positive and others negative.

We argue that an appropriate definition of capital flight is one that is consistent with the kinds of economic questions under consideration. In theory, capital flight should be viewed within the context of a general equilibrium model. When this is done, capital flight will appear to be a symptom of underlying economic forces rather than a cause of national welfare losses.

Developing the ECU Markets: Perspectives on Financial Innovation

Richard M. Levich
Working Paper No. 2276
June 1987
JEL No. 430

The European Currency Unit (ECU) was officially introduced in March 1979 and has joined the ranks of innovative financial products that are rapidly appearing. This paper explores the properties of the ECU and analyzes those characteristics of the ECU, and products denominated in ECU, that offer value added. Changes in communications and information technology, changes in the regulatory climate, and changes in the macroeconomic environment have generally encouraged recent financial innovations. We argue that the ECU has gained an edge on its component currencies because of its portfolio properties, its role in reducing transaction costs, the role of the European Monetary System, and trading factors peculiar to the ECU. Private participants should continue to gravitate toward the ECU as a useful vehicle to fulfill the services of money.

Financial Innovations in International Financial Markets

Richard M. Levich
Working Paper No. 2277
June 1987
JEL No. 430

The central theme of this paper is that financial innovation has become a major force affecting the United States and other developed economies. The common features of the process include: product innovation; securitization; liberalization of domestic financial market practices; globalization of markets; and increased competition among financial institutions. The paper offers a review of the product and process changes that have occurred in international financial markets, an analysis of the factors leading to these changes, and an examination of the implications for both financial market participants and macroeconomic policymakers.

Delay in Reporting Acquired Immune Deficiency Syndrome (AIDS)

Jeffrey E. Harris
Working Paper No. 2278
June 1987
JEL No. 910

As of March 31, 1987, the U.S. Centers for Disease Control had reported 33,350 cases of acquired immune deficiency syndrome (AIDS). Yet by that date, physicians actually had diagnosed 42,670 cases. The difference arises from significant delays in the reporting of AIDS cases to public health authorities. An estimated 70 percent of cases are reported two or more months after diagnosis; about 23 percent are reported seven or more months later; and about 5 percent take more than three years to come in. Moreover, the probability distribution of delays has been shifting to the right, with the median delay increasing by 0.6 months since mid-1986. From the data on reported cases and the estimated probability distribution of reporting delays, I reconstruct the actual incidence of AIDS from January 1982 through March 1987. The doubling time of the epidemic fell from about six months in 1982 to 15–16 months in 1986.

The Significance of Tax Law Asymmetries: An Empirical Investigation

Rosanne Altshuler and **Alan J. Auerbach**
Working Paper No. 2279
June 1987
JEL No. 323

This study uses tax return data for U.S. nonfinancial corporations for 1971–82 to estimate the importance of restrictions on the ability of firms to use tax credits and to obtain refunds for tax losses. Our results suggest that the incidence of such unused tax benefits increased substantially during the early 1980s, although these increases were not attributable to increased investment incentives during that period.

Using estimates of a three-state (taxable, not taxable, or partially taxable) transition probability model, we calculate the effective tax rates on various types of investments undertaken by firms with different tax statuses. We confirm previous findings about the marginal tax rate on interest payments and that it is important to distinguish current tax payments from marginal tax rates in estimating the incentive to invest.

Effects of the Changing U.S. Age Distribution on Macroeconomic Equations

Ray C. Fair and **Kathryn M. Dominguez**
Working Paper No. 2280
June 1987
JEL No. 132

This paper examines the effects of the changing U.S. age distribution on various macroeconomic equations. The equations cover consumption, money demand, housing investment, and labor force participation.

We analyze seven age groups: 16-19, 20-24, 25-39, 30-39, 40-54, 55-64, and 65+. There seems to be enough variance in the age distribution data to allow for reasonably precise estimates of the effects of a number of age categories on the macro variables. The results show that, other things being equal, age groups 30-39 and 40-54 consume less than average, invest less in housing than average, and demand more money than average. The 55-64 age group consumes more and demands more money. If these estimates are correct, they imply that consumption and housing investment will be negatively affected in the future as more and more baby boomers enter the 30-54 age group. The demand for money will be positively affected.

If, as Easterlin argues, the average wage that an age group faces is negatively affected by the percentage of the population in that group, then the labor force participation rate of a group should depend on the relative size of the group. If the substitution effect dominates, then people in a large group should work less than average; if the income effect dominates, they should work more than average. Our results indicate that the substitution effect dominates for women 25-54 and that the income effect dominates for men 25-54.

Household Migration, Urban Growth, and Industrialization: The United States, 1850-1860

Richard H. Steckel
Working Paper No. 2281
June 1987
JEL No. 040

This paper uses a national sample of nearly 1600 households linked in the census manuscript schedules to investigate causes and consequences of migration to urban areas during the midst of America's industrial revolution. Although record linkage was limited to the subset of households that had at least one child in 1850, the data are relatively rich in socioeconomic information. A regional analysis of migration and occupational change shows that, while established households were generally mobile, they were extraordinarily reluctant to commit labor to urban-industrial pursuits. The evidence suggests that the presence of children, retraining costs, lack of control over fertility, risk aversion, and an unfavorable view of urban areas by rural residents contributed to their avoidance of cities and towns. The findings also contribute to debates over the compression of the wage structure and the extent of socioeconomic mobility.

The Effect of Family Background on Economic Status: A Longitudinal Analysis of Sibling Correlations

Gary Solon, Mary Corcoran, Roger H. Gordon, and **Deborah Laren**
Working Paper No. 2282
June 1987
JEL Nos. 850, 826

A number of previous studies have used sibling correlations to measure the importance of family background as a determinant of economic status. However, these studies have been biased by several flaws: failure to separate permanent from transitory status variation (including that from measurement error); failure to account for life-cycle stage; and overly homogeneous samples. This paper presents a methodology to address these problems and applies it to longitudinal data from the Panel Study of Income Dynamics. Our main conclusion is that family background appears to exert greater influence on economic status than earlier research has indicated.

Federal Assistance and Local Services in the United States: The Evolution of a New Federalist Fiscal Order

Robert P. Inman
Working Paper No. 2283
June 1987
JEL No. 320

The federalist fiscal structure of the United States has been evolving steadily toward the centralization of the financing of government services and transfers. Revenues are raised centrally and then transferred, via grants-in-aid, to state and local governments. This paper seeks to explain this movement toward centralized financing. It examines two alternative hypotheses. The first—that aid is allocated to correct market or political failures in the local public economy or to equalize the provision of meritorious local public goods —generally fails to account for the distribution of federal aid over the past 30 years. The second hypothesis —that aid is allocated to ease the fiscal pressure in the state-local sector when, and only when, it is in the political interests of congressional representatives to do so —is supported by the recent data. Our current system of federal grants to state and local governments is a logical outcome of a congressional budget process that rewards the centralized financing and the localized provision of public goods and services.

The Effect of Public Sector Labor Laws on Collective Bargaining, Wages, and Employment

Richard B. Freeman and **Robert G. Valletta**
Working Paper No. 2284
June 1987
JEL No. 832

This paper examines the effect of the different states' legal environments for bargaining faced by public employees on wage and employment outcomes and on the extent of bargaining for union and nonunion employees. We use cross-section, within-city, and longitudinal analyses based on a newly derived data set of public sector labor laws.

We find that: (1) the legal environment is a significant determinant of the probability of collective bargaining coverage; (2) collective bargaining coverage raises wages and employment for covered employees; (3) a more favorable legal environment increases wages for all employees but substantially reduces employment for employees not covered by a contract, while slightly reducing employment for employees who are covered by a contract. We also find evidence of significant spillovers of union wage effects to noncovered departments. We conclude by focusing on the effects of two specific legal provisions—arbitration and strike-permitted clauses—on wages and employment.

Why Does Money Affect Output? A Survey

Olivier J. Blanchard
Working Paper No. 2285
June 1987
JEL Nos. 020, 130

One of the most difficult questions in macroeconomics is why movements in nominal money appear to have strong and lasting effects on real activity. This paper surveys the state of knowledge on the issue, with a focus on recent developments.

The paper starts by reviewing the evolution of thought from Keynes's emphasis on wages to the "wage price mechanism" of the early 1970s, as well as the facts on the relationships among money, prices, and output. From this review, it concludes that the intellectual crisis of the 1970s came not from the inability of the prevailing theory to explain the facts—which it had mostly right—but from the weakness of its theoretical foundations.

The paper then examines the reconstruction effort. Two alternative strategies have been followed. The first breaks with previous research and explores how far models based on perfect competition and imperfect information can go in explaining the effects of money on activity. This strategy has largely fizzled and its proponents have moved away from the money-output issue. On the other hand, the second strategy explores whether the many insights of previous research can be made more rigorous. It focuses on the potential role of imperfect competition in labor and goods markets; substantial progress has been made, but no grand synthesis has emerged, nor is one likely to in the foreseeable future.

The Cost of Capital in the United States and Japan: A Comparison

Albert Ando and **Alan J. Auerbach**
Working Paper No. 2286
June 1987
JEL Nos. 323, 441, 520

This paper uses data from financial statements for large samples of U.S. and Japanese nonfinancial corporations to estimate the return to capital in each country for 1967-83. Interpreting these as measures of the cost of capital, we find that the before-tax cost of corporate capital was higher for U.S. firms than for their Japanese counterparts, with the average gap potentially as high as 5.8 percentage points. The use of alternative measurement techniques alters the gap slightly but does not alter the basic finding. However, market returns in the two countries were much closer during the same period.

Certain potential explanations for the gap in returns are rejected by empirical evidence, including differences in corporate taxation, differences in borrowing, and differences in asset mix. This leaves three potential explanations: differences in risk; differences in the tax treatment of individual capital income; and imperfections in the international flow of capital.

International Policy Coordination: The Case of the Developing Country Debt Crisis

Jeffrey D. Sachs
Working Paper No. 2287
June 1987
JEL Nos. 430, 440

This paper reviews the management of the debt crisis to date and considers several possible alternative approaches for international cooperation in the future. The first part of the paper briefly reviews the scope of the crisis and some of the reasons for its onset. Then the paper describes the internationally coordinated policy responses to the crisis, as well as the conceptual underpinnings of this coordinated response. In the latter part of the paper, I describe some of the reasons for the incomplete success of the policy response and discuss several alternative measures for the future. The discussion emphasizes the possible merits of debt forgiveness in addition to debt reschedulings as an instrument for the future management of the debt crisis.

Intergenerational Altruism and Social Welfare: A Critique of the Dynastic Model

B. Douglas Bernheim
Working Paper No. 2288
June 1987
JEL Nos. 311, 321

In this paper I show that under relatively weak conditions, dynastic equilibriums are never welfare optimal. If a social planner sets policy to maximize a social welfare function, then, except in extreme cases in which the planner cares only about a single generation, successive generations will never be linked through altruistically motivated transfers. This suggests that the dynastic model is unsuited for normative analysis and, to the extent that governments actually behave in this manner, the model is also inappropriate for positive analysis. In addition I show that except in a few special cases, the planner's preferences are dynamically inconsistent. If the planner can resolve this inconsistency successfully, then the central result is somewhat modified.

Understanding the Real Estate Provisions of Tax Reform: Motivation and Impact

James A. Follain, Patric H. Hendershott, and **David C. Ling**
Working Paper No. 2289
June 1987
JEL Nos. 323, 932

Capital investment tax provisions have been changed numerous times in the last decade, with depreciation tax lives shortened in 1981 and lengthened ever since, and capital gains taxation reduced in 1978 and 1981 and now increased. The first part of this paper analyzes these changes and attributes a large part of them, including the 1986 Tax Act, to changes in inflation: tax depreciation schedules and capital gains taxation that look reasonable when the tax depreciation base is being eroded at 10 percent a year and an overwhelming share of capital gains is pure inflation take on a different appearance when inflation is only 4 percent.

The remainder of the paper critiques the typical project model used to compute impacts of tax changes on real estate, and reports simulation results using a modified model.

Pricing Mortgages: An Interpretation of the Models and Results

Patric H. Hendershott and **Robert VanOrder**
Working Paper No. 2290
June 1987
JEL No. 313

Mortgages, like all debt securities, can be viewed as risk-free assets plus or minus contingent claims that can be viewed as options. The most important options are: prepayment, which is a call option giving the borrower the right to buy back the mortgage at par; and default, which is a put option giving the borrower the right to sell the house in exchange for the mortgage. This paper reviews and interprets the large and growing body of literature that applies recent results of option pricing models to mortgages. We also provide a critique of the models and suggest directions for future research.

The Timing of Retirement: A Comparison of Expectations and Realizations

B. Douglas Bernheim
Working Paper No. 2291
June 1987
JEL No. 918

In this paper, I use data from the Social Security Administration's Retirement History Survey (RHS) to study the accuracy of expectations concerning the timing of retirement. The RHS is ideally suited for this purpose, because it collects information on retirement plans and follows respondents through time so that one can identify actual dates of retirement. The data are consistent with the view that, when asked to report an expected date of retirement, individuals name the most likely date (that is, a mode rather than a mean).

Furthermore, these forecasts are highly accurate. There is very little evidence that individuals' expectations were systematically biased during periods in which Congress legislated large real increases in Social Security benefits. This suggests either that the benefit increases were anticipated, or that unanticipated changes in benefits have little effect on retirement. The paper also describes differences in the accuracy of expectations by population subgroup.

Federal Deductibility of State and Local Taxes: A Test of Public Choice by Representative Governments

Lawrence B. Lindsey
Working Paper No. 2292
June 1987

This paper considers the impact of federal deductibility on the level and composition of state and local taxes. It also considers the importance of deductibility in determining the voting of state congressional delegations on the Tax Reform Act of 1986. I place particular emphasis on the mechanism by which voter preferences are translated into public choices and consider alternative measures of tax price: each represents a different model of voter behavior. The paper concludes that tax levels are determined by an equal weighting of voters, not by a planning mechanism that minimizes the cost of revenue statewide. It also concludes that the issue of state and local deductibility played a negligible role in determining congressional votes on the recent tax reform bill.

International Coordination of Trade Policy

J. David Richardson
Working Paper No. 2293
June 1987
JEL No. 420

The General Agreement on Tariffs and Trade (GATT) is a coordination compact. Tariff bindings illustrate a mechanism for making commitments credible. Reciprocity illustrates a means for redistributing cooperative gains. The Most-Favored-Nation (MFN) principle illustrates an attempt to keep coordination "virtuous" (cooperative) rather than "vicious" (collusive).

Yet international trade policy coordination clearly has become more difficult. The postwar hegemonic environment has evolved into a more general strategic environment with several influential governments and blocs. Such coalitions are a natural evolutionary development, yet one that inexorably undermines MFN. Economic developments make a country's comparative advantage increasingly sensitive to sectorial predation by others, especially through subsidies and performance requirements aimed at mobile multinational firms, which are themselves internationally coordinated. Immobile workers and others correspondingly bear the burdens of sharper adjustments and look to government to turn its trade policy narrowly inward in order to ease their load. Such "domestication" of trade policy is the antithesis of international coordination and runs the risk of creating a strategic paralysis of recurring unproductivity.

What changes might restore the liberalizing impetus of trade policy coordination? I consider several in the paper. One is extension of the "Codes" approach to multilateral negotiations under the GATT, especially to Subsidies and Safeguards.

Many reflections in the paper are framed in categories from recent economic thinking about policy coordination in "strategic" environments—those with small numbers of self-consciously interdependent agents. The paper argues that these are the appropriate environments in which to analyze international coordination of trade policy.

Private Saving in the United States: 1950-85

Patric H. Hendershott and **Joe Peek**
Working Paper No. 2294
June 1987

The official personal and private saving statistics contain a number of conceptual measurement errors. In this paper, we develop and analyze personal and private saving measures adjusted for the difference between income tax payments and actual liabilities, saving via net purchases of government pension assets (including Social Security) and consumer durables, and that part of aftertax interest income attributable to inflation.

We find that the adjusted personal and private saving rates in recent years are only slightly below their post-1950 averages, not at all-time lows as reported in the official NIPA statistics. Furthermore, over the past 35 years, personal saving has been more volatile and corporate saving less volatile than the official measures. Also, the inflation premium corrections remove the negative correlation between personal and corporate saving. That is, the often observed negative correlation between the official measures of personal and corporate saving is caused solely by measurement errors in the two series. Finally, the decrease in federal government saving in the 1980s is a continuation of a 30-year trend, not a one-time aberration.

Characteristics of Hostile and Friendly Takeover Targets

Randall Mørck, Andrei Shleifer, and **Robert W. Vishny**
Working Paper No. 2295
June 1987
JEL No. 521

Compared to an average *Fortune* 500 firm, a target of a hostile takeover is smaller, older, and has a lower Tobin's *Q*, invests less of its income, and is growing more slowly. The low *Q* seems to be an industry-specific rather than a firm-specific effect. In addition, a hostile target is less likely to be run by a member of the founding family, and has lower officer ownership, than the average firm does.

In contrast, a target of a friendly acquisition is smaller and younger than an average *Fortune* 500 firm, and has comparable Tobin's *Q*s and most other financial characteristics. Friendly targets are more likely to be run by a member of the founding family, and have higher officer ownership, than the average firm. The decision of a CEO with a large stake and/or with a relationship to a founder to retire often precipitates a friendly acquisition.

These results suggest that the motive for a takeover often determines its mood. Thus, disciplinary takeovers more often are hostile, and synergistic ones more often are friendly.

Uncertainty and Liquidity

Alberto Giovannini
Working Paper No. 2296
June 1987
JEL Nos. 311, 313

This paper studies a model in which money is valued for the liquidity services it provides in the future. These liquidity services cannot be provided by any other asset. Changes in expectations of the value of future liquidity services affect the desired proportions of money and other assets in agents' portfolios. As a result, they change nominal interest rates and real stock prices.

The paper concentrates on the effects of stochastic fluctuations in the distribution of exogenous shocks. I find that changes in dividend risk have effects opposite those in standard dynamic portfolio models without money. Furthermore, shifts between money and other assets that are driven by precautionary liquidity demand make nominal interest rates capture information about the uncertainty in the economy more accurately than any other prices in the asset markets do.

The Efficiency of Investment in the Presence of Aggregate Demand Spillovers

Andrei Shleifer and **Robert W. Vishny**
Working Paper No. 2297
June 1987
JEL No. 131

In the presence of aggregate demand spillovers, an imperfectly competitive firm's profit is positively related to aggregate income, which in turn rises with profits of all firms in the economy. This pecuniary externality makes a dollar of a firm's profit raise aggregate income by more than a dollar, since other firms' profits also rise, and in this way gives rise to a "multiplier." Since such "multipliers" are ignored by firms making investment decisions, privately optimal investment choices under uncertainty will not be socially optimal in general. Under reasonable conditions, private investment is too low.

An Analysis of Fiscal Policy under Operative and Inoperative Bequest Motives

Andrew B. Abel
Working Paper No. 2298
June 1987
JEL Nos. 320, 915

This paper presents a general equilibrium model with logarithmic preferences and technology. If the nonnegativity constraint on bequests is strictly binding, then the bequest motive is characterized as inoperative. After determining the conditions for operative and inoperative bequest motives, the paper examines the effect of pay-as-you-go Social Security on the stochastic evolution of the capital stock. If the nonnegativity constraint on bequests is strictly binding, then an increase in Social Security reduces the unconditional long-run expected capital stock. If the Social Security taxes and benefits are large enough, then the nonnegativity constraint ceases to bind, and further increases in Social Security have no effect. This paper extends previous analyses by examining bequest behavior outside the steady state and by allowing a nondegenerate cross-sectional distribution in the holding of capital.

Are User Fees Regressive? The Welfare Implications of Health Care Financing Proposals in Peru

Paul Gertler, Luis Locay, and **Warren Sanderson**
Working Paper No. 2299
June 1987

In this paper, we derive a discrete model of the demand for medical care from a theoretical model that implies a natural interrelation between price and income. We show that in the context of a discrete choice model, if health is a normal good then the price elasticity of the demand for health care must decline as income rises. This implies that the models in previous discrete choice studies that restrict the price effect to be independent of income are misspecified.

We estimate the model using data from a 1984 Peruvian survey, and a parsimonious flexible functional form. Unlike previous studies, this paper shows that price plays a significant role in the demand for health care and that demand becomes more elastic as income falls. This implies that user fees would reduce the access to care for the poor proportionately more than for the rich. Our simulations show that user fees can generate substantial revenues, accompanied by substantial reductions in aggregate consumer welfare, with the burden of the loss on the poor. These results demonstrate that undiscriminating user fees would be regressive in terms of both access and welfare.

Monetary Policy Lessons of Recent Inflation and Disinflation

William Poole
Working Paper No. 2300
June 1987

The decline of velocity in the 1980s is a surprise that should not have been. Economists unwisely relied on a velocity trend of 3 percent per year when they should have insisted on an economic explanation for rising velocity. An analysis of velocity and interest rates from 1915 to 1986 suggests that the interest elasticity of money demand is substantially higher than previously thought. The postwar increase of rates, followed by a major decline of rates in the 1980s, explains velocity behavior. The large decline in velocity almost certainly would have caused severe economic problems if the Federal Reserve had not accommodated the decline through more rapid money growth.

Federal Reserve policy between October 1979 and October 1982 emphasized control of money growth. Money market behavior during this period, compared to periods before and after, provides strong evidence that the market sets interest rates on the basis of a sophisticated understanding of monetary policy. The evidence makes clear that the monetary authorities cannot use interest rates to provide information on the state of the economy unless they know the extent to which interest rates reflect expectations of future monetary policy.

Breath Testing and the Demand for Drunk Driving

Henry Saffer and **Frank Chaloupka**
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JEL No. 913

This paper presents an empirical investigation of the effect of a preliminary breath test law on drunk driving behavior. A preliminary breath test law reduces the procedural problems associated with obtaining evidence of drunk driving and thus increases the probability that a drunk driver will be arrested. In 1985, only 23 states had a preliminary breath test law. According to the theory of deterrence, increasing the probability of arrest for drunk driving will reduce the future occurrence of this behavior. The data set employed to test the theory is a time series from 1980 to 1985 of cross sections of the 48 contiguous states. Four highway mortality rates are used as measures of drunk driving.

We estimate the effect of the breath test law using four independent variable models and 12 dummy variable models. We also estimate the four independent variable models using Leamer's specification test. The purpose of using these alternative specifications and Leamer's specification test is to examine the breath test coefficients for specification bias. The econometric results show that the passage of a breath test law has a significant deterrent effect on drunk driving. Simulations with these results suggest that if all states had a preliminary breath test law, highway mortality could be reduced by about 2000 deaths per year.

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