effects that impinge on a country's fiscal viability. Evaluating the effects of associated changes in capital-labor ratios and in the welfare and behavior of different generations requires a dynamic general equilibrium model. In this paper, we modify the 75 generations–250-year demographic simulation model, presented in Auerbach and Kotlikoff (1987, Chapter 11), to incorporate bequest behavior, technological change, the possibility that the economy is open to international trade, and government consumption expenditures that depend on the age composition of the population. Further, we adapt the model to study the effects of impending demographic changes in Japan, the Federal Republic of Germany, Sweden, and the United States.

The simulation results indicate that these changes will have a major impact on rates of national saving, real wage rates, and current accounts. One of the fundamental lessons of this paper is that allowing for general equilibrium adjustments reduces the adverse welfare effects of increasing dependency ratios. Nevertheless, the welfare costs, and particularly their distributions across cohorts, pose serious challenges for policy-makers in some cases.

Why Does Stock Market Volatility Change Over Time?

G. William Schwert
Working Paper No. 2798
December 1988
JEL Nos. 313, 131

This paper analyzes the relationship of stock volatility to real and nominal macroeconomic volatility, financial leverage, stock trading activity, default risk, and firm profitability. I use monthly data from 1857–1986. An important fact, previously noted by Officer (1973), is that stock return variability was unusually high during the 1920–40 Great Depression. Moreover, leverage has a relatively small effect on stock volatility. The amplitude of the fluctuations in aggregate stock volatility is difficult to explain using simple models of stock valuation.

Markups in U.S. and Japanese Manufacturing: A Short-Run Econometric Analysis

Catherine J. Morrison
Working Paper No. 2799
December 1988
JEL Nos. 600, 611

In this paper I construct a production-theory-based model of firms' markup behavior. The theoretical struc-

ture, based on variants of generalized Leontief cost and expenditure functions, allows the impacts of both supply and demand shocks on firms' markup behavior to be assessed through elasticities. Adjustment costs on labor and capital, and economies of scale, also are incorporated in the model. Using manufacturing data for the United States and Japan from 1960 through 1981, I find that markups for manufacturing firms have increased over time but tend to be procyclical in the United States and countercyclical in Japan. This difference stems primarily from differential investment behavior. In addition, capacity utilization and returns to scale tend to counteract the short-run profit potential from markup behavior, so that markups measured assuming constant returns may be biased downward. Finally, both supply and demand shocks appear to have a significant systematic impact on markups.

Shirking or Productive Schmoozing: Wages and the Allocation of Time at Work

Daniel S. Hamermesh
Working Paper No. 2800
December 1988
JEL No. 820

Major strands of recent macroeconomic theory hinge on the relationship between workers' efforts and their wages, but there has been no direct general evidence on this relationship. This study uses data from household surveys for 1975 and 1981 that include detailed time diaries to examine how changes in the use of time on the job affect wages. For the average worker, additional time spent relaxing at work has no impact on earnings (and presumably is unproductive). However, additional on-the-job leisure does raise the earnings of workers who take very short breaks. This pattern only differs among union workers for whom additional leisure time (only in unscheduled breaks) appears productive. The results suggest that further growth in on-the-job leisure will reduce productivity (output per hour paid-for), that monitoring workers can yield returns to the firm, but that eliminating breaks entirely is counterproductive.

Fear of Nuclear War and Intercountry Differences in the Rate of Saving

Joel B. Slemrod
Working Paper No. 2801
December 1988
JEL No. 321

This paper demonstrates that a survey-based measure of the perceived likelihood of nuclear war in a coun-

try is correlated negatively with the country's rate of net private saving, holding other determinants of saving constant. I use data on 20 OECD countries for 1981-4 and calculate the perceived likelihood of nuclear war from surveys conducted in each country by the Gallup International Research Institutes. The magnitude of the estimated effect is large, suggesting that an increase of 10 percent in the fraction of the population that believes a world war is likely is associated with a decline of 4.1 percentage points in the net private saving rate.

This finding is consistent with other evidence based on U.S. aggregate time series and cross-individual data suggesting that fear of nuclear war decreases savings. That proposition has profound implications for the interpretation of the performance of the post-nuclear world economy.

Adjusting to an Aging Labor Force

Edward P. Lazear
Working Paper No. 2802
December 1988
JEL Nos. 813, 821

Demographic changes in the labor force imply that firms must change their labor policies in the coming decades. My estimates suggest that the labor force will get older and more female. The aging will not be as pronounced for males as for females because the trend toward early retirement among males will offset demographic changes. The labor force will grow until around 2015 and then will decline. Given these changes, there are a number of issues that face employers. First, the aging work force may mean an increase in the size of the firm's current deficit, defined as the difference between sales and labor cost. Second, firms may do well to invest in assets that are highly correlated with the nominal wage bill liability. Such assets include short-term Treasury bills and, paradoxically, pension assets put back into the capital of the firm itself. This strategy can reduce the risk of bankruptcy. Third, explicit buy-outs are the easiest way to reduce the size of the elderly work force. However, this will not help the individual firm's deficit problem. Fourth, declining ages of retirement among males can be reversed by changes in Social Security policy. A decline in real benefits and an increase in the age of entitlement are likely to have the largest effects on raising the retirement age.

The Joint Retirement Decision of Husbands and Wives

Michael D. Hurd
Working Paper No. 2803
December 1988
JEL Nos. 821, 918

This paper asks whether husbands and wives tend to retire at the same time, and why. Similar retirement dates could be caused by similar tastes (termed assortative mating), by economic variables, or by the complementarity of leisure. Each explanation would have different implications for the response of retirement to changes in policy.

Both simple data analysis and economic models suggest that husbands and wives tend to retire at the same time. According to the results, very little of that coordination is attributable to economic variables. Simple cross tabulations also rule out assortative mating as an important explanation. This leaves complementarity of leisure. However, because of data limitations, this conclusion is mainly qualitative.

The dataset used in this study is the New Beneficiary Survey.

Demographic Analysis of Birthweight-Specific Neonatal Mortality

Hope Corman, Michael Grossman, and Theodore J. Joyce
Working Paper No. 2804
December 1988
JEL No. 913

This paper explores the determinants of birthweight-specific neonatal mortality rates across states in the United States in 1980. We explore the interactions between the determinants and birthweight through new data available from the National Infant Mortality Surveillance (NIMS). The NIMS links birth and death certificates for each state, producing a database with race-specific neonatal mortality rates by birthweight and other characteristics. Using a reduced-form model, we find that abortion and the availability of neonatal intensive care are the most important determinants of overall neonatal mortality. For whites, the two factors are of approximately equal importance. For blacks, the availability of abortion has twice the impact of neonatal intensive care. Moreover, our results suggest that neonatal mortality rates could be lowered by policies that reduce the inequality in these health resources across states.

Employer Behavior in the Face of Union Organizing Drives

Richard B. Freeman and Morris M. Kleiner
Working Paper No. 2805
December 1988

The direct role of employers in union organizing has been a neglected part of the literature on union orga-

nizing for some time. This study examines the determinants and consequences of employer behavior in the face of an organizing drive. We find that there is a substitution between high wages/benefits/good working conditions/supervisory practices and "tough" management opposition to unionism. Also, a high innate propensity for a union victory deters management opposition, while some indicators of a low propensity also reduce opposition. "Positive industrial relations" raise the chances that the firm will defeat the union in the election, as does bringing in consultants and having supervisors campaign intensely against the union. The careers of managers whose wages/supervisory practices/benefits lead to union organizing drives, much less to union victories, suffer as a result.

In general, our results are consistent with the notion that firms behave in a profit-maximizing manner in opposing an organizing drive. Also management opposition, reflected in diverse forms of behavior, is a key component in the ongoing decline in private sector unionism in the United States.

Initial Public Offerings:
Investor Behavior and Underpricing

Robert J. Shiller
Working Paper No. 2806
December 1988
JEL No. 313

I sent a questionnaire survey to investors in initial public offerings (IPOs) in order to learn about patterns of investor behavior that might be relevant to theories of their underpricing. The survey asked respondents for their perception of the allocation process, their concern with stockholder or underwriter reputation, their theories of IPO underpricing, and their communications and information sources. The results indicate that there is an element of truth in some existing theories of IPO underpricing, and in the impresario hypothesis (that underwriters deliberately underprice to obtain publicity and promote enthusiasm), the investor risk perception hypothesis, and the fairness-relationship hypothesis.

The Excess Smoothness of Consumption:
Identification and Interpretation

Marjorie Flavin
Working Paper No. 2807
December 1988
JEL Nos. 131, 132

This paper investigates the implications of the omitted-information problem—that is, the econometric problem that arises because an econometrician cannot include explicitly the complete set of variables potentially used by agents—in the context of the "excess smoothness" phenomenon posed by Deaton (1987). I show that an econometrician who fails to take into account the effects of omitted information will conclude incorrectly that an empirical finding of excess smoothness of consumption implies that the income process is nonstationary. By contrast, with a more thorough understanding of the omitted information problem, the finding of excess smoothness of consumption is explained easily with two assumptions: 1) the consumption data are generated by the excess sensitivity alternative hypothesis, in which consumption is a weighted average of current income and permanent income; and 2) agents forecast on the basis of a larger information set than the econometrician has. Further, excess smoothness is consistent with a wide range of stationary as well as nonstationary income processes. Thus, the common presumption that the excess smoothness phenomenon is linked in an essential way to the stationarity or nonstationarity of the income process evaporates when omitted information is taken into consideration.

A Dynamic Analysis of Household
Dissolution and Living Arrangement
Transitions by Elderly Americans

Axel Börsch-Supan
Working Paper No. 2808
January 1989
JEL Nos. 918, 932

This paper exploits the new nonresponse files of the Panel Study of Income Dynamics in order to study transitions of living arrangements of elderly Americans. The paper estimates the probability of household dissolution; that is, the probabilities of transitions from living independently to living with adult children or other persons, and the probability of becoming institutionalized.

I find an astounding stability in living arrangements even after incisive life events such as the death of a spouse or the onset of a disability, or in the years immediately preceding death. A particularly large proportion of the elderly live independently until their deaths. Almost two-thirds of all elderly are living independently in the year of their death, while 14.4 percent share housing with relatives or friends at least once, and 3.1 percent experience a stay in an institution.

Old age, being male, and having a low income significantly increase the risk of institutionalization. Elderly people with large families and nonwhite elderly persons are most likely to share housing. All of this might be expected. An important new finding, however, is the time trend of these probabilities. Holding all other factors constant, the risk of institutionalization increased

substantially between 1968 and 1984 while the likelihood of being "taken in" by relatives or friends decreased markedly.

Comparative Advantage and Long-Run Growth

Gene M. Grossman and **Elhanan Helpman**
Working Paper No. 2809
January 1989
JEL Nos. 411, 111

We construct a dynamic, two-country model of trade and growth in which endogenous technological progress results from the profit-maximizing behavior of entrepreneurs. We study the role that the external trading environment, and trade and industrial policies, play in the determination of long-run growth rates. We find that cross-country differences in efficiency at R and D versus manufacturing (that is, comparative advantage) bear importantly on the growth effects of economic structure and commercial policies. Our analysis allows for both *natural* and *acquired* comparative advantage, and we discuss the primitive determinants of the latter.

If Labor Is Inelastic, Are Taxes Still Distorting?

Don Fullerton
Working Paper No. 2810
January 1989
JEL No. 323

Three recent papers measure the marginal excess burden of labor taxes in the United States. They obtain very different results although they all use a zero uncompensated labor supply elasticity and assume that the additional revenue is spent on a public good that is separable in utility. The impression is that other parameters must explain the differences in results.

Yet each paper uses a different concept of excess burden. Here, I calculate all three measures in one model and show how conceptual differences explain the results. Only one of these measures isolates the distortionary effects of taxes in a way that depends on the compensated labor supply elasticity. The other two measures incorporate income effects and thus depend on the actual change in labor. This result was obscured because those papers report positive marginal excess burden even with a zero uncompensated labor supply elasticity. This paper shows conditions under which their measure is zero, and it interprets the measures in light of recent literature.

Exchange Rate Variability and Asset Trade

Torsten Persson and **Lars E. O. Svensson**
Working Paper No. 2811
January 1989
JEL Nos. 431, 441

In discussions about different international monetary arrangements, it often is maintained that exchange rate variability has a negative influence on international trade and foreign investment. This paper addresses one specific aspect of this general issue, namely the effect of exchange rate variability on capital flows and international portfolio diversification. More precisely, we examine how different monetary policies—and among those, policies that aim at stabilizing exchange rates—determine the risk characteristics of nominal assets, and how these risk characteristics determine international portfolio composition and trade in assets, when international asset markets are incomplete.

Major Macroeconomic Variables and Leading Indexes: Some Estimates of Their Interrelations, 1886–1982

Victor Zarnowitz and **Phillip Braun**
Working Paper No. 2812
January 1989

We examine the interactions within sets of up to six variables representing output, alternative measures of money and fiscal operations, inflation, interest rate, and indexes of selected leading indicators. We use quarterly series, each taken with four lags, for three periods: 1949–82, 1919–40, and 1886–1914. The series are in stationary form, as indicated by unit root tests. For the early years, the quality of the available data presents some serious problems.

We find that the leading indexes and the short-term interest rate have strong effects on output. The monetary effects are reduced greatly when these variables are included. Most variables depend more on their own lagged values than on any other factors, but this is not true of the rates of change in output and the composite leading indexes. We note and discuss some interesting interperiod differences.

A Behavioral Approach to Compliance: OSHA Enforcement's Impact on Workplace Accidents

Wayne B. Gray and **John T. Scholz**
Working Paper No. 2813
January 1989
JEL Nos. 913, 619

Using data on injuries and OSHA inspections for

6842 manufacturing plants between 1979 and 1985, this study tests for the effects of OSHA enforcement. We use measures of general deterrence (expected inspections at plants like this one) and specific deterrence (actual inspections at this plant). We find that both measures of deterrence affect accidents, with a 10 percent increase in inspections with penalties predicted to reduce accidents by 2 percent. The existence of specific deterrence effects, the importance of lagged effects, the asymmetrical effects of probability and amount of penalty on accidents, and the tendency of injury rates to self-correct over a few years support a behavioral model of the firm's response to enforcement rather than the traditional "expected penalty" model of deterrence.

Tax Policy, Housing Prices, and Housing Investment

Lawrence H. Goulder
Working Paper No. 2814
January 1989
JEL Nos. 323, 932

This paper uses a general equilibrium model to assess the effects of major components of the Tax Reform Act of 1986 on the performance of housing and other industries. The model considers both short-term and long-term effects on housing demands, house values, and investment in housing. The results indicate that in the short run, the recent cuts in corporate tax rates, elimination of investment tax credits, and scaling back of depreciation deductions together have negative implications for investment in nonresidential capital but positive effects on housing investment. This mainly reflects the fact that prior to the 1986 tax reforms, investment tax credits and favorable depreciation rules disproportionately benefited nonhousing industries: thus, their removal especially affects industries other than housing and helps to "crowd in" housing investment. Over the long term, however, the tax changes imply lower investment in housing as well as in other types of capital. The reduced housing investment stems from adverse effects of the reforms on aggregate output and real income.

Should Nations Learn to Live with Inflation?

Stanley Fischer and Lawrence H. Summers
Working Paper No. 2815
January 1989

It often is argued that the most important costs of inflation can be mitigated substantially by indexing reforms. Yet governments in moderate inflation countries generally have been very reluctant to promote institutional changes that would reduce the costs of inflation. Capital income continues to be taxed on a nominal basis, indexed bonds are a rarity, typical mortgage contracts keep nominal rather than real payments constant, and interest is not paid on required reserves.

This paper examines the welfare consequences of inflation mitigation measures in the context of dynamic consistency theories of the determination of the inflation rate. Our general conclusion is that recognizing the effects of inflation mitigation measures on the choice of the inflation rate substantially undercuts the welfare case in their favor. It is easy to construct examples in which such measures actually reduce welfare. The case for indexing measures is strongest in settings where governments already have strong anti-inflation reputations, cannot precisely control the inflation rate, and can offset the effects of unanticipated inflation without reducing the costs of anticipated inflation. Conversely, the case for inflation mitigation measures is weakest where governments lack strong reputations, can control the inflation rate, and where indexing makes it easier to live with anticipated inflation.

The Health and Earnings of Rejected Disability Insurance Applicants

John Bound
Working Paper No. 2816
January 1989
JEL Nos. 813, 915

Applicants for Social Security Disability Benefits who fail to pass the medical screening make up a natural "control" group for beneficiaries. Data drawn from the 1972 and 1978 surveys of the disabled done for the Social Security Administration show that fewer than 50 percent of rejected male applicants work. Typical earnings of those who work are less that 50 percent of median earnings for other men their age. These data cast doubt on recent econometric work that suggests that the disincentive effects of disability insurance have been substantial.

On the Divergence In Unionism among Developed Countries

Richard B. Freeman
Working Paper No. 2817
January 1989

This paper explores the evolution of unionism in the 1970s and 1980s, when the world economy after the oil shocks created a "crisis of unionism" throughout the western world. I try to explain why union representation of work forces fell in some countries but not in

others, and I contrast different union responses to the challenge of the period. I find that rates of unionization diverged greatly among developed countries. The composition of union members shifted from private sector, blue collar workers to public sector and white collar workers in all countries, producing increased divisions within union movements by category of worker. Changes in the industrial composition of employment, changes in public attitudes toward unionism, and the growth of governmental protection of labor do not explain the divergence in density. Differing rates of inflation contributed to the divergence, with unions doing better in countries with high inflation. In addition, unemployment raised density in settings where unions disperse unemployment benefits. The primary reason for the divergence is differences in the incentives and opportunities that different industrial relations systems provide employers to oppose unions. Unions fared best in neocorporatist settings and worst in settings where decentralized bargaining created a strong profit incentive for managers to oppose unions and where management was relatively free to act on that incentive. Union organizations and modes of operating changed significantly in some countries, with declining or endangered unionism, but not in others. Most strikingly, if 1980s trends continue, the West will be divided between countries with strong trade union movements operating in a neocorporatist system, as in Scandinavia, and countries with "ghetto unionism" will be limited to special segments of the work force, as in the United States.

A Markov Model of Heteroskedasticity, Risk, and Learning in the Stock Market

Charles R. Nelson, Richard Startz,
and **Christopher M. Turner**
Working Paper No. 2818
January 1989
JEL No. 313

Risk premiums in the stock market are assumed to move with time-varying risk. We present a model in which the variance of the excess return of a portfolio depends on a state variable generated by a first-order Markov process. We estimate a model in which the realization of the state is known to economic agents but unknown to the econometrician. The parameter estimates imply that the risk premium declines as the variance of returns rises. We then extend the model to allow agents to be uncertain about the state. Agents make their decisions in period t, using a prior distribution of the state based only on past realizations of the excess return through period $t-1$, plus knowledge of the structure of the model. The parameter estimates from this model are consistent with asset pricing theory.

Budget Deficits, Tax Incentives, and Inflation: A Surprising Lesson from the 1983-4 Recovery

Martin Feldstein and **Douglas W. Elmendorf**
Working Paper No. 2819
January 1989
JEL Nos. 320, 310

The first two years of the economic expansion that began in 1983 were unusually strong and were accompanied by better inflation performance than would have been expected on the basis of experience in past recoveries. Our evidence contradicts the popular view that the recovery was the result of a consumer boom financed by reductions in the personal income tax. We also find no support for the proposition that the recovery reflected an increase in the supply of labor induced by the reduction in personal marginal tax rates.

The driving force behind the recovery of nominal demand was the shift to an expansionary monetary policy. The rapid expansion of nominal GNP can be explained by monetary policy without any reference to changes in fiscal and tax policy. But the growth of real GNP was more rapid than would have been expected on the basis of the rise in total nominal spending, and the increase in the price level was correspondingly less. The most likely cause of this favorable division of the nominal GNP increase was the sharp rise in the dollar that occurred at this time.

Although part of the dollar's rise can be attributed to the successful anti-inflationary monetary policy, the dollar also increased because of the rise in real interest rates that resulted from the combination of the increase in anticipated budget deficits and the improved tax incentives for investment in equipment and structure.

Thus, expansionary fiscal policy did contribute to the greater-than-expected rise of real GNP in 1983-4, but it did so through an unusual channel. The fiscal expansion raised output because it caused a favorable supply shock to prices and not because it was a traditional stimulus to demand. The budget deficit and investment incentives were expansionary in the short run because, by causing a rise of the dollar, they reduced inflation and thus permitted a faster growth of real GNP.

Imperfect Annuity Markets, Unintended Bequests, and the Optimal Age Structure of Social Security Benefits

Martin Feldstein
Working Paper No. 2820
January 1989
JEL No. 915

The Social Security program now provides a constant real benefit throughout each retiree's lifetime.

This paper asks whether total welfare would rise if benefits were lower in early retirement years (when most individuals have some saving with which to finance consumption) and higher in later years (when the uncertainty of survival and the absence of actuarially fair private annuities makes the availability of Social Security benefits more important).

The analysis shows that there is a potentially important difference between the structure of benefits that would be preferred by the current population of workers and retirees and the structure of benefits that would maximize the steady-state level of social welfare. This difference reflects the role of unintended bequests.

The provision of higher benefits to older retirees reduces individually optimal savings and therefore the level of unintended bequests. While those bequests may have no value to the retirees, they are clearly of value to the young workers who will receive those bequests. More generally, the system of level benefits raises the steady-state level of the capital stock and of total real income.

This paper provides an explicit analysis of a case in which the current workers want benefits to increase with age while the Social Security system that maximizes steady-state welfare would provide higher benefits to young retirees than to the very old.

On the Possibility of
Price-Decreasing Bubbles

Philippe Weil
Working Paper No. 2821
January 1989

It is often argued that a rational bubble, because it is positive, must increase the price of a stock. In general this argument is not valid: as soon as bubbles affect interest rates, the fundamental value of a stock will depend on whether or not a bubble is present. Then the existence of a rational bubble, by raising equilibrium interest rates, might depress the fundamental to such an extent that the sum of the positive bubble and the decreased fundamental falls short of the fundamental, no-bubble price. Under conditions made precise in this paper, there can be price-decreasing bubbles and an asset can be "undervalued."

Money, Time Preference, and
External Balance

Philippe Weil
Working Paper No. 2822
January 1989

In monetary economies, international differences in rates of time preference in general do not lead to long-run trade imbalances, in sharp contrast to Buiter's (1981) results on nonmonetary overlapping-generation economies. I document this claim in the context of a simple two-country framework in which new immortal families enter each economy over time, and the two countries differ only in their subjective discount rates. Even if consumers are more "impatient" at home than abroad, trade is balanced in the long run in the presence of a constant supply of valued fiat currencies, and the current account is indeterminate.

Money, Credit, and Business Fluctuations

Joseph E. Stiglitz
Working Paper No. 2823
January 1989
JEL No. 310

This paper provides a critique of standard theories of money, in particular those based on money as a medium of exchange. Money is important because of the relationship between money and credit. The process of judging creditworthiness, in which banks play a central role, involves the collection and processing of information. Like many other economic activities involving information, these processes are not described well by means of standard production functions. Changes in economic circumstances can have marked effects on the relevance of previously accumulated information and, accordingly, on the supply of credit. Changes in the availability of credit may have marked effects on the level of economic activity, while changes in real interest rates seem to play a relatively minor role in economic fluctuations. This alternative view has a number of implications for policy, both at the macroeconomic level (for instance, on the role of monetary policy for stabilization purposes and the choice of targets) and at the microeconomic level.

Risk Aversion and Intertemporal Substitution in the Capital Asset Pricing Model

Alberto Giovannini and **Philippe Weil**
Working Paper No. 2824
January 1989

When tastes are represented by a class of generalized isoelastic preferences that—unlike traditional Von Neumann preferences—do not confuse behavior toward risk with attitudes toward intertemporal substitution, the true *beta* of an asset in general is an average of its consumption and market *betas*. We show that the two parameters measuring risk aversion and intertemporal substitution affect consumption and portfolio

allocation decisions in symmetrical ways. A unit elasticity of intertemporal substitution gives rise to myopia in consumption–saving decisions (the future does not affect the optimal consumption plan), while a unit coefficient of relative risk aversion gives rise to myopia in portfolio allocation (the future does not affect optimal portfolio allocation). The empirical evidence is consistent with the behavior of intertemporal maximizers who have a unit coefficient of relative risk aversion and an elasticity of intertemporal substitution different from one.

Money Stock Targeting, Base Drift, and Price Level Predictability: Lessons from the U.K. Experience

Michael D. Bordo, Ehsan U. Choudhri, and **Anna J. Schwartz**
Working Paper No. 2825
January 1989

There is some controversy as to whether money stock targeting without base drift (that is, following a trend-stationary growth path) makes the price level more predictable in the presence of permanent shocks to money demand. Developing a procedure that does not run into the Lucas critique, and applying this procedure to the case of the United Kingdom, we find that the variance of the trend inflation rate in the United Kingdom would have been reduced by more than one-half if the Bank of England had not allowed base drift.

The General Equilibrium Effects of Inflation on Housing Consumption and Investment

James Berkovec and **Don Fullerton**
Working Paper No. 2826
January 1989
JEL No. 323

In a mean-variance portfolio choice model, we calculate preferences for each of 3578 households from the 1983 Survey of Consumer Finances among housing, other consumption, and risk. Each household is constrained to have any owner-occupied housing in its portfolio match its housing services consumed. We model corporate taxes in some detail and use regression coefficients to estimate the adjusted gross income, itemizable deductions, and statutory marginal tax rate of each household.

The results of our general equilibrium simulation indicate that inflation does not necessarily increase total owner housing. Top-bracket households increase their owner housing, while others switch into bonds. The greater number of households in low brackets implies that the homeownership rate can fall even if the amount of owner housing rises.

Pregnancy Resolution as an Indicator of Wantedness and Its Impact on the Initiation of Early Prenatal Care

Theodore J. Joyce and **Michael Grossman**
Working Paper No. 2827
January 1989
JEL No. 841

This study examines the impact of the "wantedness" of a pregnancy on the demand for early prenatal care. Past attempts to address this question have depended on the self-assessments of women as to whether they wanted their pregnancy and the subsequent birth. Our approach can be described as a form of revealed preference in which only those pregnancies that are voluntarily terminated by induced abortion are considered to be unwanted.

Using a cohort of pregnant women in New York City, we estimate a demand function for prenatal care in which we control for the probability of giving birth, knowing that a woman is pregnant. We interpret this control as a measure of wantedness.

The results indicate that if the black and Hispanic women who aborted had instead given birth, they would have delayed the initiation of prenatal care over three-quarters of a month longer on average than the mean number of months of delay that were actually observed for the women who gave birth. By allowing women to terminate an unwanted pregnancy, induced abortion *increases* the average utilization of prenatal care among black and Hispanic women relative to what would have been observed if the women who aborted had instead given birth.

Exchange Rate Hysteresis: The Real Effects of Large versus Small Policy Misalignments

Richard Baldwin and **Richard Lyons**
Working Paper No. 2828
January 1989

Using the sticky-price monetary model of exchange rate determination and the sunk cost model of trade hysteresis, we show that a sufficiently large policy misalignment can induce hysteresis in the trade balance and thereby alter the steady-state real exchange rate. In our model, exchange rate dynamics are path dependent, purchasing power parity need not hold, and money need not be neutral, even in the very long run.

We present only positive analysis but conjecture that the results have strong welfare, policy, and econometric implications. Since hysteresis in our model can entail industrial dislocation and the scrappage of sunk assets, we suggest that these factors may constitute a welfare cost of large policy misalignments that have

not been considered formally. On the policy side, one could argue sensibly against the dollar volatility of the 1980s without arguing at the same time for a return to a formal exchange rate regime (because 1980s-size swings may involve welfare costs that 1970s-size swings do not). Last, since the long-run exchange rate is path dependent, standard empirical tests of exchange rate models may be misspecified.

The Equity Premium Puzzle and the Risk-Free Rate Puzzle

Philippe Weil
Working Paper No. 2829
January 1989

This paper studies the implications for general equilibrium asset pricing of a recently introduced class of Kreps–Porteus unexpected utility preferences, which is characterized by a constant intertemporal elasticity of substitution and a constant, but unrelated, coefficient of relative risk aversion.

I show that for plausibly calibrated parameter values, the solution to the "equity premium puzzle" documented by Mehra and Prescott (1985) cannot be found simply by separating risk aversion from intertemporal substitutution. Rather, relaxing the parametric restriction on tastes implicit in the time-addictive expected utility specification and adopting Kreps–Porteus preferences in the direction of "more realism" is likely to add a "risk-free rate puzzle" to Mehra and Prescott's "equity premium puzzle."

Wages, Employer Costs, and Employee Performance in the Firm

Harry J. Holzer
Working Paper No. 2830
January 1989
JEL No. 820

This paper uses data from a survey of firms to estimate the effects of a firm's wage level on several measures of its hiring costs and the characteristics and performance of its employees. These measures include: the previous experience and current tenure of its employees; subjective productivity scores for these employees; job vacancy rates; perceived ease of hiring qualified workers for the firm; and hours spent hiring and training new workers. I distinguish the case of high wages imposed on a firm by unions from the case of the firm choosing its wage level in order to maximize profits. I also provide some rough measures of the extent to which firms offset their high wage costs in each case.

The results show that firm wages generally have positive effects on employee experience and tenure as well as on subjective productivity scores. The firm's wages generally have negative effects on job vacancy rates and positive effects on the perceived ease of hiring qualified workers. Higher wages also reduce training time. While the magnitude of each individual effect may not always be large, or even significant, their combined effects suggest that firms offset a good deal of their higher wage costs through improved productivity and lower hiring and turnover costs among their employees.

Disability Status as an Unobservable: Estimates from a Structural Model

Robert H. Haveman, Fung Mey Huang,
and **Barbara L. Wolfe**
Working Paper No. 2831
January 1989

We propose an index of "true disability" by treating disability status as an unobservable phenomenon that is causally related to a number of exogenous individual characteristics and is correlated with a number of observed indicators of health, impairment, and qualifications for employment.

First, we define true disability and distinguish it from related concepts. Then we discuss the importance of an objective and reliable measure of disability for research on the determinants of behavior. Next, we present the specification of our structural model for estimating true disability as a latent variable. Finally, we report the results of our estimation in a simple model of labor force participation and compare the effect of using the constructed index and a self-reported disability measure on understanding the determinants of behavior and choice.

Venture Capital and Capital Gains Taxation

James M. Poterba
Working Paper No. 2832
January 1989
JEL Nos. 323, 521

This paper investigates the links between capital gains taxation and the level of venture capital activity. I examine two explanations of how reducing the personal capital gains tax rate may spur venture capital: the first focuses on the supply of funds to the venture industry, and the second on the supply of entrepreneurs.

The supply of funds is unlikely to be the principal mechanism through which the tax affects venture capital, since less than half of venture investors face indi-

vidual capital gains tax liability on their realized gains. Moreover, most of the growth in venture funding during the last decade has come from tax-exempt investors. However, individual capital gains taxes may have a significant influence on the demand for venture funds. These taxes have an important impact on the incentives of entrepreneurs and other employees of start-up firms who forgo wage and salary income and accept compensation through corporate stock and options.

The paper concludes by noting that reducing the tax rate on all gains is a relatively blunt device for encouraging venture investment. Venture investments account for less than 1 percent of realized capital gains.

Lifetime Incidence and the Distributional Burden of Excise Taxes

James M. Poterba
Working Paper No. 2833
January 1989
JEL Nos. 320, 323

Lifetime income is less variable than annual household income, since the latter reflects transitory shocks to wages, family status, and employment. This implies that households with low income in one year have some chance of being households with higher income in other years. This also significantly affects the estimated distributional burden of excise taxes.

I show that household expenditures on gasoline, alcohol, and tobacco as a share of total consumption (a proxy for lifetime income) are distributed much more equally than expenditures as a share of annual income. Therefore, from a longer-horizon perspective, excise taxes on these goods are much less regressive than standard analyses suggest.

A Time-Series Analysis of Unemployment and Health: The Case of Birth Outcomes in New York City

Theodore J. Joyce
Working Paper No. 2834
January 1989
JEL No. 913

This paper presents an aggregate time-series analysis of unemployment and infant health that improves on previous work in several ways. First, the data are monthly, as opposed to annual; they pertain to New York City from January 1970 to December 1986. Second, I estimate a structural production function in which the race-specific percentage of low-birthweight births is the health outcome. Because I am able to control for the race-specific percentage of women who begin care

in the first trimester, as well as for the percentage of births to unmarried mothers, I can use the unemployment rate as a proxy for maternal stress in the production function as one of a set of well-defined health inputs. Third, because a pregnancy is limited to ten months at most, I can specify a lag length with confidence. Fourth, I test the data for stationarity and estimate the production function in levels as well as in deviations from trend. I find no cyclical variation in the percentage of low-birthweight births. The results are insensitive to changes in lag length, the omission of relevant inputs, and the functional form of the coefficients on the distributed lag.

Exchange Rate Dynamics under Stochastic Regime Shifts: A Unified Approach

Kenneth A. Froot and **Maurice Obstfeld**
Working Paper No. 2835
February 1989
JEL No. 431

We use techniques of regulated Brownian motion to analyze the behavior of the exchange rate when official policy reaction functions are subject to future stochastic changes. We examine exchange rate dynamics in alternative cases in which the authorities promise to confine a floating rate within a predetermined range and to peg the currency once it reaches a predetermined future level. We stress similarities between these and several related examples of regime switching.

How Incentive-Incompatible Deposit Insurance Funds Fail

Edward J. Kane
Working Paper No. 2836
February 1989

An incentive-incompatible deposit insurance fund (IIDIF) is a scheme for guaranteeing deposits at client institutions that deploys defective systems of information collection, client monitoring, and risk management. These defective systems encourage voluntary risk-taking by clients, and by managers and politicians responsible for administering the fund.

This paper focuses on how principal-agent conflicts and asymmetries in the distribution of information lead to myopic behavior by IIDIF managers and by politicians who appoint and constrain them. Drawing on data developed in legislative hearings and investigations and in depositions, the paper documents that managers of IIDIFs in Ohio and Maryland knew well in advance of their funds' 1985 failures that important clients were both economically insolvent and engaging in inappropriate forms of risk-taking. It also estab-

lishes that staff proposals for publicizing and bringing these clients' risk-taking under administrative control were rejected repeatedly.

The analysis has a forward-looking purpose. Congress and federal regulators have managed the massively undercapitalized Federal Savings and Loan Insurance Corporation (FSLIC) in much the same way that Ohio and Maryland officials did. Unless and until incentives supporting political, bureaucratic, and private risk-taking are reformed, the possibility of an FSLIC meltdown cannot be dismissed. To encourage timely intervention into insolvencies developing in a deposit insurance fund's client base, the most meaningful reforms would force the development and release of estimates of the market value of the insurance enterprise and require fund managers to use the threat of takeover to force decapitalized clients to recapitalize well before they approach insolvency.

Tax Policies for the 1990s: Personal Saving, Business Investment, and Corporate Debt

Martin Feldstein
Working Paper No. 2837
February 1989
JEL No. 323

Although the tax reforms of the 1980s lowered the excess burden caused by high marginal tax rates substantially, they also created significant adverse effects on incentives to save and to invest in business plant and equipment. Effective tax rates on real capital gains and real net interest income remain very high because the tax rules do not recognize the difference between real and nominal magnitudes. These high effective tax rates discourage personal saving. This paper discusses a number of ways in which the tax law could be modified to encourage more saving and less borrowing.

Existing tax rules bias corporate decisions in favor of debt finance relative to equity finance and in favor of investments in intangible assets (such as advertising, consumer goodwill, and R and D) relative to investments in plant and equipment. This paper discusses the use of a cash flow corporate tax (with complete expensing of investment and no deduction for interest payments) as a way of remedying both of these biases in our current tax law.

The Case Against Trying to Stabilize the Dollar

Martin Feldstein
Working Paper No. 2838
February 1989
JEL No. 430

Better domestic economic policies in the 15 years since the collapse of the Bretton Woods system would have prevented the extreme fluctuations of the dollar's exchange value during those years. The pursuit of policies here and abroad that are appropriate for domestic growth in the future should reduce the likelihood of such substantial exchange rate swings in the years ahead. But elevating exchange rate stability to a separate goal of economic policy could have serious adverse consequences. Trying to achieve that goal would mean diverting monetary and fiscal policies from their customary roles and thereby risking excessive inflation and unemployment and inadequate capital formation. Succeeding in the efforts to achieve dollar stability would mean harmful distortions in the balance of trade and in the international flow of capital.

Auctioning U.S. Import Quotas, Foreign Response, and Alternative Policies

Robert C. Feenstra
Working Paper No. 2839
February 1989

In this paper I quantify the potential revenue available to the United States from auctioning import quotas, and the resulting drop in foreign producer surplus relative to free trade. Previous estimates of auction revenue are in the range of $3.7-5.15 billion for 1986 or 1987. Using simulation results from computable partial or general equilibrium models, I find that this revenue gain would be at the expense of a large drop in foreign producer surplus. Ignoring textiles and apparel, the potential auction revenue is $1.3-2.15 billion, and the foreign loss is $0.5-0.7 billion relative to free trade.

One alternative to auction quotas is a system of tariff rate quotas, which are designed to keep supplier countries' welfare equal to welfare in free trade. I calculate that the tariff rate quotas could raise $0.67-1.55 billion in revenue for the United States. While this amount is less than available through auction quotas, it could still fund a significant program of worker adjustment and would mitigate the foreign response.

The Case of the Vanishing Revenues: Auction Quotas with Monopoly

Kala Krishna
Working Paper No. 2840
February 1989
JEL No. 422

This paper examines the effects of auctioning quota licenses when monopoly power exists. With a foreign

monopoly and domestic competition, the sales of licenses *never* will raise any revenue if domestic and foreign markets are segmented. More surprisingly, the inability to raise revenue persists even when partial or perfect arbitrage across markets is possible as long as the quota is not too far from the free trade import level.

In contrast, when there is a home monopoly and foreign competition, the price of a quota license can be positive, so that selling licenses can dominate giving them away. However, because of the absence of any profit-shifting, welfare falls even when licenses indeed raise revenue.

From Deficit Delusion to the Fiscal Balance Rule: Looking for an Economically Meaningful Way to Assess Fiscal Policy

Laurence J. Kotlikoff
Working Paper No. 2841
February 1989

Notwithstanding its widespread use as a measure of fiscal policy, the government deficit is not a well-defined concept from the perspective of neoclassical macroeconomics. From the neoclassical perspective, the deficit is an arbitrary accounting construct whose value depends on how the government chooses to label its receipts and payments. This paper demonstrates the arbitrary nature of government deficits. The argument that the deficit is not well defined is framed first in a simple certainty model with nondistortionary policies, and then in settings with uncertain policy, distortionary policy, and liquidity constraints. As an alternative to economically arbitrary deficits, the paper indicates that the "Fiscal Balance Rule" is one norm for measuring whether current policy will place a larger or smaller burden on future generations than it does on current generations. The Fiscal Balance Rule is based on the economy's intertemporal budget constraint and appears to underlie actual attempts to run tight fiscal policy. It says "take in net present value from each new young generation an amount equal to the flow of government consumption less interest on the difference between the value of the economy's capital stock and the present value difference between the future consumption and future labor earnings of existing older generations." While the rule is a mouthful, one can use existing data to check whether it is being obeyed and, therefore, whether future generations are likely to be trained better or worse than current generations.

Housing Wealth and Aggregate Saving

Jonathan S. Skinner
Working Paper No. 2842
February 1989
JEL Nos. 320, 930

The recent appreciation in housing value can have large effects on aggregate saving. This paper uses a simulation model to show that aggregate saving will decline substantially if life-cycle homeowners spend down their housing windfalls. However, homeowners with a bequest motive may save *more* to assist their children in buying housing that is more expensive now.

To test whether families spend their housing capital gains, I use housing, income, and consumption data from the Panel Study of Income Dynamics. While a cross-section, time-series regression implies that housing wealth does affect saving, a fixed-effects model finds no effect.

Predicting Nursing Home Utilization among the High-Risk Elderly

Alan M. Garber and **Thomas E. MaCurdy**
Working Paper No. 2843
February 1989
JEL Nos. 918, 913

This paper explores the influence of various characteristics on nursing home utilization. It examines a targeted population of elderly individuals whose poor health and lack of social supports were expected to lead to heavy use of long-term care. We develop an empirical framework based on a transition probability model to describe the frequency and duration of nursing home admissions. Using longitudinal data on the high-risk elderly enrollees of the National Long-Term Care Demonstration ("channeling" demonstration), we find that a small set of characteristics distinguish individuals who are likely to be heavy users of nursing homes from low users. The factors associated with a high likelihood of institutionalization are not identical to the health characteristics associated with high mortality; for example, the likelihood of death increases with age, but nursing home utilization does not, when functional status and other characteristics are held constant. A somewhat healthier population might have used nursing homes more heavily than the channeling participants, whose nursing home utilization was limited by high mortality.

Adequacy of International Transactions and Position Data for Policy Coordination

Lois Stekler
Working Paper No. 2844
February 1989
JEL Nos. 220, 430

This paper examines the adequacy of data on current accounts and international indebtedness as mea-

sures of the need for policy adjustments and coordination. The growth of the global current account discrepancy and the statistical discrepancy in the U.S. international transactions accounts have raised doubts about the adequacy of these data. This paper includes a brief review of the conclusions of the International Monetary Fund working party on the world current account discrepancy and a detailed examination of the data on U.S. international transactions and net investment position. Both investigations support the conclusion that large shifts in reported data on current accounts and investment positions are likely to reflect real changes.

However, even if data were completely accurate, a given current account or investment position may not indicate the magnitude of necessary policy changes clearly because of lags in the adjustment process or underlying trends. This point is illustrated by the tendency of U.S. net investment income to grow as a result of the continued expansion of both claims and liabilities combined with a higher average rate of return on claims. This underlying tendency is likely to counteract, in part, the negative impact of growing U.S. net indebtedness to foreigners on future net investment income.

Sources of IRA Saving

Daniel R. Feenberg and **Jonathan S. Skinner**
Working Paper No. 2845
February 1989
JEL No. 323

To address the question of whether Individual Retirement Accounts (IRAs) contribute to capital formation, we use the IRS/University of Michigan taxpayer sample for income tax returns during 1980-4. By matching families across a five-year period, we can estimate the dynamic interactions of IRA purchases and other types of saving, correct for individual differences, and test whether IRA purchases are offset in part by other (net) asset sales. The "reshuffling" hypothesis implies that taxpayers who enroll in IRAs should experience, over time, a drop in net taxable interest and dividend income as their taxable assets (or new loans) are used to purchase IRAs. Conversely, the "new saving" view of IRAs implies that taxable interest and dividend income should be unaffected by IRA purchases. We find little or no evidence for the view that IRAs are funded by cashing out existing taxable assets. In fact, individuals who purchased IRAs in each year from 1982-4 *increased* their asset holdings by more than those who did not purchase IRAs. In one sense, our results strongly confirm the studies by Venti and Wise, and Hubbard, that IRA saving represents new saving. Shuffling could still occur, albeit on a secondary level: families who are accumulating both taxable assets and IRAs might have accumulated even more taxable assets if IRAs had not been available.

Comovements in Stock Prices and Comovements in Dividends

Robert J. Shiller
Working Paper No. 2846
February 1989
JEL No. 313

Simple efficient markets models imply that the covariance between prices of speculative assets cannot exceed the covariance between their respective fundamentals unless there is positive information pooling. Positive information pooling occurs when there is more information, in a sense defined here, about the aggregate of the fundamentals than there is about the individual fundamentals.

With constant discount rates, the covariance between prices (detrended by dividing a moving average of lagged dividends) in the United Kingdom and the United States exceeds the covariance of the measure of fundamentals, and there is no evidence of positive information pooling. Regression tests of forecast errors in one country on a real price variable in another country show significantly negative coefficients. When the present value formula uses short rates to discount, there is less evidence of excess comovement.

Integration of Mortgage and Capital Markets and the Accumulation of Residential Capital

Patric H. Hendershott and **Robert VanOrder**
Working Paper No. 2847
February 1989
JEL No. 313

The securitization of fixed-rate mortgages suggests that the FHA/VA market was fully integrated with capital markets by the early 1980s and that the conventional market moved toward integration during the 1980s. Assuming full integration of FHA/VAs via the GNMA securitization process, we first estimate equations explaining near-par GNMA prices weekly for 1981-8. We then set the price equal to the new-issue price and, based upon the preferred equation, compute the perfect-market retail coupon rate. Next we estimate equations (for three-year segments of 1971-88) explaining conventional commitment mortgage coupon rates in terms of current and lagged values of this perfect-market coupon rate. Finally, we examine differences between the perfect-market and actual coupon rates and compute the impact of these differences on residential capital accumulation.

Precautionary Saving in the Small and in the Large

Miles S. Kimball
Working Paper No. 2848
February 1989
JEL Nos. 026, 313

This paper shows the theory of precautionary saving to be isomorphic to the Arrow–Pratt theory of risk aversion. Thus, a large body of knowledge about risk aversion may be applied to precautionary saving, and more generally, to the theory of optimal choice under risk. In particular, I use a measure of the strength of the precautionary saving motive, analogous to the Arrow–Pratt measure of risk aversion, to establish a number of new propositions about precautionary saving and to newly interpret the Dreze-Modigliani substitution effect.

A Modest Proposal for International Nominal Targeting (INT)

Jeffrey A. Frankel
Working Paper No. 2849
February 1989
JEL No. 432

This paper reviews the obstacles to successful international macroeconomic policy coordination. I then offer a proposal for coordination that is designed to have the best chance of overcoming these obstacles: an international version of nominal GNP targeting.

There are three sorts of obstacles to coordination: uncertainty, enforcement, and inflation-fighting credibility. Enforcement is always a problem for coordination, but the problem is particularly great in the presence of uncertainty. In part this is because it is difficult to verify compliance if the "performance criteria" are not directly enough under the control of the authorities. Also, a country may end up regretting ex post the criterion that it agreed to ex ante if the criterion is not related directly enough to the target variables about which it ultimately cares. For example, a country that commits to a narrow range for the money supply may regret that commitment if a shift in velocity occurs.

The time inconsistency of fighting inflation may be a third reason why policymakers would be better off renouncing period-by-period coordination of discretionary policymaking. The way to establish inflation-fighting credibility is to precommit to some nominal anchor. This paper argues that International Nominal Targeting (INT) is the best choice for nominal anchor, and the best choice for the performance criterion for monitoring compliance with international agreements. Nominal GNP (or, better yet, nominal demand) is superior to other candidates, such as M1, for the nominal variable on which policymakers should focus because it is far more robust to velocity shifts and other uncertainties.

Sovereign Debt Repurchases: No Cure for Overhang

Jeremy I. Bulow and Kenneth Rogoff
Working Paper No. 2850
February 1989
JEL No. 443

Using a reasonably general model, we show that if a highly indebted country has good investment projects available to it, then it will not benefit from using any of its resources to buy back debt at market prices. Debt buybacks and debt-equity swaps make sense for the country only if these programs are heavily subsidized by creditors. This result holds for all buyback programs, large and small, so long as they involve voluntary creditor participation and are not part of a larger deal including offsetting concessions from lenders. Therefore, our analysis casts doubt on the popular argument that unilateral debt repurchases benefit highly indebted countries by relieving "debt overhang."

Medicaid and the Cost of Improving Access to Nursing Home Care

Paul J. Gertler
Working Paper No. 2851
February 1989
JEL No. 913

This paper shows that the Medicaid program can improve the access of financially indigent patients to nursing home care by raising the rate of return paid on Medicaid patients' care, but only at the cost of lower-quality care. To quantify the policy trade-off, I derive expressions for the elasticity of access with respect to total Medicaid expenditures and the elasticity of access with respect to quality. These expressions of elasticities are complicated by the fact that Medicaid payment formulas are cost-based and therefore depend on the quality choices of nursing homes. Using New York State data, I find that a 10 percent increase in Medicaid expenditures induces a 4.1 percent increase in Medicaid patient care but also reduces nursing home expenditures on patient services by about 3.4 percent.

Money, Income, and Prices after the 1980s

Benjamin M. Friedman and Kenneth N. Kuttner
Working Paper No. 2852
February 1989
JEL Nos. 310, 311

Three empirical findings in this paper show that, based on the most recent U.S. experience, there does

not exist the kind of close or reliable relationship be-
tween money and nonfinancial economic activity that
might warrant basing the design and implementation
of monetary policy on money in a formally systematic
way.

First, extending the familiar time-series analysis to
include data from the 1980s sharply weakens the evi-
dence from prior periods, showing that such relation-
ships existed between money and nominal income, or
between money and either real income or prices consid-
ered separately. Focusing on data from 1970 onward
destroys this evidence altogether.

Second, Stock and Watson's finding that particular
forms of time-series experiments still showed a signifi-
cant role for money in affecting real output through
1985 not only becomes weaker when data from 1986
and 1987 are included but also, even for data only through
1985, turns out to depend on the use of a particular
short-term interest rate: the Treasury bill rate. Using
instead the commercial paper rate, which apparently
is superior in capturing the information in financial
prices that matters for real output, also greatly weakens
their result. Simultaneously using the commercial pa-
per rate and including data through 1987 destroys it
altogether.

Third, extending the analysis through 1987 also de-
stroys the time-series evidence from earlier periods,
showing that money and income are cointegrated.
Even if monetary policy were to be conducted in terms
of targets for money growth, the failure of money and
income to be cointegrated means that there is no em-
pirical ground for resisting the "base drift" that results
from persistent random differences between actual
money growth and the corresponding target.

Second Mortgages and Household Saving

Joyce M. Manchester and **James M. Poterba**
Working Paper No. 2853
February 1989

Second mortgages accounted for 10.8 percent of the
stock of outstanding mortgage debt at the end of 1987,
up from 3.6 percent at the beginning of the 1980s. This
paper investigates the determinants of second mort-
gage borrowing and the characteristics of second mort-
gage borrowers.

We first calculate the outstanding stock of home equi-
ty that remains to be borrowed against on tax-preferred
terms, recognizing the limits on interest deductions in
the 1986 Tax Reform Act and the 1987 Omnibus Budget
Reconciliation Act. Despite these limits, we estimate
that more than $2 million of housing equity remains to
be borrowed against by current homeowners.

We then present cross-sectional evidence suggest-
ing that households that obtain second mortgages
after purchasing a home are less wealthy than other

households with similar characteristics. Each dollar of
second mortgage borrowing is associated with a 75-
cent reduction in household net worth. While these
results cannot be given a causal interpretation, they
are consistent with the view that increased access to
second mortgages has reduced personal saving.

Determining the Impact of Federal Antidiscrimination Policy on the Economic Status of Blacks: A Study of South Carolina

James J. Heckman and **Brook S. Payner**
Working Paper No. 2854
February 1989

This paper assesses the contribution of federal an-
tidiscrimination policy to the dramatic improvement in
black economic status in manufacturing that occurred
in South Carolina in the mid-1960s. Using a unique
data source on wages and employment by race and
sex in South Carolina, we evaluate competing explana-
tions. Human capital, supply shift, and a tight labor
market do not account for the black breakthrough. Our
study shows that federal antidiscrimination programs
made a significant contribution.

A Cross-Country Study of Growth, Saving, and Government

Robert J. Barro
Working Paper No. 2855
February 1989
JEL Nos. 110, 023

Models of endogenous economic growth can gener-
ate long-term growth without relying on exogenous
changes in technology or population. One general fea-
ture of these models is the presence of constant or in-
creasing returns in the factors that can be accumulated.
I use models of this type to study the determination of
per capita growth, investment in physical and human
capital, and population growth. The determinants of
these variables involve aspects of government policy—
including public infrastructure services, maintenance
of property rights, government consumption, and tax-
ation—and the initial level of per capita income.

I examine the predicted relationships by using a cross-
country sample that expands on the Summers–Heston
set of about 120 countries. Aside from their data on lev-
els of per capita GDP and the breakdown of GDP into
components, I have added information about the com-
position of government expenditures, proxies for eco-
nomic freedom and property rights, measures of polit-
ical stability, and so on. This expansion in variables
reduced the number of countries to 72.

The findings verify some of the predictions about the

determination of growth and investment/saving rates. For example, government consumption and investment spending, and proxies for economic freedom, show up as suggested by the models. Also, the interplay among population growth, investment in human capital (school enrollment), and the initial level of per capita income confirm theoretical predictions about the trade-off between the quantity and quality of children.

Quantifying International Capital Mobility in the 1980s

Jeffrey A. Frankel
Working Paper No. 2856
February 1989
JEL Nos. 430, 441

The Feldstein–Horioka finding, that national saving and investment have been highly correlated in the past, was not caused by econometric problems, such as endogenous fiscal policy. It held up equally well when instrumental variables were used. But the inflow of capital to the United States has been so large in recent years that an updating of the sample period to 1987 produces a coefficient on national saving that is lower than in past studies. This decline in the degree of crowding out of investment can be attributed to the increased degree of financial market integration in the 1980s. Capital controls and other barriers to the movement of capital across national borders remained for such countries as the United Kingdom and Japan as recently as 1979, and for France and Italy as recently as 1986. However, a new dataset of forward exchange rates for 25 countries shows that a continuing worldwide trend of integration of financial markets in the 1980s had all but eliminated short-term interest differentials for major industrialized countries by 1988.

It is only the *country premium* that has been eliminated, though. This means that only *covered* interest differentials are small. Nominal and real exchange rate variability remain, and indeed were larger in the 1980s than in the 1970s. The result is that a *currency premium* remains, consisting of an exchange risk premium plus expected real currency depreciation. I test and reject the popular null hypothesis: that expected real depreciation is constant at zero, with a 119-year sample. (Post-1973 datasets do not allow enough observations to provide a useful test of this null hypothesis.) The existence of expected real depreciation means that, even if interest rates are equalized internationally when expressed in a common currency, large differentials in *real* interest rates remain. Investors have no incentive to arbitrage away such differentials. Because there is no force tying the domestic real interest rate to the world real interest rate, it follows that there is no reason to expect any country's shortfalls of national saving to be completely financed by borrowing from abroad.

Trends in Worker Demand for Union Representation

Henry S. Farber
Working Paper No. 2857
February 1989
JEL No. 830

I investigate the dramatic decline in the demand for union representation among nonunion workers over the last decade using data from four surveys conducted in 1977, 1980, 1982, and 1984. Relatively little of the decline can be explained by shifts in labor force structure. However, virtually all of the decline is correlated with an increase in the satisfaction of nonunion workers with their jobs and a decline in nonunion workers' beliefs that unions are able to improve wages and working conditions.

Employment, Unemployment, and Demand Shifts in Local Labor Markets

Harry J. Holzer
Working Paper No. 2858
February 1989

This paper analyzes the effects of demand shifts within and between local labor markets on unemployment and employment levels and on the changes observed in those markets. I measure between-market demand shifts by the means of sales growth for firms in each market; within-market shifts are measured by the variances in each. The variances also are decomposed into between-industry and within-industry components. I also present some firm-level evidence on job applicants, training, and wage and employment adjustments in growing and declining firms.

The results show that demand shifts between markets account for large fractions of the observed variation in unemployment and employment rate levels and changes across markets. Within-area shifts cause much smaller and insignificant amounts of unemployment if they are between-industry, while shifts within areas and industries (accounting for the vast majority of demand shifts across firms) have no clear effects. Therefore, the results suggest that the unemployment effects of demand shifts depend on adjustment costs, which appear to be greatest for shifts between markets. Nonlinearities in estimated effects and growing dispersion of unemployment rates across areas also suggest that demand shifts may have raised aggregate unemployment in the United States in recent years.

But They Don't Want to Reduce Housing Equity

Steven F. Venti and **David A. Wise**

The majority of the wealth of most elderly is in the form of housing equity. It is often claimed that many elderly would transfer wealth from housing to finance current consumption expenditure if it were not for the large transaction costs associated with changes in housing equity. This is the rationale for a market in reverse annuity mortgages.

This paper considers whether transaction costs—understood to include the psychic costs associated with leaving friends, family surroundings, and the like—prevent the elderly from making choices that would improve their financial circumstances. The analysis jointly considers the probability that an elderly family will move and the housing equity that is chosen when a move occurs. The results are based on the decisions of the Retirement History Survey sample between 1969 and 1979.

Relative to the potential gains from a reallocation of wealth between housing equity and other assets, transaction costs are very large. Nonetheless, the effect on the housing equity of the elderly is very small. On balance, if all elderly moved and chose optimum levels of housing equity, the amount of housing equity would be increased slightly. Most elderly are not liquidity constrained. Contrary to standard formulations of the life-cycle hypothesis, the typical elderly family has no desire to reduce housing equity. The desired reduction of housing equity is largest among families with low income and high housing wealth, but even in this case the desired reductions are rather small. These desired reductions are more than offset by the desired increases of other families, especially those with high income and low housing wealth. Thus, consistent with the previous findings of Venti and Wise, and of Feldstein and McFadden, limited demand may explain the absence of a market for reverse annuity mortgages.

The Impact of Government on the Economic Status of Black Americans

James J. Heckman

This paper reviews recent evidence on black economic progress. It notes that while relative status increased over 1965-81, absolute differentials in real earnings between blacks and whites widened over this period. The paper goes on to summarize recent studies of the impact of government on the economic status of black Americans. I find that educational policy has a strong effect. The evidence on affirmative action programs is mixed: there is an intrinsic bias in the methods used to find no effect of affirmative action programs. Selection bias effects do not account for more than 10-12 percent of measured wage growth of black males.

Choosing among Alternative Nonexperimental Methods for Estimating the Impact of Social Programs: The Case of Manpower Training

James J, Heckman and **V. Joseph Hotz**

The recent literature on evaluating manpower training programs demonstrates that alternative nonexperimental estimators of the same program produce an array of estimates of the program's impact. These findings have led to the call for experiments to be used to perform credible program evaluations. Missing in all of the recent pessimistic analyses of nonexperimental methods is any systematic discussion of how to choose among competing estimators.

This paper explores the value of simple specification tests in selecting an appropriate nonexperimental estimator. A reanalysis of the National Supported Work Demonstration Data, previously analyzed by proponents of social experiments, reveals that a simple testing procedure eliminates the range of nonexperimental estimators that are at variance with the experimental estimates of program impact.

Unemployment, Inflation, and Wages in the American Depression: Are There Lessons for Europe?

Ben S. Bernanke and **Martin A. Parkinson**

In this paper, we consider whether there are lessons to be drawn from the experience of the American economy during the 1930s for the current European situation. The comparison reveals some important differences: in particular, the persistence of American unemployment in the 1930s reflected to a much greater degree a sequence of large destabilizing shocks, and much less a low-level equilibrium trap, than does modern European unemployment. The self-correcting tendencies of the 1930s U.S. economy probably were much stronger than is generally acknowledged.

However, the experience of the Depression era con-

firms the modern observation that the level of unemployment does not much affect the rate of inflation—an observation that, we argue, is consistent with macroeconomic theory. The Depression experience also supports the impression that political factors are important in real wage determination.

Integration of the International Capital Markets: The Size of Government and Tax Coordination

Assaf Razin and **Efraim Sadka**
Working Paper No. 2863
February 1989
JEL Nos. 430, 320

International capital market integration has become a key policy issue in the prospective integration of Europe in 1992. This paper provides a theoretical analysis of the effects of relaxing restrictions on the international flow of capital on the fiscal branch of government: the optimal provision of public goods, the structure of taxation, and income redistribution policies. Concerning issues of interdependent economies, the paper analyzes the scope of tax coordination.

The major findings are: 1) with no administrative barriers to capital flows, the optimal policy is to tax income from investment abroad and from investments at home at the same time; 2) the cost of public funds falls and the supply of public goods rises if restrictions on international capital flows are relaxed; 3) the amount of income redistribution increases with the international capital market liberalization; 4) some minimal degree of tax coordination (such as origin-based or source-based tax schemes) is essential for the existence of an equilibrium in an integrated world economy.

Adverse Selection in Credit Markets and Infant Industry Protection

Harry Flam and **Robert W. Staiger**
Working Paper No. 2864
February 1989
JEL Nos. 411, 422

This paper considers the role for infant industry protection when credit markets suffer from adverse risk selection. We show that asymmetric information about firm-specific risk leads to underfunding of the infant industry in a competitive credit market. A small amount of infant industry protection is welfare-improving, and we derive the optimal infant industry tariff. Finally, we consider an alternative government policy of production subsidies under the assumption that the government shares private knowledge with infant industry firms. We argue that a tariff may dominate production subsidies as an entry-promoting device in this context.

Facts and Factors in the Recent Evolution of Business Cycles in the United States

Victor Zarnowitz
Working Paper No. 2865
February 1989
JEL No. 130

A reexamination of the data indicates a great diversity of cyclical experience in both the distant past and in recent history, but also a distinct moderation of the business cycle in the postwar era (shorter and milder contractions). This is consistent with long and widely held views, but contrary to some recent claims.

This paper presents a list of possible sources of the moderation and examines several hypotheses. There is evidence that some structural shifts (in employment, not in the consumption–investment mix) had a net stabilizing influence. Institutional changes helped mainly by improving the functioning of the financial system. Automatic fiscal stabilizers played an important role. It is difficult to grade the record of macroeconomic policies because it is very mixed, and the active and passive elements on policy are both important and intermingled. Historical assessments and statistical tests suggest that this is true for both fiscal and monetary actions, which were often mistimed, misestimated, or mismatched. Still, some net stabilization was probably achieved. Also, the moderation of the business cycle itself induced some positive changes in expectations and behavior of private economic agents.

Most of these factors worked better in the first than in the second half of the postwar period, when cyclical instability increased along with rises in the levels and variability of inflation and interest rates.

Devaluation Crises and the Macroeconomic Consequences of Postponed Adjustment in Developing Countries

Sebastian Edwards and **Peter Monteil**
Working Paper No. 2866
February 1989

This paper develops our analytical model to explore the relationship between the dynamics of macroeconomic adjustment and the timing of the implementation of an adjustment program featuring an official devaluation. The effects of postponing adjustment depend on the source of the original shock. In the case of fiscal expansion, postponement implies a larger eventual official devaluation and greater deviations of macroeconomic variables from their steady-state values. For adverse terms-of-trade shocks, postponement does not affect the size of the eventual official devaluation but does magnify the amount of post-devaluation overshooting by key macroeconomic variables.

Dealing with Debt: The 1930s and the 1980s

Barry J. Eichengreen and **Richard Portes**
Working Paper No. 2867
February 1989
JEL Nos. 433, 441

This paper analyzes the sovereign defaults of the 1930s and their implications for the debt crisis of the 1980s. It reports nine major findings. 1) There is little evidence that financial markets have grown more sophisticated over time, or that banks have a comparative advantage over the bond market in processing information. 2) Debt default in the 1930s depended on a combination of factors, including the magnitude of the external shock, the level of debt, and the economic policy response, as well as on a range of noneconomic considerations. 3) Countries that interrupted service recovered more quickly from the Great Depression than countries that resisted default. This contrasts with the experience of the 1980s, when no clearcut relationship exists. 4) There is little evidence that countries that defaulted in the 1930s subsequently suffered inferior capital market access. 5) The readjustment of defaulted debts was protracted: the analogy with Chapter 11 corporate bankruptcy proceedings is no more applicable to the 1930s than to the 1980s. 6) Although default in some cases led to a substantial reduction of transfers from debtors to creditors, returns on sovereign loans on balance compared favorably with returns on domestic investments. 7) Creditor-country governments did more in the 1930s than in the 1980s to accelerate the settlement process. 8) Global schemes analogous to the Baker Plan were proposed widely but never implemented. 9) In contrast, market-based debt reduction in the form of debt buybacks played a useful role in the resolution of the crisis.

Inward versus Outward Growth Orientation in the Presence of Country Risk

Joshua Aizenman
Working Paper No. 2868
February 1989
JEL No. 400

This paper models the role of trade dependency in determining the access of a developing economy to the international credit market and its desirable growth strategy. With full integration of capital markets, the choice with respect to the inwardness of a technology is irrelevant: investment will be channeled to the more productive sectors, independently of their trade inwardness. With limited capital market integration, a given investment will generate two effects. The first is the standard, direct productivity effect that is associated with the change in future output. The second is the trade dependency externality, generated by the change in future bargaining outcomes caused by the change in the trade dependency of the nation. With partial integration, investment that increases trade dependency is desirable. If the credit markets are disjoint because of partial defaults, higher trade dependency is disadvantageous. Thus, higher trade dependency generates a positive externality with partial integration of capital markets, and a negative externality with disjoint credit markets. We show that credit market integration is determined by the size of the indebtedness relative to the trade dependency, as reflected by the repayment burden that is supported by the bargaining outcome. The repayment bargaining outcome is determined by the sectorial composition of the economy and by the effective size of the developing and the developed economies.

Dynamic Seigniorage Theory: An Exploration

Maurice Obstfeld
Working Paper No. 2869
February 1989
JEL Nos. 134, 321

This paper shows that the optimal extraction of seigniorage implies a strong tendency for inflation to fall over time toward its socially optimal level. I make the point using a multiperiod model in which: the government can finance deficits through bond issue or money creation; private sector expectations are rational; and the government sets the inflation rate each period in a discretionary manner. The model may be viewed as a synthesis of the "tax-smoothing" theory of government deficits, which predicts that the inflation tax approximately follows a martingale, and of models of discretionary policymaking that predict (absent reputation effects) that inflation is likely to exceed its socially optimal level. Both predictions are modified when the two approaches to explaining inflation are merged. Reputation effects play no role in the analysis.

The Employer Size-Wage Effect

Charles C. Brown and **James L. Medoff**
Working Paper No. 2870
March 1989
JEL No. 824

We consider six explanations for the positive relationship between employer size and wages—that large employers: 1) hire higher-quality workers; 2) offer inferior working conditions; 3) use high wages more than smaller employers do to forestall unionization; 4) are more able to pay high wages; 5) face smaller pools of applicants relative to vacancies; and 6) are less able to monitor their workers. We find some support for the first of these explanations, but there remains a significant wage premium for those working for large employers.

Recent Trends in Insured and Uninsured Unemployment: Is There an Explanation?

Rebecca M. Blank and **David Card**
Working Paper No. 2871
March 1989
JEL No. 822

This paper presents new evidence on the reasons for the recent decline in the fraction of unemployed workers who receive unemployment insurance benefits. Using samples of unemployed workers from the March Current Population Survey, we estimate the fraction of unemployed workers who are potentially eligible for benefits in each year and compare this to the fraction who actually receive benefits. Perhaps surprisingly, we find that the decline in the fraction of insured unemployment is caused by a decline in the takeup rate for benefits. Our estimates indicate that takeup rates declined abruptly between 1980 and 1982, leading to a decline of six percentage points in the fraction of the unemployed who receive benefits.

We go on to analyze the determinants of the takeup rate for unemployment benefits, using both aggregated space-level data and microdata from the Panel Study of Income Dynamics. Changes in the regional distribution of unemployment account for roughly one-half of the decline in average takeup rates. The remainder of the change is largely unexplained.

Private Sector Training and Its Impact on the Earnings of Young Workers

Lisa M. Lynch
Working Paper No. 2872
March 1989

While there have been numerous studies devoted to examining the impact of governmental training programs on workers who have experienced difficulties in the labor market, there has been remarkably little research on the actual occurrence and consequences of training provided by the private sector in the United States. Using data from the new National Longitudinal Survey youth cohort, this paper analyzes how personal characteristics, including unemployment histories, and local demand conditions determine the probability of receiving training and its effect on wages and wage growth of young workers. More specifically, this paper considers the relative importance of training and tenure for wage determination, and the rate of return to training provided by companies compared to the rate of return to schooling and training received outside the firm. I also investigate the portability of company training from employer to employer and the existence of differentials in the returns to training by union status, race, and sex.

International Effects of Tax Reforms

Jacob A. Frenkel and **Assaf Razin**
Working Paper No. 2873
March 1989
JEL No. 430

This paper highlights the significance of open-economy considerations in the analysis of tax reforms. It focuses on domestic and international consequences of revenue-neutral conversions between income tax systems and value-added tax systems.

The principal conclusion is that the direction of changes in the world rate of interest, the domestic tax-adjusted rate of interest, domestic and foreign investment, growth rates of consumption, and other key macroeconomic variables affected by revenue-neutral tax reforms depend on whether the country adopting the tax reform runs a surplus or a deficit in the current account of its balance of payments. For example, a conversion from an income tax system to a value-added tax system lowers the world rate of interest if the country adopting the reform runs a surplus in the current account of its balance of payments; the same conversion raises the world rate of interest if the country's current account is in deficit.

The paper also examines the implications of such reforms in the presence of direct foreign investment and considers alternative specifications of tax treatments, one based on the source of income, and the other on the country of residence of the taxpayer. It demonstrates the robustness of the key propositions to these alternatives.

School District Leave Policies, Teacher Absenteeism, and Student Achievement

Ronald G. Ehrenberg, Randy A. Ehrenberg, Eric L. Ehrenberg, and **Daniel I. Rees**
Working Paper No. 2874
March 1989
JEL Nos. 820, 830

In an effort to reduce salary costs, many school districts have begun to offer teachers financial incentives to retire early. Often, however, these districts limit the number of cumulated, unused sick leave days for which teachers may receive cash payments, credits toward future health insurance, or retirement credits at retirement. Thus, early retirement incentive programs may interact with sick leave provisions and provide an unintended incentive for increased teacher absenteeism. To the extent that less learning occurs when regular teachers are absent and that student motivation to attend school also is reduced, student academic performance may suffer. This surely would be an unintended side effect of these policies.

This paper, based on extensive data collection by the authors, presents econometric analyses of variations in teacher and student absenteeism across the more-than-700 school districts in New York state in 1986-7. It also analyzes how such variations influence students' test scores.

The Size and Incidence of the Losses from Noise Trading

J. Bradford De Long, Andrei Shleifer, Lawrence H. Summers, and **Robert J. Waldmann**
Working Paper No. 2875
March 1989
JEL No. 313

Recent empirical research has identified a significant amount of volatility in stock prices that cannot be explained easily by changes in fundamentals. One interpretation is that asset prices respond not only to news but also to irrational "noise trading." We assess the welfare effects and incidence of such noise trading using an overlapping-generations model that gives investors short horizons. We find that the additional risk generated by noise trading can reduce the capital stock and consumption of the economy, and we show that part of that cost may be borne by rational investors. We conclude that the welfare costs of noise trading may be large if the magnitude of noise in aggregate stock prices is as large as suggested by some of the recent empirical literature on the excess volatility of the market.

Cost-Reducing and Demand-Creating R and D with Spillovers

Richard C. Levin and **Peter C. Reiss**
Working Paper No. 2876
March 1989

This paper analyzes R and D policies in situations in which the returns to R and D that reduces costs and creates demand cannot be appropriated perfectly and where market structure is endogenous. We generalize from previous characterizations of appropriability to permit the possibility that R and D by a firm and its rival are not perfect substitutes. We also describe how equilibrium expenditures on process and product R and D, as well as equilibrium market structure, depend on technological opportunities and spillovers. In contrast to previous work, our research shows that diminished appropriability does not necessarily reduce R and D expenditures. For example, under some conditions an increase in the extent of process (product) spillovers will lead to an increase in product (process) R and D. We estimate several variants of the model using data on manufacturing line of business and data from a survey of R and D executives.

The Production-Smoothing Model Is Alive and Well

Ray C. Fair
Working Paper No. 2877
March 1989
JEL No. 130

This paper uses monthly data in physical units for seven industries to examine the production-smoothing hypothesis. The results strongly support this hypothesis. I find significant effects of expected future sales on current production for four industries; the estimated decision equations for all seven industries imply that there is production smoothing. The previous negative results on the hypothesis appear to be caused by poor data, particularly data on shipments and inventory from the Department of Commerce.

Price and Output Adjustment in Japanese Manufacturing

William H. Branson and **Richard C. Marston**
Working Paper No. 2878
March 1989
JEL No. 400

This paper investigates the importance of markup behavior in Japanese manufacturing. According to the evidence, Japanese firms have varied the markups of prices over marginal costs in order to limit the effects of exchange rate changes on output. This is quite different from U.S. manufacturing in which output and employment have absorbed the main impact of recent changes in the exchange rate.

We examine markups in nine sectors of manufacturing that are major producers of exports. In all nine sectors, Japanese prices are highly sensitive to foreign prices and exchange rates and to more traditional demand and supply variables. The paper shows that variable markups rather than high price elasticities account for this price behavior, since output is relatively insensitive to prices or exchange rates.

Is the Bank of Japan a Closet Monetarist? Monetary Targeting in Japan, 1978–88

Takatoshi Ito
Working Paper No. 2879
March 1989
JEL No. 311

In 1975 the Bank of Japan (BOJ) published a report stating that it would pay close attention to money supply (M2), and in 1978 it started announcing quarterly the "forecast" (targets) of M2 growth rates. Since 1975,

the M2 growth rate has declined gradually, and inflation has subsided without causing a major fluctuation in output. Has the BOJ practiced a monetarist rule, that is, announcement and maintenance of the M2 growth target?

This paper reveals that it has not. The BOJ "forecasts" did not behave like "targets" under a strict monetarist rule. Testing a monetarist rule with "forecasts" is more powerful than testing with the actual process, under some weak assumptions. One of the necessary assumptions is that "forecasts" are based on rational expectations; my data do not reject the rational expectations hypothesis.

Positive Feedback Investment Strategies and Destabilizing Rational Speculation

J. Bradford De Long, Andrei Shleifer,
Lawrence H. Summers, and **Robert J. Waldmann**
Working Paper No. 2880
March 1989
JEL No. 312

Analyses of the role of rational speculators in financial markets usually presume that such investors dampen price fluctuations by trading against liquidity or noise traders. This conclusion does not necessarily hold when noise traders follow positive-feedback investment strategies: buy when prices rise and sell when prices fall. In such cases, it may pay rational speculators to try to jump on the bandwagon early and to purchase ahead of noise trader demand. If rational speculators' attempts to jump on the bandwagon early actually trigger investment strategies with positive feedback, then an increase in the number of forward-looking rational speculators can lead to increased volatility of prices around fundamentals.

Policy Analysis with a Multicountry Model

John B. Taylor
Working Paper No. 2881
March 1989
JEL No. 430

This paper summarizes the results of an empirical study of alternative international monetary arrangements using a multicountry, rational expectations, econometric model of the G-7 countries: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States. The model is fit to quarterly data and the effect of different monetary rules on the performance of the economy is determined by stochastic simulations of the estimated model. The results indicate that, with the current international economic structure, internal stability as well as external stability would be greater if Germany, Japan, and the United States oriented their

monetary policies toward domestic price stability, or perhaps toward domestic nominal GNP stability, rather than toward fixing exchange rates. I use empirical measures of demand and supply elasticities and of the average size of the shocks to the demand and supply curves in the analysis. Thus the advantage that one international monetary arrangement has for dealing with one type of shock is assessed and measured against the advantage that another arrangement has for dealing with other types of shocks. It turns out that a more flexible exchange rate system between Germany, Japan, and the United States does better than a fixed exchange rate system.

Real Business Cycles: A New Keynesian Perspective

N. Gregory Mankiw
Working Paper No. 2882
March 1989
JEL Nos. 130, 310

This paper is a critique of the latest new classical theory of economic fluctuations. According to this theory, the business cycle is the natural and efficient response of the economy to exogenous changes in the available production technology. This paper discusses several versions of the theory and argues that this line of research is unlikely to yield an empirically plausible explanation of observed economic fluctuations.

Empirical Research on Trade Liberalization with Imperfect Competition: A Survey

J. David Richardson
Working Paper No. 2883
March 1989
JEL Nos. 420, 610

This paper attempts a synthetic census of the calibration/counterfactual style of empirical research on the benefits of trade liberalization with imperfect competition and scale economies. I survey computable general equilibrium studies and a large number of partial equilibrium studies, and I discuss algebraically the microeconomic foundations common to almost all of the studies, and discuss the corresponding general equilibrium structure graphically.

The first typical conclusion from the studies I survey is that calculated gains in national purchasing power are usually two to three times the size of those estimated in traditional frameworks with perfect competition. Only occasionally are welfare losses calculated from trade liberalization, although such losses are quite possible in theory, as much recent literature has shown.

The second typical conclusion is that calculated adjustment pressures from trade liberalization are considerably higher than implied in most commentary, and higher than estimates from traditional models. Adjustment pressures describe stimuli for workers to shift activities, for firms to grow or die, for industries to expand or contract, and for shares of trading partners to be altered.

Measurement Error in Cross-Sectional and Longitudinal Labor Market Surveys: Results from Two Validation Studies

John Bound, Charles C. Brown,
Greg J. Duncan, and Willard L. Rodgers
Working Paper No. 2884
March 1989
JEL No. 824

This paper reports on the errors in survey reports of labor market variables such as earnings and work hours. Our primary data source is the Panel Study of Income Dynamics Validation Study, a two-wave panel survey of a sample of workers employed by a large firm that also allowed us access to its very detailed records of its workers' earnings. The second data source uses individuals' 1977 and 1978 (March Current Population Survey) report of earnings, matched to Social Security earnings records.

In both datasets individuals' reports of earnings are reported fairly accurately, and the errors are negatively related to true earnings. The latter property reduces the bias caused by measurement error when earnings are used as an independent variable but (unlike the classical-error case) leads to some bias when earnings are the dependent variable. Biases induced by measurement error when the variable of interest is change in earnings are larger, but not dramatically so. Various measures of hourly earnings were much less reliable than annual earnings. Retrospective reports of unemployment showed considerable underreporting, even of long spells.

The Extent of Measurement Error in Longitudinal Earnings Data: Do Two Wrongs Make a Right?

John Bound and Alan B. Krueger
Working Paper No. 2885
March 1989
JEL No. 824

This paper examines the properties and prevalence of measurement error in longitudinal earnings data. The analysis compares Current Population Survey data to administrative Social Security payroll tax records for a sample of heads of households over a two-

year period. In contrast to the typically assumed properties of measurement error, the results indicate that errors are serially correlated over two years and negatively correlated with true earnings (that is, mean reverting). Moreover, reported earnings are more reliable for females than for males. Overall, the ratio of the variance of the signal to the total variance is .82 for men and .92 for women. These ratios fall to .65 and .81 when the data are specified in first differences. The estimates suggest that longitudinal earnings data may be more reliable than previously believed.

Recent Trends in Housing Conditions among the Urban Poor

Rebecca M. Blank and Harvey S. Rosen
Working Paper No. 2886
March 1989
JEL Nos. 932, 914

We examine the trends in housing conditions among the urban poor over the last decade, relate these trends to the economic environments of the cities, and compare the poor to other income groups. We find that there has been a substantial decrease in "housing independence": among the poor, the percentage of family heads who live with their parents has risen, and the percentage of family heads who are also household heads has fallen. In addition, the incidence of homeownership among the poor has decreased, and the incidence of multiple-family households has increased. These same trends show up among higher-income families, although they are typically smaller in magnitude.

This paper provides little evidence for the popular hypothesis that changes in housing attributes over the last decade are related predominantly to changes in housing markets. Including a variety of economic variables does little to explain the trends in housing circumstances of different income groups.

Developing Country Borrowing and Domestic Wealth

Mark Gertler and Kenneth Rogoff
Working Paper No. 2887
March 1989
JEL No. 433

We show that external debt to private creditors rises more than proportionately with income across developing countries. We develop a simple theoretical model with this phenomenon and with the well-documented relationship between capital market development and growth. Our framework stresses asymmetries of information among individual borrowers as the source of frictions in world capital markets. Because of moral

hazard problems, marginal products of capital and borrowing-lending spreads are higher in poorer countries. In a two-country version of the model we demonstrate the possibility of a "siphoning effect" that exacerbates the costs of transfers. Also, because of the siphoning effect, increased wealth in the rich country can stunt investment in the poor country.

Real Wages over the Business Cycle

Robert B. Barsky and **Gary Solon**
Working Paper No. 2888
March 1989
JEL No. 131

This paper examines the cyclical behavior of real wages in the United States since World War II. Like most previous aggregate studies, ours finds little cyclicality in aggregate data on industry real wages. On the other hand, longitudinal microdata from the Panel Study of Income Dynamics reveal substantial procyclicality. We find that this procyclicality is obscured in industry average wage statistics, and to a lesser extent in economywide averages, because those statistics are constructed in a way that gives greater weight to low-wage workers during expansions.

The almost complete absence of evidence for countercyclical real wages suggests that movements along labor demand curves have not played a dominant role in cyclical employment fluctuations over the past 40 years. Instead, the procyclicality of real wages indicates that cyclical fluctuations in employment have been generated mainly by shifts in labor demand. However, the sources of these shifts and of the positive slope of the effective labor supply curve remain open to alternative interpretations.

Financial Factors in Economic Development

Rudiger Dornbusch and **Alejandro Reynoso**
Working Paper No. 2889
March 1989
JEL Nos. 430, 120

Financial factors have been assigned strategic importance in economic development. Yet very different factors have been important in the respective experiences: in Asia, unrepressed financial markets have been given prominence in mobilizing saving and allocating investment. In Latin America, the central issue is the role of inflationary finance, the scope for deficits to enhance growth, and increasingly the feedback from high and unstable inflation to poor economic performance. This paper reviews and contrasts the two approaches and concludes that the strong claims for the benefits of financial liberalization are not supported by evidence. Financial factors are important but probably only when financial instability becomes a dominant force.

The scope for inflationary finance is small and the risks are larger than commonly accepted. When hyperinflation takes over and foreign exchange crises disrupt the price system and shorten the economic horizon to a week or a month, normal economic development is suspended. Moreover, capital flight that is difficult to reverse moves savings outside the home economy. These extreme cases should be our focus and we should explore more closely the thresholds at which financial factors become dominant and the channels through which this occurs. Superior growth performance, in this perspective, may be more a reflection of adaptability than of financial deepening.

Conditional Mean-Variance Efficiency of the U.S. Stock Market

Charles M. Engel, Jeffrey A. Frankel,
Kenneth A. Froot, and **Anthony Rodriguez**
Working Paper No. 2890
March 1989

We apply the method of constrained asset share estimation (CASE) to test the mean-variance efficiency (MVE) of the stock market. This method allows conditional expected returns to vary in unrestricted ways, given investor preferences. We also allow conditional variances to follow an ARCH process. The data reasonably estimate the coefficient of relative risk aversion, although they are unable to reject investor risk neutrality. We reject the restrictions implied by MVE, although changing conditional variances statistically improve upon measured market efficiency. We find that unrestricted asset-share and ARCH models help to forecast excess returns. Once MVE is imposed, however, this forecasting ability disappears.

The Variability of Velocity in Cash-in-Advance Models

Robert J. Hodrick, Narayana Kocherlakota,
and **Deborah Lucas**
Working Paper No. 2891
March 1989
JEL No. 311

Early cash-in-advance models have the feature that the cash-in-advance constraint always binds, implying that the velocity of money is constant. Lucas (1984) and Svensson (1985) propose a change in information structure that potentially allows velocity to vary. By

calibrating a version of these models using a new solution algorithm, and using U.S. time-series data on consumption growth and money growth, we find that in practice the cash-in-advance constraint almost always binds. This result is robust to changes in the forcing process, the inclusion of credit goods along with cash goods, various preference specifications, and changes in the precision of the agents' information. We conclude that there is little practical gain in using these more complicated informational specifications in future applications of a cash-in-advance technology.

The American Way of Aging:
An Event History Analysis

David T. Ellwood and **Thomas J. Kane**
Working Paper No. 2892
March 1989
JEL No. 918

This paper presents a methodology for studying the sequence and timing of life events past age 65. After estimating models of marital status, disability, living arrangements, and income from the scattered segments of old age captured within the 17-year window of the Panel Study of Income Dynamics, we simulated as many as 35 years of old age from a sample of those turning 65 between 1980 and 1984. The simulated life expectancies correspond quite well with life-table estimates published by the National Center for Health Statistics. Even in this initial effort, we report some interesting findings. First, the prospects for rich and poor at age 65 were very different, since those with high incomes live four years longer than those with low incomes. Second, women who were institutionalized were hardly identifiable at age 65, having similar income, marital status, and disability status as other women at age 65. Third, women are much more vulnerable to changes in marital status, suffering a permanent 20 percent decline in their standard of living upon widowhood compared to a 10 percent decline for men. Fourth, poor widows at age 80 were likely to have been widows or poor already when they turned 65.

Empirical Implications of Alternative Models
of Firm Dynamics

Ariel Pakes and **Richard Ericson**
Working Paper No. 2893
March 1989

This paper considers two models for analyzing the dynamics of firm behavior that allow for heterogeneity among firms, idiosyncratic (or firm-specific) sources of uncertainty, and discrete outcomes (exit and/or entry). Models with these characteristics are needed for the structural econometric analysis of several economic phenomena, including the behavior of capital markets when there are significant probabilities of failure, and the analysis of productivity movements in industries with large amounts of entry and exit. In addition, these models provide a means of correcting for the self-selection induced by liquidation decisions in empirical studies of firms' responses to alternative policy and environmental changes. We show that the two models have different nonparametric implications that depend only on basic behavioral forms of interest (one distinction between them corresponds to the distinction between heterogeneity and an ergodic form of state-dependence: a form in which the effect of being in a state in a particular period erodes away as time from that period lapses). The nonparametric implications enable us to construct testing and selection correction procedures that are easy to implement (they do not require the computationally difficult, and functional-form-specific, estimation algorithms that have been used to empirically analyze stochastic control models with discrete outcomes in the past). The paper concludes by checking for the implications of the two models on an eight-year panel of Wisconsin firms. We find one model to be consistent with the data for retail trade.

Exchange Rate Volatility and Misalignment:
Evaluating Some Proposals for Reform

Jacob A. Frenkel and **Morris Goldstein**
Working Paper No. 2894
March 1989
JEL No. 430

In this paper, we analyze several proposals for reducing the volatility and/or misalignment of key-currency exchange rates: a system of target zones; the imposition of controls or taxes on international capital flows; and a strengthening of international coordination over economic policies. We also review key characteristics of the behavior of the major-currency exchange rates over the period of floating rates and examine the various criteria or standards for drawing inferences about excess volatility and misalignment. In evaluating exchange rate volatility, we focus on the influence of the exchange rate regime, the behavior of fundamentals, the volatility of both goods prices and other asset prices, the costs of exchange rate volatility, and the nature of shocks facing the economy. Turning to misalignment, we examine the strengths and weaknesses of the purchasing power parity approach, the underlying balance approach, and the sustainability approach. We argue that inferences about excess exchange rate volatility and misalignment are subject to wide margins of error and that the exchange rate experience of the past 15 years is subject to multiple interpretations.

The Effect of Takeovers on the Employment and Wages of Central-Office and Other Personnel

Frank R. Lichtenberg and **Donald Siegel**
Working Paper No. 2895
March 1989
JEL Nos. 510, 610

This paper presents evidence based on establishment-level Census Bureau data concerning the effects of ownership change on the employment and wages of both central-office workers and manufacturing plant employees. We find that central offices that changed owners between 1977 and 1982 had substantially lower —about 16 percent lower—employment growth during that period than central offices not changing owners. (There was, however, no significant difference in the growth of *R and D* employment.) In contrast, employment growth in *production* establishments changing owners was only 5 percent lower than it was in production establishments not changing owners. (The relative employment decline in production establishments changing owners occurred in the two or three years *before* the takeover; after the takeover, employment recovered a bit, but not enough to offset the previous decline.) This implies that the ratio of central-office to plant employees declines about 11 percent in firms changing owners: about 7.2 administrators per 1000 plant employees are eliminated. These findings are consistent with the view that reduction of administrative overhead is an important motive for changes in ownership. Failure to account for reductions in central-office employment results in a substantial (about 40 percent) underestimate of the productivity gains associated with ownership change. We also provide evidence concerning the relationship between firm size and administrative intensity.

Effects of Family and Community Background on Men's Economic Status

**Mary Corcoran, Roger H. Gordon,
Deborah Laren,** and **Gary Solon**
Working Paper No. 2896
March 1989
JEL No. 850

This study uses intergenerational data from the Panel Study of Income Dynamics to investigate the effects of family and community background on men's economic status. It is distinguished from most previous studies by its emphasis on community influences and on influences from poverty and use of welfare. Also, our data on parental characteristics are more comprehensive and accurate than those of many earlier studies.

We find substantial disadvantages in economic status for black men, men from lower-income families, and men from more welfare-dependent families or communities. Otherwise, we do not find much evidence of community influences. However, this might be because of the grossness of the geographic detail at which our community variables are measured.

Social Conflict and Populist Policies in Latin America

Jeffrey D. Sachs
Working Paper No. 2897
March 1989

The central hypothesis of this paper is that high-income inequality in Latin America contributes to intense political pressures for macroeconomic policies to raise the incomes of lower-income groups, which in turn contributes to bad policy choices and weak economic performance. This paper looks in detail at one common type of policy failure: the populist policy cycle. This particular type of Latin American policymaking, characterized by overly expansionary macroeconomic policies that lead to high inflation and severe balance-of-payments crises, has been repeated so often, and with such common characteristics, that it plainly reveals the linkages from social conflict to poor economic performance.

Black/White Differences in Wealth and Asset Consumption

Francine D. Blau and **John W. Graham**
Working Paper No. 2898
March 1989
JEL No. 917

Using data from the 1976 and 1978 National Longitudinal Surveys of young men and women, this study examines racial differences in the magnitude and composition of wealth and the reasons for them. On average, young black families have 18 percent as much wealth as young white families and hold their wealth in proportionately different forms. Even after controlling for racial differences in income and other demographic factors, as much as three-quarters of the wealth gap remains unexplained. We speculate on the causes for this, concluding that racial differences in intergenerational transfers most likely play an important role.

Taxes and Capital Formation: How Important Is Human Capital?

James Davies and **John Whalley**
Working Paper No. 2899
March 1989

This paper explores how explicit incorporation of human capital in a life-cycle growth model affects dynamic general equilibrium analysis of the effects of taxes

on capital formation and welfare. In contrast to the results of partial equilibrium analysis, estimates of the full dynamic welfare costs of capital income taxes are little affected by incorporating human capital. While the short-run effects of replacing income taxes with wage or consumption taxes are significantly affected by making human capital endogenous, these effects are short lived. In the long run, the rate of return on nonhuman capital falls to approximately its initial net-of-tax level, and steady-state human capital investment plans are little affected by the tax changes. Although incorporating human capital does not greatly alter results in our numerical simulations, we discuss a wide range of extensions and modifications of the model that in principle could modify this conclusion.

Tax Reform and the Market for Tax-Exempt Debt

James M. Poterba
Working Paper No. 2900
March 1989
JEL Nos. 323, 324

This paper provides clear evidence that the yield spread between long-term taxable and tax-exempt bonds responds to changes in expected individual tax rates. That finding refutes theories of municipal bond pricing that focus exclusively on commercial banks or other financial intermediaries. The results support the conclusion that in the two decades prior to 1986, the municipal bond market was segmented, with different investor clienteles at short and long maturities. The Tax Reform Act of 1986 is likely to affect this market, however, since it has restricted tax benefits from tax-exempt bond investment by commercial banks. Individual investors increasingly are important suppliers of capital to states and localities, and their tax rates are likely to be the primary determinant of the yield spread between taxable and tax-exempt interest rates in the future.

The Impact of R and D Investment on Productivity—New Evidence Using Linked R and D–LRD Data

Frank R. Lichtenberg and **Donald Siegel**
Working Paper No. 2901
March 1989
JEL Nos. 621, 510

This paper uses confidential Census longitudinal microdata to examine the association between R and D and productivity for 1972–85. These data allow for significant improvements in measurement and model specification, yielding more precise estimates of the returns to R and D. Our results confirm the findings of existing studies: 1) positive returns to R and D investment; 2) higher returns to company-financed research;

and 3) a productivity "premium" on basic research. These results are robust to our attempts to adjust for "influential" outliers. Also, it appears that the return to company-financed R and D (but not *total* R and D) is an increasing function of firm size.

The Term Structure of Interest Rates and the Effects of Macroeconomic Policy

Stephen J. Turnovsky
Working Paper No. 2902
March 1989
JEL No. 311

This paper analyzes the effects of monetary and fiscal policy shocks on the term structure of interest rates. It contrasts the effects of temporary versus permanent, and unanticipated versus anticipated, policy disturbances, and the responses of long versus short, and real versus nominal, rates. The main results are summarized in a series of propositions. The finding that an unanticipated permanent fiscal expansion has more of an impact on long-term rates may help to explain their observed excessive volatility. I also discuss the effects of structural changes on the relative variances and emphasize the effect that operates through the impact on private speculative behavior.

Testable Implications of Indeterminacies in Models with Rational Expectations

Robert P. Flood and **Robert J. Hodrick**
Working Paper No. 2903
March 1989
JEL Nos. 212, 313

The possibility that movements in market prices of assets or goods may be caused by self-fulfilling prophecies, called bubbles or sunspots, has long intrigued market observers. If bubbles or sunspots exist, market prices differ from their fundamental values, and markets do not necessarily allocate resources to their best possible uses. Some might argue that public policies would be needed to alleviate such problems.

This paper surveys the current state of the empirically oriented literature concerning rational dynamic indeterminacies, by which we mean a situation of self-fulfilling prophecy within a rational expectations model. The empirical work in this area concentrates primarily on indeterminacies in price levels, exchange rates, and equity prices. First, we examine a particular type of explosive indeterminacy, usually called a rational bubble, in a familiar model of equity pricing. Then we consider empirical work relating to price level and exchange rate indeterminacies, before examining empirical studies of indeterminacies in stock prices. Finally, we take up some interpretive issues. We find that existing bubbles tests do not establish that rational bubbles exist in asset prices.

Asymmetries in Policy between Exportables and Import-Competing Goods

Anne O. Krueger
Working Paper No. 2904
March 1989

This paper reexamines current understanding of the political economy of protection. To date, work has centered on determinants of the height of protection and its form: tariffs, quantitative restrictions, and voluntary export restraints. I argue that examining the structure of protection misses one important piece of evidence: why import-competing industries tend to be more highly protected than industries producing exportables. When the question is cast in this light, a number of new insights emerge, including the importance of earlier protective measures in influencing current protectionist pressures. "Identity bias," whereby political decisions can be asymmetric between winners and losers depending on whose identity is known, is introduced.

Pricing to Market in Japanese Manufacturing

Richard C. Marston
Working Paper No. 2905
March 1989
JEL Nos. 431, 421

This paper investigates pricing by Japanese manufacturing firms in export and domestic markets. It reports equations explaining the margin between export prices (in yen) and domestic prices for a wide range of final goods, including many of the electronic and transport products that have figured so prominently in recent trade discussions. The evidence shows that Japanese firms respond to changes in real exchange rates by "pricing to market," varying their export prices in yen relative to their domestic prices. The empirical specification makes it possible to disentangle planned changes in the margin between export and domestic prices from inadvertent changes in this margin caused by unanticipated changes in exchange rates. The degree of pricing to market varies widely across products, but there is strong evidence that pricing to market occurs. The paper also investigates whether pricing to market has increased in scale since 1985 when the yen began a sustained appreciation but finds that only 5 of 17 products experienced a shift in price behavior over that period.

Market Value versus Financial Accounting Measures of National Saving

David F. Bradford
Working Paper No. 2906
March 1989

Although National Income and Product Account (NIPA) saving measures, and especially NIPA saving rates, are used widely both in scholarly and journalistic treatments, they are seriously defective as representations of the variables derived from economic analysis, either for measuring economic performance or as elements of the explanation for consumption behavior. The cost-based value of a restricted class of assets recorded in the NIPAs is a version of the financial accounting for the tangible assets of a business firm. Economic analysis instead calls for the current asset market value of business enterprises (and their equivalents) as the measure of wealth, and the annual change in that value as the measure of saving. National Balance Sheet data on wealth at asset market value show that NIPA saving measures are not good proxies for market value measures. The picture of recent national saving experience that emerges from market value data is quite different. The paper discusses various conceptual issues and issues of data quality.

Terms-of-Trade Disturbances, Real Exchange Rates, and Welfare: The Role of Capital Controls and Labor Market Distortions

Sebastian Edwards and **Jonathan D. Ostry**
Working Paper No. 2907
March 1989
JEL Nos. 400, 410

Many arguments in favor of maintaining capital control within the European Economic Community have not paid sufficient attention to the welfare consequences of this type of market intervention. Our paper provides a simple, optimizing framework in which the welfare consequences of capital controls can be assessed.

We consider two main issues. First, how do capital controls affect the adjustment of macroeconomic variables to real disturbances? Second, what is the nature of second-best arguments for maintaining capital controls, given that certain distortions will remain after the European single market is in place in 1992?

Openness, Outward Orientation, Trade Liberalization, and Economic Performance in Developing Countries

Sebastian Edwards
Working Paper No. 2908
March 1989
JEL Nos. 410, 430

This paper deals with the role of trade regimes in determining economic performance and growth in the developing countries. I critically review the policy and empirical literatures on trade orientation and economic growth and argue that a key limitation of these works has been the inability to create measures of trade orientation that are: 1) objective; 2) continuous; and 3) comparable across countries. I develop a growth model that relates trade orientation to the ability to absorb technological progress from the rest of the world for the case of a small country. I test the model using a new index of trade orientation that is free from the limitations described above. The results obtained using a cross-country dataset strongly support the hypothesis that, with other things given, countries with a less distorted external sector grow faster than countries with a more distorted external sector. I also discuss the new theories of economic growth and assess their usefulness for analyzing the relationship between trade orientation and growth in the developing countries.

The International Monetary Fund and the Developing Countries: A Critical Evaluation

Sebastian Edwards
Working Paper No. 2909
March 1989
JEL No. 400

This paper critically evaluates the IMF's role in the adjustment process of the developing countries. In particular, it asks: What model or framework does the IMF use to generate its advice, and is that advice eclectic? Is there evidence that countries that follow the IMF's advice do better than countries that proceed in other ways? Are the policy decisions of the IMF based on technical knowledge, or do they reflect the political views of the larger members? Is the IMF position regarding the debt crisis conducive to a realistic solution? What can we expect from the IMF in the future? The paper also includes an evaluation of recent IMF programs, as well as an econometric analysis of the contractionary devaluation issue.

Transmission of Volatility among Stock Markets

Mervyn A. King and **Sushil Wadhwani**
Working Paper No. 2910
March 1989
JEL Nos. 310, 131

This paper investigates why, in October 1987, almost all stock markets fell together despite widely differing economic circumstances. The idea is that "contagion" among markets occurs as the result of attempts by rational agents to infer information from price changes in other markets. This provides a channel through which a "mistake" in one market can be transmitted to other markets. Hourly stock price data from New York, Tokyo, and London during an eight-month period around the crash offer support for the contagion model. In addition, the magnitude of the contagion coefficients increases with volatility.

Sunk-Cost Hysteresis

Richard Baldwin
Working Paper No. 2911
March 1989

Despite its important theoretical, empirical, and policy implications, sunk-cost hysteresis has not been characterized for the case of model-consistent or rational expectations. (Previous studies assume that firms believe the forcing variable is generated by some ad hoc, time-invariant process such as an iid or Brownian motion process.) This omission is significant because, if firms do have forward-looking expectations, the existing characterizations cannot be used for empirical testing, or as a guide in developing appropriate econometric techniques. Furthermore, policy conclusions based on such characterizations may be misleading.

This paper demonstrates the possibility and characterizes the nature of sunk-cost hysteresis for a broad class of assumptions on the forcing variable process. Most notably, this class includes rational or model-consistent expectations. Specifically, I show that the firm's problem with a quite general forcing variable process can be reduced to be formally identical to the iid case. Additionally I analytically show that: 1) the hysteresis band tends to widen with greater sunk costs; 2) the effect of greater volatility on the band width depends upon the specific nature of the process generating the uncertainty; and 3) greater persistence in the shocks has the effect of making well-entrenched firms more likely to exit and of narrowing the band for marginal firms. Finally, I show that the possibility of sunk-cost hysteresis is robust to a number of modifications of the basic sunk-cost model.

Understanding Investment Incentives under Parallel Tax Systems: An Application to the Alternative Minimum Tax

Andrew B. Lyon
Working Paper No. 2912
March 1989
JEL No. 323

Many countries' income tax systems consist of multiple parallel tax systems. Most commonly, statutory tax rates may vary with income. As a special case, taxpayers with net losses in a given year and no past tax liability face a zero tax rate in that year but may use the loss to offset future taxes. In the United States, the newly enacted alternative minimum tax (AMT) for corporations is a parallel tax system. In addition to taxing income at statutory tax rates different from those under the regular tax system, it provides separate depreciation schedules, allowable deductions, and tax exclusions. This paper examines the conditions under which the existence of a parallel tax system maintains neutral investment incentives for taxpayers who may switch between tax systems. With regard to the AMT, I show that investment incentives for firms experiencing a spell on the AMT may be greater or less than those of firms on the regular tax system, depending on the duration of the spell, the time at which the investment is made, and the source of financing.

Endogenous Product Cycles

Gene M. Grossman and Elhanan Helpman
Working Paper No. 2913
March 1989
JEL Nos. 411, 111

We construct a model of the product cycle featuring endogenous innovation and endogenous technology transfer. Competitive entrepreneurs in the North expend resources to bring out new products whenever expected present discounted value of future oligopoly profits exceeds current product development costs. Each northern oligopolist continuously faces the risk that its product will be copied by a southern imitator, at which time its profit stream will come to an end. In the South, competitive entrepreneurs may devote resources to learning the production processes that have been developed in the North. There too, costs (of reverse engineering) must be covered by a stream of operating profits. We study the determinants of the long-run rate of growth of the world economy, and the long-run rate of technological diffusion. We also provide an analysis of the effects of exogenous events and of public policy on relative wage rates in the two regions.

Exchange Rates and Foreign Direct Investment: An Imperfect Capital Markets Approach

Kenneth A. Froot and Jeremy C. Stein
Working Paper No. 2914
March 1989

We examine the connection between exchange rates and foreign direct investment that arises when globally integrated capital markets are subject to informational imperfections. These imperfections cause external financing to be more expensive than internal financing, so that changes in wealth translate into changes in the demand for direct investment. By systematically lowering the relative wealth of domestic agents, a depreciation of the domestic currency can lead to foreign acquisitions of certain domestic assets. We develop a simple model of this phenomenon and test for its relevance in determining international capital flows.

Public Sector Bargaining and the Local Budgetary Process

Joseph Gyourko and Joseph S. Tracy
Working Paper No. 2915
March 1989
JEL Nos. 824, 830

This paper investigates how the fiscal environment and the budgetary process affect wage and employment determination in the local public sector. The structure of the local tax system is influential, with significantly higher wages occurring in cities with access to local sales and/or income taxes. State-imposed property tax limits are associated with lower wages (but not overall payrolls per capita). We find evidence that skill enhancement may be an important policy tool. Local governments appear to use it successfully to mitigate the wage premiums associated with strong state collective bargaining legislation. We also find that controlling for the human capital of teachers substantially reduces the well-known positive correlation between teacher wages and community income.

Strategic Trade Policy When Domestic Firms Compete Against Vertically Integrated Rivals

Dani Rodrik and Chang-Ho Yoon
Working Paper No. 2916
April 1989
JEL Nos. 420, 610

This paper models the international competition between a domestic firm and its vertically integrated for-

eign rival. The domestic firm can choose to develop its own production capability for an intermediate input, or to import the input from the foreign firm at a price it sets. In this setting and under reasonable cost assumptions, the foreign firm will always choose to supply the domestic firm as long as it cannot monopolize the final-good market by withholding supply. A tariff placed on the imports of the input by the home government will be borne entirely by the foreign firm and will increase welfare. When the home government chooses to subsidize the domestic firm's fixed development costs for the input, the optimal subsidy will exceed the total fixed costs required but will not have to be disbursed in equilibrium. A tariff on the final good will enhance the home firm's profits not only by increasing the costs of its rival but also by reducing its own input costs.

Pensions as Retirement Income Insurance

Zvi Bodie
Working Paper No. 2917
April 1989
JEL No. 520

This paper develops the view that employer-sponsored pension plans are best understood as retirement income insurance for employees. From that perspective, I address a number of questions regarding the reasons for the existence, design, and funding and investment policies of such plans. Most importantly, why do employers provide pension plans for their employees, and why is participation usually mandatory? Why is the defined-benefit form of pension plan dominant, rather than the defined-contribution plan? Why are the payout options under most plans limited to life annuities? Why are most plans integrated with Social Security? Why don't corporate pension plans follow the extreme funding and asset allocation policies that seem to be optimal from the perspective of shareholder wealth maximization? Why do employers often make ad hoc increases in pension benefits not strictly required under the formula in defined-benefit plans? Finally, why don't private pensions offer inflation insurance?

The Linkage between Speculative Attack and Target Zone Models of Exchange Rates

Robert P. Flood and **Peter M. Garber**
Working Paper No. 2918
April 1989

This paper generalizes the target zone exchange rate model, formalized by Krugman (1988), to include finite-sized interventions in defense of the zone. We link the recent developments in the theory of target zones to the mirror-image theory of speculative attacks on asset-price-fixing regimes. We then use aspects of that linkage to intuitively interpret the "smooth pasting" condition usually invoked as a terminal condition.

Government Spending and Budget Deficits in the Industrial Economies

Nouriel Roubini and **Jeffrey D. Sachs**
Working Paper No. 2919
April 1989
JEL Nos. 431, 320

In this paper, we try to interpret several important trends in the size of governments and government deficits in the OECD economies: the rapid increase in the public spending-to-GDP ratio in the 1970s; the sharp rise in budget deficits and in debt-to-GNP ratios after 1973; and the early signs of a slowdown or reversal in the rise of the spending ratios in the 1980s. We show that the rise in size of the government was associated with the slowdown in output growth after 1973, and with the gradual adjustment of spending ratios to long-run values. These long-run values appear to depend on the political and institutional characteristics of the various economies (the ideological orientation of the government, the degree of wage indexation, and the average number of parties in the governing coalitions).

As for budget deficits, we argue that much can be explained by normal cyclical factors (the slowdown in growth and the rise in unemployment after 1973). In addition, though, the size of the budget deficits has been related to political as well as economic characteristics of the countries. Deficit reduction requires political consensus, at least among the parties belonging to the governing coalition. We note that such consensus is harder to achieve in multiparty coalition governments and that the failure to reach a consensus on budget cutting can help to explain why countries with multiparty coalition governments have experienced particularly large increases in the debt-to-GNP ratio.

Vertical Foreclosure and International Trade Policy

Barbara J. Spencer and **Ronald W. Jones**
Working Paper No. 2920
April 1989
JEL No. 411

We examine conditions under which a low-cost, vertically integrated manufacturer has an incentive to export an intermediate product to its higher-cost (vertically integrated) rival rather than to vertically foreclose, fully cutting off supplies. The nature of supply conditions in the importing country, the size of an import tariff on the final good, and optimal policy by the exporting country are all important for this decision. The exporting country may gain by taxing exports of the final (Cournot) product even though, under Cournot competition, an export subsidy is optimal in the absence of a market for intermediates. In this case, optimal policy also requires an export tax on intermediates,

but the higher tax on final goods serves to divert sales to the more profitable market for intermediates, increasing the extent of vertical supply. It is optimal to tax the export of both goods or to subsidize the export of both goods. It is never optimal to tax one and subsidize the other.

The Local Decision to Tax: Evidence from Large U.S. Cities

Robert P. Inman
Working Paper No. 2921
April 1989

The structure of local taxation is an important determinant of the fiscal performance of decentralized public economies. In contrast to our understanding of local government spending, however, we know surprisingly little about how cities and states set taxes. This study specifies and estimates a model of the institutional, political, and economic determinants of the local decision to tax. Redistributive politics is an important determinant of local tax policy, at least for this sample of 41 large U.S. cities during 1961–86. The results cast serious doubt on the validity of the "representative" or average taxpayer approach to behavioral modeling of fiscal policy for large, income-diverse governments. The results allow us to predict the effects on local financing of removing federal tax deductibility of local taxes, an issue of current importance in the United States.

Patents: Recent Trends and Puzzles

Zvi Griliches
Working Paper No. 2922
April 1989
JEL No. 620

This paper reviews the historical data on patenting in the United States, particularly in the last 20 years, and the potential relationship, if any, of patents to the recent productivity slowdown. It makes two points: patents are not a "constant-yardstick" indicator of either inventive input or output; moreover, they are "produced" by a governmental agency that goes through its own budgetary and inefficiency cycles. The paper shows that the appearance of an absolute decline in patenting in the 1970s is an artifact of such a cycle. This still leaves us with the longer-run puzzle of a slower growth in patenting, especially by U.S. residents, relative to R and D expenditures. I conjecture that this reflects more the changing character of patents and R and D than an indication of diminishing returns to R and D and an exhaustion of technological opportunities.

The Internationalization of Production

Robert E. Lipsey
Working Paper No. 2923
April 1989
JEL No. 440

The degree of internationalization of the enterprise or business sectors of many countries, as measured by the ratio of direct investment abroad to domestic wealth or assets, or of assets or employment abroad to that at home, has been growing over the last 20 years or more. The exception to this trend is the United States, in which the extent of internationalization, after growing until the 1970s, has stagnated or decreased somewhat.

The level of internationalization of U.S. firms in the 1970s and 1980s was above that of Germany and especially above those of Japan and Korea. Canada was close to the United States, and U.K. firms were by far the most internationalized. The differences among the country levels and trends seem to reflect country size and divergences between the competitiveness of countries and of their companies, including those that result from exchange rate movements.

Consumption, Income, and Interest Rates: Reinterpreting the Time-Series Evidence

John Y. Campbell and **N. Gregory Mankiw**
Working Paper No. 2924
April 1989
JEL No. 130

This paper proposes that the time-series data on consumption, income, and interest rates are best viewed as generated not by a single representative consumer but by two groups of consumers. Half the consumers are forward-looking and consume their permanent income but are extremely reluctant to substitute consumption intertemporally. Half the consumers follow the "rule of thumb" of consuming their current income. The paper documents three empirical regularities that, it argues, are best explained by this model. First, expected changes in income are associated with expected changes in consumption. Second, expected real interest rates are not associated with expected changes in consumption. Third, periods in which consumption is high relative to income typically are followed by high growth in income. The paper concludes by briefly discussing the implications of these findings for economic policy and economic research.

The Stock Market and Investment

Changes in real stock market prices have a lot of explanatory value for the growth rate of U.S. aggregate business investment, especially for long samples that begin in 1891 or 1921. Moreover, since 1921, when data on a q-type variable have become available, the stock market dramatically outperforms q. The change in real stock prices also retains its predictive value in the presence of a cash flow variable, such as aftertax corporate profits. Basically similar results apply to Canadian investment, except that the U.S. stock market turns out to have more predictive power than the Canadian market. I discuss some possible explanations for this puzzling finding, but none of the explanations seem all that convincing.

Confidence Crises and Public Debt Management

Under free capital mobility, crises in confidence can result in devaluations even when fixed exchange rates are viable, if fiscal authorities can obtain temporary money financing. During a crisis, domestic interest rates increase, reflecting the expected devaluation. Rather than selling debt at punitive rates, fiscal authorities will turn to temporary money financing, leading to equilibriums with positive probability of devaluation. These equilibriums can be ruled out if the amount of debt maturing during the crisis is sufficiently small—a condition that can be met by reducing the stock of public debt, lengthening its average maturity, and/or smoothing the time distribution of maturing issues.

International Spillovers of Taxation

This paper deals with the international effects of taxation. Tax policies have profound effects on the temporal composition and on the intertemporal evolution of the macroeconomy. The analysis highlights key issues pertinent for the understanding of international effects of domestic tax policies and of international tax harmonization. The analytical framework adopts the saving–investment balance approach to the analysis of international economic interdependence and includes a detailed specification of public and private sector behavior focusing on the roles played by taxes on income, consumption, and international borrowing. We present stylized facts on the average consumption and income tax rates for the seven major industrial countries. They reveal a large international diversity of tax rates and tax structures.

We use the analytical framework to analyze the consequence of revenue-neutral conversions between income and consumption (value-added) tax systems. We demonstrate that the effects of such changes in the structure of taxes depend critically on international differences in saving and investment propensities, which in turn govern the time profile of the current account of the balance of payments. The key results also are illustrated by means of dynamic simulations. We then examine the international effects of budget deficits and public debt management and demonstrate analytically as well as by means of dynamic simulations that these effects depend critically on whether the government manages its deficit through alterations in income or consumption (value-added) taxes. Finally, motivated by proposals for tax harmonization associated with the single market in Europe of 1992, we consider the effects of international tax harmonization. The main results demonstrate that, in analogy with the effects of tax conversions, the effect of harmonization depends critically on the intercountry differences in saving and investment propensities. These differences yield conflicts of interests in the tax harmonization program.

The Demand for Lottery Products

Lotteries constitute one of the fastest-growing categories of consumer expenditure in the United States. Not only do an increasing number of states have legalized state lotteries, but the per capita expenditures on lotteries in lottery states have increased at an annual rate of 13 percent after inflation between 1975 and 1988. This paper examines the demand for lottery products. A majority of the adult public in lottery states play in any one year, but relatively few of these players account for most of "the action." Socioeconomic patterns of play, measured from both sales data and household surveys, offer some surprises—for example, that the

Engle curve of lottery expenditures declines with income. There is some evidence that lottery sales increase with the payout rate, although it is not clear that it would be profitable for the states to increase payout rates. The addition of a new game, such as lotto, does not undercut sales of existing games, and the oft-heard claim that interest (and sales) will "inevitably" decline is contradicted by the data. The organizational form of the lottery is evolving in response to the quest for higher revenues: in particular, smaller states are forming multistate games. (This paper is a chapter from *Selling Hope: State Lotteries in America,* an NBER monograph scheduled to be published by Harvard University Press in December 1989.)

Simulating the Effects of Some Simple Coordinated versus Uncoordinated Policy Rules

Jacob A. Frenkel, Morris Goldstein, and **Paul R. Masson**
Working Paper No. 2929
April 1989
JEL No. 430

We simulate the effects of different policy rules: uncoordinated targeting of the money supply or nominal income; use of monetary policy to achieve coordinated targets for nominal or real exchange rates; and the use of monetary and fiscal policies to hit targets for internal and external balance. We find that rules that performed best for some shocks performed poorly for others; monetary policy was ineffective in limiting movements in real exchange rates; unconstrained use of fiscal policy was quite powerful in influencing real variables; and dynamic instability was a potentially serious problem. Robustness to different specifications and to constraints on instruments remains to be examined.

Perishable Investment and Hysteresis in Capital Formation

Bernard Dumas
Working Paper No. 2930
April 1989

Entry into a market seems to necessitate some investment in "marketing capital" (or distribution capital: advertising, dealerships, and so forth). This form of investment has the property that, if it is unused for some time, it quickly becomes worthless. When entry into a market requires marketing investment, firms that are currently out of this market tend to delay entry until price-versus-cost conditions have become extremely favorable. Conversely, firms that are in the market tend to delay exit until they can no longer bear large operating losses. This is because they know that, if they do exit, and if price-versus-cost conditions later become favorable again, they will have to incur the investment in marketing capital again.

This paper presents a general equilibrium model of capital formation in an economy subject to random shocks, when marketing capital (with the above properties) is used in distribution, in addition to the "normal" capital used in production. I show an analytical solution to the dynamic program representing the welfare optimum problem, along with the shadow prices corresponding to this program. These are also the prices that would support the general equilibrium of a decentralized market economy.

Coming Home to America: Dividend Repatriations by U.S. Multinationals

James R. Hines, Jr. and **R. Glenn Hubbard**
Working Paper No. 2931
April 1989
JEL Nos. 320, 520

This paper analyzes the financial flows from foreign subsidiaries of American multinational corporations to their parent corporations in the United States. The repatriations are important not only to U.S. investors, who thereby have access to those funds, but also to the U.S. government, which generally does not tax foreign earnings of controlled foreign corporations until they are repatriated.

The paper reviews the current tax system as applied to multinational firms, and considers the incentives it creates for various intrafirm financial transactions (in particular, the form of repatriations). These incentives appear to be inconsistent with historical repatriation patterns from aggregate time-series data on the overseas operations of U.S. multinationals. To resolve this inconsistency, we explore the determinants of distributions by foreign subsidiaries to their U.S. parent corporations, using new microdata on 12,041 controlled foreign corporations (and their 435 U.S. parents) collected from tax returns for 1984. This source exposes variations in distribution patterns not detectable in aggregate data. In particular, the data suggest that the U.S. government collected very little revenue on their foreign income while distorting their internal financial transactions.

Economic Capacity Utilization and Productivity Measurement for Multiproduct Firms with Multiple Quasi-Fixed Inputs

Ernst R. Berndt and **Melvyn A. Fuss**
Working Paper No. 2932
April 1989
JEL Nos. 226, 621, 641

In this paper we develop measures of output and utilization of capacity for firms producing multiple outputs and having one or more quasi-fixed inputs. Although we produce an impossibility theorem showing that, based only on the assumption of cost minimization, the concept of capacity output is undefined whenever the number of outputs, I, exceeds the number of fixed inputs, M, we are able to provide alternative constructive procedures for defining capacity output $I \leq M$. We also propose a number of additional primal and dual measures of utilization of the variable and fixed inputs, including a multifixed input analog to Tobin's q. We relate these alternative utilization measures to one another and show that unambiguous inequality relationships among them (relative to unity) typically can be specified a priori only under rather restrictive assumptions. We show that unless restrictive assumptions are made, the multifixed input analogs to Tobin's q have little informational content regarding incentives for net investment of any specific fixed input. Finally, we demonstrate the usefulness of the alternative utilization measures by showing how they can be incorporated to adjust traditional measures of multifactor productivity growth for variations in short-run utilization.

Technological Characteristics of Industries and the Competitiveness of the United States and Its Multinationals

Irving B. Kravis and **Robert E. Lipsey**
Working Paper No. 2933
April 1989
JEL No. 440

The share of U.S. multinational firms in world exports of manufactures has remained almost constant at about 17 percent for the last 20 years while the share of the United States as a country has declined substantially. The composition of world manufactured exports shifted toward high technology or R and D–intensive products during these years and away from low technology products. The comparative advantage of the United States and Japan, and even more of U.S. multinationals, was in high tech products throughout the period. However, the United States and its multinationals shifted even further toward such products during the period than did the world as a whole, and the Asian newly industrialized countries' exports moved still faster in this direction.

With respect to short-run fluctuations, we find that the export shares of U.S. multinationals have been less sensitive to exchange rate fluctuations than those of the United States as a whole. Shares in high tech exports also have been less sensitive than those in low tech exports. High R and D intensity was a factor raising the competitiveness of U.S. industries, and particularly of U.S. multinationals in those industries. High advertising intensity raised the competitiveness of U.S. multinationals, but usually not that of their industries. Higher growth in R and D intensity also led to an increase in multinationals' shares of world exports between 1977 and 1982.

Simple Rules, Discretion, and Monetary Policy

Robert P. Flood and **Peter Isard**
Working Paper No. 2934
April 1989
JEL No. 310

This paper explores the possibilities arising under a policy in which a partially state-contingent money supply rule is mixed with discretion. In addition to demonstrating that such mixed strategies can dominate both complete discretion and rigid adherence to the partially state-contingent rule, we investigate the appropriate setting of parameters in a partially state-contingent policy when it is acknowledged that the rule will not be followed on all occasions—that is, that sometimes the monetary authority will resort to discretion.

The Pension Cost of Changing Jobs

Steven G. Allen, Robert L. Clark,
and **Ann A. McDermed**
Working Paper No. 2935
April 1989

Workers covered by defined-benefit pension plans receive lower benefits at retirement if they leave their current job before reaching retirement age. This study estimates the magnitude of this pension loss for workers in the May 1983 supplement of the Current Population Survey, using pension formula estimates from the 1983 Employee Benefit Survey. The pension loss is generally greatest between the ages of 35 and 54 and represents roughly half a year's earnings for that age group. The loss tends to be quite high in the declining mining and manufacturing sectors. This probably resulted in lower voluntary attrition at a time of massive layoffs and plant closings.

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