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Program Report

Taxation

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Since my last report in the Winter 1985/6 issue of the *NBER Reporter*, the Program in Taxation has produced 128 Working Papers, several NBER books, and a new *Taxation Annual*. In this report, therefore, I present a broad overview of the research and activities that have taken place over the past two years.

Tax Reform

The Bureau's most important contribution to tax reform during the past two years has been in personnel rather than Working Papers. Charles E. McLure, Jr., and Don Fullerton put their accumulated experience to work in practice, serving successively as Deputy Assistant Secretary for Tax Policy of the U.S. Treasury, during the period leading up to the enactment of the Tax Reform Act of 1986. Fullerton estimated the effective tax rates that were implied by the reform proposals under discussion, building on the technique described in his book (edited jointly with Mervyn A. King).¹ Fullerton expanded their model to include the noncorporate sector and housing, as well as all federal, state, and local taxes at the firm and individual level. After he left the Treasury Department, Fullerton was able to incorporate calculations on the final legislation; he concluded that the lower tax rates in the new law significantly reduce nonneutralities arising from the mismeasurement of depreciation and interest deductions (because of inflation).²

¹M. A. King and D. Fullerton, eds., *The Taxation of Income from Capital: A Comparative Study of the United States, the United Kingdom, Sweden, and West Germany*, Chicago: University of Chicago Press, 1984.

²D. Fullerton, "The Indexation of Depreciation, Interest, and Capital Gains and Tax Reform in the United States," *Journal of Public Economics* 32 (February 1987).

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This issue of the *Reporter* highlights the Bureau's Program in Taxation. Next, George J. Borjas describes his research in immigration and Angus S. Deaton discusses consumption in the business cycle. After the quarterly Economic Outlook Survey are biographical sketches, news of NBER conferences, the Conference Calendar, and other NBER news and reports. The *Reporter* concludes with short summaries of recent NBER Working Papers.

Fullerton also continues to apply general equilibrium analysis to the study of tax reform.³ In work with Yolanda K. Henderson, he introduces effective marginal tax rates into a computable general equilibrium model.⁴ According to their estimates, the misallocation of capital among assets, sectors, and industries caused by

³Fullerton, John B. Shoven, and John Whalley were pioneers in the development of highly disaggregated models, in which it is possible to simulate the effect of highly complex tax provisions as they interact through effects on different types of capital and labor employed in different industries. Their book with Charles L. Ballard, *A General Equilibrium Model for Tax Policy Evaluation*, published by the University of Chicago Press in 1985, is the recommended text on the subject.

⁴D. Fullerton and Y. K. Henderson, "A Disaggregate Equilibrium Model of the Tax Distortions among Assets, Sectors, and Industries," NBER Working Paper No. 1905, April 1986.

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taxes costs less than 1 percent of national income, a small amount relatively, but a large amount absolutely. They find that the efficiency gains attributable to more uniform taxation of capital under the new law generally will exceed the efficiency loss that is caused by the heavier taxation of capital overall.

Patric H. Hendershott also uses general equilibrium models in his examination of the effect of changes in the tax law.⁵ He finds that all of the tax reform proposals considered favored owner-occupied housing relative to other forms of capital. Because owner-occupied housing was already favored, this further tilt causes productivity losses that offset the productivity gained through more efficient allocation of capital in the corporate sector. Hendershott has also focused attention on the likely effects of reform on real estate.⁶ He finds that tax reform proposals, and the Tax Act of 1986 specifically, have widely divergent effects *within* the real estate sector.

In their work, Lawrence H. Goulder and Lawrence H. Summers simulate how capital stocks will adjust to the change in tax rules.⁷ The Tax Reform Act of 1986, by lowering tax rates, reduces the burden of tax on existing capital. At the same time, mainly by eliminating the investment tax credit, it raises the burden of tax on new capital. Such reforms affect capital gains and losses depending upon the cost of adjustment to new levels of capital stocks. Goulder and Summers show that different categories of assets experience quite different price changes and correspondingly different short- and long-term adjustments.

For his analysis of tax reform, Lawrence B. Lindsey uses detailed data from actual income tax returns to explore the effect on taxpayer behavior of changes in the law.⁸ Among other things, Lindsey finds that at least

⁵P. H. Hendershott, "Tax Reform and Financial Markets," NBER Working Paper No. 1707, September 1985; "Tax Reform, Interest Rates, and Capital Allocation," NBER Working Paper No. 1708, September 1985; "Tax Reform and the Slope of the Playing Field," NBER Working Paper No. 1909, May 1986, and "Tax Changes and Capital Allocation in the 1980s," NBER Working Paper No. 1911, May 1986; P. H. Hendershott and D. C. Ling, "The Administration Tax Reform Proposal and Housing," NBER Working Paper No. 1740, November 1985; and T. Downs and P. H. Hendershott, "Tax Policy and Stock Prices," NBER Working Paper No. 2094, December 1986.

⁶P. H. Hendershott, J. R. Follain, and D. C. Ling, "Real Estate and the Tax Reform Act of 1986," NBER Working Paper No. 2098, December 1986, and "Understanding the Real Estate Provisions of Tax Reform: Motivation and Impact," NBER Working Paper No. 2289, June 1987; and P. H. Hendershott, "Homeownership and Real House Prices: Sources of Change, 1965-85," NBER Working Paper No. 2245, May 1987.

⁷L. H. Goulder and L. H. Summers, "Tax Policy, Asset Prices, and Growth: A General Equilibrium Analysis," NBER Working Paper No. 2128, April 1987.

⁸L. B. Lindsey, "Taxpayer Behavior and the Distribution of the 1982 Tax Cut," NBER Working Paper No. 1760, November 1985; "Estimating the Revenue-Maximizing Top Personal Tax Rate," NBER Working Paper No. 1761, November 1985; "Capital Gains: Rates, Realizations, and Revenues," NBER Working Paper No. 1893, April 1986; "Individual Taxpayer Response to 1982-1984 Tax Cuts with Implications for the Revenue-Maximizing Tax Rate," NBER Working Paper No. 2069, December 1986, and "Capital Gains Taxes under the Tax Reform Act of 1986: Revenue Estimates under Various Assumptions," NBER Working Paper No. 2215, April 1987.

one-sixth, and probably one-fourth, of the revenue loss ascribable to the 1981 changes in the federal income tax was recouped by changes in taxpayer behavior from 1982-4. Lindsey uses NBER's TAXSIM model, which is under the general oversight of Daniel E. Feenberg.

Harvey S. Rosen also uses the TAXSIM model to show that even with the lower tax rates put in place by the Tax Reform Act of 1986, there may be a significant penalty on marriage for two-earner couples.⁹ In particular, the marriage tax can amount to 10 percent of joint gross income for low-income couples with children.

Jerry A. Hausman and James M. Poterba use recent estimates of labor supply and savings elasticities to describe the impact of the 1986 reforms on household behavior.¹⁰ They find that 41 percent of the taxpaying population will face marginal tax rates as high, or higher, under the new tax law as under the previous tax code, and they conclude that the reform will have little effect, since most households will experience only small changes in marginal tax rates. Hausman and Poterba estimate that the tax reform will increase labor supply by about 1 percent, and will reduce private savings slightly.

Jonathan S. Skinner reminds us of an often-overlooked cost of tax reform: uncertainty about future net-of-tax wages and profits created by frequent shifts in policy.¹¹ He estimates the uncertainty about one-year-ahead forecasts of tax rates, based on the time-series record. He concludes that removing uncertainty about future tax policy would generate a welfare gain equal to 0.4 percent of national income.

Social Security

Although not the target of a major reform during the last two years, Social Security surely rivals the income tax in importance and has received a significant share of the attention of Bureau researchers. Various papers describe the distributive consequences of the existing tax and benefit rules, some of the incentive effects they produce, and the likely consequences of alternative ways of financing the system in the future.

Alan J. Auerbach and Laurence J. Kotlikoff point out that, because the distorting effect of a tax is proportional to the square of its rate, the payroll tax may double the deadweight loss caused by the income tax alone. This loss is mitigated to the extent that the existing linkage between current earnings (and thus taxes) and future benefits is understood by workers. Auerbach and Kotlikoff estimate that, by seeking to ensure that

workers are aware of this linkage, and by introducing policies to tighten the linkage, gains of as much as 1 percent of GNP in perpetuity are possible.¹²

In a series of papers, Kotlikoff, Michael J. Boskin, and John B. Shoven look at the expected present value of Social Security benefits and taxes for households of different characteristics, including marital status, incomes, and age cohorts.¹³ They find that, under the rules in effect in 1985, Social Security offers vastly different terms to households in different circumstances. Net gain or loss varies by \$200,000 and real internal rates of return on contributions range from negative numbers to 6.6 percent. The link between taxes and benefits is similarly variable, with the expected present value of benefits ranging from zero to 30 percent of taxes paid at the margin. Boskin also considers the consequences of the alternative policies on Social Security taxes and benefits that may emerge as the system moves into a period when current policy calls for accumulating large surpluses, in contrast to the traditional pay-as-you-go mode of operation. Also looking to the future financial status of Social Security, Shoven calculates the "cost" of a decline in cigarette smoking in the population: because of shorter life expectancy, smokers can expect to receive substantially lower benefits than nonsmokers do.

Boskin, Kotlikoff, and Michael Knetter find that increases in Social Security benefits sharply increased the share of income received by households over age 65 between 1968 and 1984. They also find that the relative earnings of the elderly cohorts decreased during this period.¹⁴

Determinants of Saving

A number of papers during the last two years have examined the determinants of saving, and especially the explanatory power of the life-cycle model of saving. In its purest form, the model says that individuals plan to consume the fruits of their labor earnings in their years of retirement, leaving nothing to heirs via bequests. However, past work by Bureau researchers has suggested that a very significant amount of wealth

⁹H. S. Rosen, "The Marriage Tax Is Down but Not Out," NBER Working Paper No. 2231, May 1987.

¹⁰J. A. Hausman and J. M. Poterba, "Household Behavior and the Tax Reform Act of 1986," NBER Working Paper No. 2120, January 1987.

¹¹J. S. Skinner, "The Welfare Cost of Uncertain Tax Policy," NBER Working Paper No. 1947, June 1986.

¹²A. J. Auerbach and L. J. Kotlikoff, "The Efficiency Gains from Social Security Benefit-Tax Linkage," NBER Working Paper No. 1645, June 1985.

¹³M. J. Boskin, L. J. Kotlikoff, D. J. Puffert, and J. B. Shoven, "Social Security: A Financial Appraisal Across and Within Generations," NBER Reprint No. 884, August 1987; M. J. Boskin and D. J. Puffert, "Social Security and the American Family," NBER Working Paper No. 2117, January 1987, and "The Financial Impact of Social Security by Cohort under Alternative Financing Assumptions," NBER Working Paper No. 2225, April 1987; M. J. Boskin, "Future Social Security Financing Alternatives and National Saving," NBER Working Paper No. 2256, May 1987; and J. B. Shoven, J. O. Sundberg, and J. P. Bunker, "The Social Security Cost of Smoking," NBER Working Paper No. 2234, May 1987.

¹⁴M. J. Boskin, L. J. Kotlikoff, and M. Knetter, "Changes in the Age Distribution of Income in the United States, 1968-84," NBER Working Paper No. 1766, November 1985.

is bequeathed. Thus, explaining bequests behavior is an important part of explaining aggregate saving.

Kotlikoff examines a range of findings on the importance of intergenerational transfers and on their determinants.¹⁵ He concludes that available explanations, including the simple and most obvious one of intergenerational altruism, are at odds with observed behavior.

Intergenerational altruism plays a particularly important role in the "dynastic family" notion introduced by Robert J. Barro in his well-known analysis of the national debt. In this model, concern of each generation for the welfare of its descendants converts the world into one of infinitely lived consumers. In this world, a reduction in current taxes without a reduction in current or planned government spending will have no effect on current consumption—hence the conclusion that deficits don't matter. A further implication of this model is that redistribution of resources among generations via government policy will be offset by changes in bequests.

Boskin, Kotlikoff, Poterba, and Summers all conclude that the pure dynastic family model is unsatisfactory as a basis for analyzing fiscal policies. Boskin and Kotlikoff show that variables measuring the age distribution of resources influence actual consumption.¹⁶ Poterba and Summers base their skepticism on the recent U.S. experience with sustained budget deficits, which coincided with increased consumption.

Papers by Andrew B. Abel, B. Douglas Bernheim, and Martin Feldstein also stress reasons to expect the dynastic model to fail, while Kotlikoff's findings support this model.¹⁷ Bernheim and Kyle Bagwell, in a display of *reductio ad absurdum*, show that the intragenerational links that exist in the population, in addition to the argument underlying the dynastic family model, imply that government policy has no effect.

Kotlikoff, Stephen Johnson, and William Samuelson take more direct aim at the life-cycle model, whether in its pure form or in its dynastic, infinite-lived version. They asked individuals to make the sort of calculations required to make "rational" lifetime consumption choices.¹⁸ The responses of the subjects in their

experiment suggest a widespread inability to make coherent and consistent consumption decisions. The implications for positive and normative analysis of this conclusion, which would not surprise the layman, have yet to be digested.

Corporate Investment and Finance

Tax program members have continued their interest in the influence of taxation on corporate investment and finance. Part of their activity has taken place under the auspices of the Bureau's Project on Mergers and Acquisitions, organized by Auerbach.

Auerbach and David Reishus examined a large number of mergers and acquisitions that occurred during 1968–83. They find that there was a potential gain from the transfer of unused tax losses and credits in about one-fifth of the cases.¹⁹ Basing their projections on differences between pairs of firms that merged and a sample of "pseudomergers" that did not occur, they conclude that the provisions with respect to mergers introduced by the Tax Reform Act of 1986 will have a small impact on U.S. mergers and acquisitions.

Andrei Shleifer, Robert W. Vishny, and Randall Mørck investigated the relationship between management ownership and corporate performance, as measured by the ratio of market-to-book value of *Fortune* 500 firms.²⁰ They conclude that corporate performance is strongest when management has a significant ownership interest, but not a controlling interest.

In two papers about nondividend cash payments between corporations and their shareholders, Shoven has revisited the question of why corporations pay dividends.²¹ Share repurchase (or its close relative: merger for cash) is the mechanism by which it is possible to duplicate the effect of payment of dividends while permitting shareholders the advantage of capital gains treatment (including the option to postpone realization). Shoven's work (partly in collaboration with Laurie Blair Simon) suggests that firms have increasingly behaved as economic analysts have long believed they ought to, as the data show a tremendous growth in nondividend cash payments.

Other work by Auerbach, Poterba, and Stewart C. Myers focuses on the asymmetries in the tax law; that

¹⁵L. J. Kotlikoff, "Intergenerational Transfers and Savings," NBER Working Paper No. 2237, May 1987.

¹⁶M. J. Boskin and L. J. Kotlikoff, "Public Debt and U.S. Saving: A New Test of the Neutrality Hypothesis," NBER Reprint No. 705, April 1986.

¹⁷A. B. Abel, "The Failure of Ricardian Equivalence under Progressive Wealth Taxation," NBER Reprint No. 862, July 1987; L. J. Kotlikoff, "Is Debt Neutral in the Life-Cycle Model?" NBER Working Paper No. 2053, October 1986; M. Feldstein, "The Effects of Fiscal Policies When Incomes Are Uncertain: A Contradiction to Ricardian Equivalence," NBER Working Paper No. 2062, November 1986; and B. D. Bernheim and K. Bagwell, "Is Everything Neutral?" NBER Working Paper No. 2086, December 1986.

¹⁸S. Johnson, L. J. Kotlikoff, and W. Samuelson, "Can People Compute? An Experimental Test of the Life-Cycle Consumption Model," NBER Working Paper No. 2183, March 1987.

¹⁹A. J. Auerbach and D. Reishus, "Taxes and the Merger Decision: An Empirical Analysis," NBER Working Paper No. 1855, March 1986, and "The Effects of Taxation on the Merger Decision," NBER Working Paper No. 2192, March 1987.

²⁰R. Mørck, A. Shleifer, and R. W. Vishny, "Management Ownership and Corporate Performance: An Empirical Analysis," NBER Working Paper No. 2055, October 1986.

²¹J. B. Shoven, "New Developments in Corporate Finance and Tax Avoidance: Some Evidence," NBER Working Paper No. 2091, December 1986; and J. B. Shoven and L. B. Simon, "Share Repurchases and Acquisitions: An Analysis of Which Firms Participate," NBER Working Paper No. 2243, May 1987.

is, the dependence on the tax treatment of a particular transaction on the tax profit or loss position of the firm.²² Using data on actual firms, they conclude that these asymmetries have an important bearing on the investment incentive effects of tax provisions. At any given time there will be significant differences across firms in the incentives that arise from such provisions as accelerated depreciation.

State and Local Public Finance

The Bureau has sought to encourage research in two areas of public finance through special projects: one on state and local public finance and the other on taxes in the international economy. Harvey Rosen leads the Bureau's project on state and local public finance, which is partially funded by the Ford Foundation. This project has investigated the structure of state income taxes and their relationship to the federal tax; state experiments with tax indexing; capacities of states for redistributive taxation; and state and local government financial choices.

Studies undertaken by Feenberg, Feldstein, Rosen, Robert P. Inman, and Douglas Holtz-Eakin use a variety of data sources to infer the behavior of state and local governments.²³ In general, all find that federally tax-advantaged tax instruments will be favored in local political choice.

Charles T. Clotfelter has focused on a revenue source that thus far is used only by the states: legal lotteries.²⁴ Clotfelter's work emphasizes how state profits from lotteries can be viewed as taxes. He finds that state tax rates on lotteries are far higher than taxes on alcohol, cigarettes, and other goods, and that these taxes are highly regressive.

²²A. J. Auerbach and J. M. Poterba, "Tax Loss Carryforwards and Corporate Tax Incentives," NBER Working Paper No. 1863, March 1986; S. Majd and S. C. Myers, "Tax Asymmetries and Corporate Income Tax Reform," NBER Working Paper No. 1924, May 1986; and R. Mörck, R. Altschuler, and A. J. Auerbach, "The Significance of Tax Law Asymmetries: An Empirical Investigation," NBER Working Paper No. 2279, June 1987.

²³R. P. Inman, "Does Deductibility Influence Local Taxation?" NBER Working Paper No. 1714, October 1985; D. R. Feenberg and H. S. Rosen, "The Deductibility of State and Local Taxes: Impact Effects by State and Income Class," NBER Reprint No. 711, May 1986; M. Feldstein and G. Metcalf, "The Effect of Federal Deductibility on State and Local Taxes and Spending," NBER Working Paper No. 1791, January 1986; D. Holtz-Eakin and H. S. Rosen, "Tax Deductibility and Municipal Budget Structure," NBER Working Paper No. 2224, April 1987; and L. B. Lindsey, "Federal Deductibility of State and Local Taxes: A Test of Public Choice by Representative Governments," NBER Working Paper No. 2292, June 1987.

²⁴C. T. Clotfelter and P. J. Cook, "Impact Taxation in Lottery Finance," NBER Working Paper No. 2246, May 1987.

Taxes in the International Economy

The Bureau is just initiating a project on taxes in the world economy. It will be a joint undertaking of the Programs in Taxation and International Studies and will be led by Joel B. Slemrod and Assaf Razin.

Until recently, most analysis of the effects of fiscal reform has been carried out in a closed-economy framework, while the reforms have gone forward in an increasingly open world economy. The most significant aspect of openness from the point of view of taxation, at least to most observers, is capital mobility. In a closed economy, the effect of policies on saving is simultaneously an effect on investment, via the accounting identity. In a fully open capital market, domestic investment and domestic saving are free to vary independently. As a consequence, the effects of tax policy on the domestic profits tax base, the national composition, efficiency, and competitiveness of industry, may all be quite different from those expected by policymakers relying on closed-economy analysis. Furthermore, with internationally open markets, the policies of one country spill over to other countries. Our research project will consolidate recent advances that have integrated tax concerns with international trade and finance concerns, and will attempt to move the research frontier to the point where tax policy issues can be analyzed in an international context.

Roger H. Gordon and Hal R. Varian show that standard models of the determination of securities prices imply an incentive for countries to set tax rates that lead investors to specialize in domestic securities in equilibrium, and to restrict net capital flows.²⁵ The net outcome of this sort of interjurisdictional competition (analogous to setting optimal tariffs) is a sacrifice in world efficiency.

Summers's paper on tax policy and international competitiveness contributes to the conversion of analysis in public finance from a closed- to an open-economy framework.²⁶ In an open economy, familiar conclusions involving fixed, or very slowly changing, capital stocks are radically altered (to something like horizontal supply curves of capital). The effects of tax policies then depend critically on the extent of the international capital flows that they generate. For example, a policy that stimulates domestic investment without stimulating domestic saving inevitably must lead to deterioration in a country's trade balance unless counteracting policies are enacted (which therefore must stifle the investment stimulus).

²⁵R. H. Gordon and H. R. Varian, "Taxation of Asset Income in the Presence of a World Securities Market," NBER Working Paper No. 1994, August 1986.

²⁶L. H. Summers, "Tax Policy and International Competitiveness," NBER Working Paper No. 2007, August 1986.

Other Work

Kotlikoff and Summers's survey of the literature on tax incidence is useful as a refresher on the subject and especially oriented to teachers of public finance.²⁷ King provides an overview of the conditions required for analysts to draw valid welfare conclusions about tax law changes from models based on individual household data.²⁸

Joseph E. Stiglitz outlines a general set of principles for avoidance of the individual income tax.²⁹ In a perfect capital market, the methods he describes would enable the astute taxpayer to avoid all taxes on capital income. The fact that tax revenue attributable to capital appears to be positive is almost certainly caused by lack of perfection in capital markets. Taking capital market imperfection into account systematically upsets a great many standard conclusions that are, implicitly or explicitly, based on the assumption that taxpayers can borrow and lend freely at the going interest rate. The importance of capital market imperfections has also been stressed by R. Glenn Hubbard and Kenneth L. Judd.³⁰

In another line of research, Stiglitz exposes the logic of the theory of optimal income taxation.³¹ Along the way, he casts serious doubt on the relevance of well-known propositions about optimal commodity taxes. In joint work with David E. M. Sappington, Stiglitz considers the choice between public and private provision of goods and services.³² They emphasize the importance of transactions costs faced by the government when it attempts to intervene (costs that are lower under public ownership). There is also a trade-off between government savings on transactions costs and the beneficial private incentive effects of commitments not to intervene (which are relatively credible under private ownership).

²⁷L. J. Kotlikoff and L. H. Summers, "Tax Incidence," NBER Working Paper No. 1864, March 1986.

²⁸M. A. King, "The Empirical Analysis of Tax Reforms," NBER Working Paper No. 1996, August 1986.

²⁹J. E. Stiglitz, "The General Theory of Tax Avoidance," NBER Working Paper No. 1868, March 1986.

³⁰R. G. Hubbard and K. L. Judd, "Social Security and Individual Welfare: Precautionary Saving, Liquidity Constraints, and the Payroll Tax," NBER Working Paper No. 1736, October 1985.

³¹J. E. Stiglitz, "Pareto-Efficient and Optimal Taxation and the New 'New Welfare Economics,'" NBER Working Paper No. 2189, March 1987.

³²D. E. M. Sappington and J. E. Stiglitz, "Privatization, Information, and Incentives," NBER Working Paper No. 2196, March 1987.

Research Summaries

Immigration

George J. Borjas

During the early 1980s, on average, there were more than 570,000 legal immigrants to the United States each year. This flow was substantially higher than the annual average in the 1970s (449,000) and in the 1960s (332,000). But large numbers of illegal immigrants also entered the country. The 1960 U.S. Census, for example, counted over 1 million more persons in the United States who had been born in Mexico than would have been expected if there had been no illegal immigration. In addition, the overwhelming majority of these "unexpected" persons were not the single men who form the stereotypical image of an illegal alien; instead, many were members of established households in the United States.¹

The growing importance of immigration as a determinant of demographic change in the United States explains the renewed concern about immigration policy. My own research in this area has been motivated by two questions that are at the core of the policy debate: (1) What is the impact of immigrants on the U.S. labor market? and (2) How do the "new" immigrants perform in, and adapt to, the labor market? The answers to these questions play a fundamental role in any evaluation of the costs and benefits of alternative immigration policies.

Impact of Immigrants on the Labor Market

The fear that immigrants "take jobs away" from natives has been a recurrent theme in discussions of immigration policy throughout U.S. history. Surprisingly, very little systematic empirical evidence existed prior to the 1980s to document the importance of this possibility. The existing literature argued either that, for every immigrant admitted, a native worker was displaced, or that immigrants take only jobs that the native labor force "refuses" to accept.² In a sense, this literature assumed the answer to the problem, since it presumed either that immigrants and natives were perfect substitutes in production, or that immigrants and natives did not interact at all in the labor market.

¹G. J. Borjas, R. B. Freeman, and K. Lang, "Undocumented Mexican-Born Workers in the United States: How Many and How Permanent?" (1987), unpublished paper.

²M. Piore, *Birds of Passage: Migrant Labor and Industrial Societies*, New York: Cambridge University Press, 1979.

However, the extent of competition between immigrants and natives in the labor market can be determined empirically.³ Immigrants may have skills that are quite similar to those of some native groups; hence immigrants will compete with these natives in the labor market. On the other hand, immigrant skills may complement the skills of other native workers, and the two groups will be complements in production. To estimate the level of competition, the earnings and employment levels of native and immigrant groups must be compared. If immigrants and natives are substitutes in production and compete for the same jobs, then the earnings of native workers will be lower in those markets where the immigrant supply is relatively high, if other variables that determine worker productivity and wage levels are constant. Conversely, if immigrants and natives are complements in production, then native earnings in labor markets with large supplies of immigrants should be higher than in the rest of the country.

My study of the 1980 Census shows that immigrants and natives, as a group, are indeed substitutes in production: native earnings are lower in those labor markets where immigrants are concentrated.⁴ However, the empirical analysis suggests that a 10 percent increase in the number of immigrants reduces the wage level of the native population by 0.2 percent at most. The Census data suggest that whites and immigrants are closer substitutes than blacks and immigrants are. A 10 percent increase in the number of immigrants increases the average black wage by roughly 0.2 percent. Therefore, the empirical evidence does not support the hypothesis that the large immigration flows observed in recent years have hampered the economic progress of black natives.

The analysis does identify a group that is a clear substitute for the immigrant population: the foreign-born population already residing in the United States. A 10 percent increase in the number of immigrants will reduce the wages of all immigrants by 2–9 percent. In other words, immigrants take jobs away from other immigrants.

Although the estimated impact of immigrants on the wages of native Americans seems to be relatively small, the statistics may underestimate the true impact of immigrants in the labor market. Over half of all immigrants reside in four states: California, New York, Florida, and Texas. This geographic concentration of the foreign-born population implies that a 10 percent increase in the size of the immigrant population will lead to a much greater impact in the small number of labor

markets where these immigrants are located than elsewhere in the country. Therefore, immigrants may have sizable impacts on those few labor markets where they reside, even though their impact on the average wage level of all natives will be trivial.

Second, most of the literature focuses on differences across Standard Metropolitan Statistical Areas (SMSAs) or labor markets. Of course there are factors specific to SMSAs that will generate wage differences across regions even in the absence of any immigration. A better analysis, therefore, would “track” the wages and employment levels of natives in a given labor market over time as immigrants move into the area. My study of the 1970 and 1980 Censuses found that the effects of immigration estimated over time were somewhat larger than those estimated by the area for 1980. But even the time-series effects were relatively small.⁵

Immigrant Performance in the Labor Market

The early studies in this literature compared the earnings of immigrants to those of natives in a single cross section of data (after controlling for differences in observable characteristics, such as education and age).⁶ These studies typically found that: (1) the earnings of immigrants immediately upon arrival in the United States were significantly lower than the earnings of “comparable” natives (that is, natives of the same age, educational attainment, and other observable socioeconomic characteristics); (2) as immigrants (and natives) accumulated experience in the U.S. labor market, the earnings of immigrants rose at a much higher rate than the earnings of comparable natives did; and (3) this higher rate of earnings growth led immigrant earnings to “overtake” the earnings of comparable natives after 10–15 years in the United States.

The traditional explanation for these findings relied on two hypotheses. The first was based on the theory of human capital. It argued that upon arrival in the United States immigrants lacked skills “specific” to the U.S. labor market; in order to recoup the costs of migration, immigrants had very high incentives to acquire these skills. The lack of skills, and their rapid accumulation after immigration, explained both the relatively low initial earnings of immigrants and the faster rate of growth of earnings as they aged in the United States. However, the human capital hypothesis does not explain why

³G. J. Borjas, “The Substitutability of Black, Hispanic, and White Labor,” *Economic Inquiry* 21 (January 1983), pp. 93–106; and J. B. Grossman, “The Substitutability of Natives and Immigrants in Production,” *Review of Economics and Statistics* 54 (November 1982), pp. 596–603.

⁴G. J. Borjas, “Immigrants, Minorities, and Labor Market Competition,” *NBER Working Paper No. 2028*, September 1986, and *Industrial and Labor Relations Review* 40 (April 1987), pp. 382–392.

⁵G. J. Borjas, “The Sensitivity of Labor Demand Functions to Choice of Dependent Variable,” *NBER Reprint No. 735*, July 1986, and *Review of Economics and Statistics* 68 (February 1986), pp. 58–66.

⁶G. J. Borjas, “The Earnings of Male Hispanic Immigrants in the United States,” *Industrial and Labor Relations Review* 35 (April 1982), pp. 343–353; G. Carliner, “Wages, Earnings, and Hours of First-, Second-, and Third-Generation American Males,” *Economic Inquiry* 18 (January 1980), pp. 87–102; and B. R. Chiswick, “The Effect of Americanization on the Earnings of Foreign-Born Men,” *Journal of Political Economy* 86 (October 1978), pp. 897–921.

immigrants eventually earn more than natives do, since it is unclear why immigrants would want to accumulate more human capital than natives do.

Hence it was assumed that immigrants are positively selected from the population of their countries of origin. That is, immigrants are a highly select group and may be more able and more motivated than natives of similar education and age are. This selection process may explain why immigrants earn more than natives do after a few years in the United States.

My research in this area was motivated both by methodological problems with the traditional empirical framework and by conceptual problems with the blanket assumption of positive selection. The methodological problem is that a single cross section of data cannot disentangle aging and cohort effects. The strong positive correlation observed between immigrant earnings and years of residence in the United States in a cross section can be caused by three factors: (1) labor market assimilation, so that as immigrants age they acquire skills valued by the U.S. labor market; (2) earlier waves of immigrants are systematically more productive than the most recent waves are, and these cohort effects might arise because of economic and political changes in the United States or in the countries of origin; and (3) cohort effects also might arise if return migration rates of immigrants are high, and if "failures" tend to leave the United States so that the average "survivor" from an early immigrant wave is more productive than the typical recent immigrant is. Most of the early literature stresses the importance of assimilation in explaining the empirical results and ignores the possibility that cohort effects also can account for the rapid growth in immigrants' earnings.

The identification of cohort and aging effects requires more than a single cross section of data. In my work, I have attempted to "track" specific cohorts of immigrants (that is, immigrants born in a particular country who arrived in the United States at a particular time) across Censuses.⁷ I find that the rate of convergence between immigrant earnings and native earnings is much smaller than was found in the early cross-sectional studies. Second, the labor market performance of the most recent immigrant waves is significantly worse than the labor market performance of earlier immigrant waves. Third, the most recent immigrant waves are very unlikely to overtake the earnings of the comparable native population. Hence, *immigrant* performance in the labor market for the most recent immigrant waves is likely to be worse than that of comparable natives throughout the lifetime of the first generation of immigrants.

Of course, this analysis raises a number of questions about why these changes in immigrant "quality" have occurred in the last 20-30 years. Although early studies

in the literature argued that positive selection generated the immigrant pool, they did not develop systematic economic models of the selection mechanism. In recent work, I consider a framework in which all persons in a given country of origin compare their earnings opportunities in that country with their earnings opportunities in the United States and make the migration decision based on this differential (net of migration costs).⁸ This standard wealth-maximizing framework leads to important insights into the question of whether or not immigrants are positively or negatively selected from the population of the country of origin, and gives a set of necessary and sufficient conditions required for each type of selection to occur.

Suppose that able individuals do well regardless of where they live (that is, there is a strong positive correlation in earnings across countries). In order for wealth-maximizing individuals to be positively selected, there must be more income inequality in the United States than in the country of origin. (A necessary condition for negative selection is that there be more income inequality in the country of origin than in the United States.) Intuitively, if there is more income inequality in the United States than in the country of origin, then the latter in a sense "taxes" able workers and "insures" low-ability workers against poor outcomes in the labor market. This leads to increased incentives for high-ability workers to migrate and generates a "brain drain" or positive selection. Conversely, if there is more income inequality in the country of origin than in the United States, low-ability workers have the greatest incentive to migrate, and negative selection is generated. Therefore, there is no general economic "law" stating that the immigrant population must be drawn from the most able and most ambitious people.

Economic theory suggests that positive selection is likely from some countries (those with relatively low levels of income inequality), and that negative selection is likely from other countries (those with relatively high levels of income inequality). My empirical analysis of the 1970 and 1980 U.S. Censuses revealed that indeed this is what is observed. Migrants from Western European countries (and other advanced economies) tend to do better in the U.S. labor market than natives with comparable skills do, while migrants from poorer countries (which tend to have more dispersion in their income distributions) do not perform as well in the labor market as natives of the same age and education do.

This approach provides one interesting explanation of why the quality of immigrant cohorts declined over the postwar period. Prior to the 1965 amendments to the Immigration and Nationality Act, the allocation of visas across countries was guided by the ethnic/racial composition of the U.S. population in 1919 and thus favored migration from a number of Western European

⁷G. J. Borjas, "Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants," NBER Reprint No. 681, February 1986, and *Journal of Labor Economics* 3 (October 1985), pp. 463-489.

⁸G. J. Borjas, "Self-Selection and the Earnings of Immigrants," NBER Working Paper No. 2248, May 1987, and *American Economic Review* 87 (September 1987).

countries. The 1965 amendments removed these “discriminatory” restrictions and led to a major increase in the number of immigrants originating in Asia and Latin America. Therefore, the “new” immigration is more likely to originate in countries where income inequality (relative to the United States) is high. Thus it would not be surprising if the recent immigrant waves are more likely to be negatively selected than the earlier waves were. In addition, the 1965 amendments de-emphasized skills and occupational characteristics as a determinant of visa allocation among the applicants and made family reunification the main goal of immigration policy. In fact, over 70 percent of all legal immigration to the United States in 1985 occurred under one of the kinship provisions of the immigration law. This shift, of course, provides additional reinforcement for negative selection to take place since the family, in a sense, provides a “safety net” for the immigrant and insures low-ability immigrants against poor labor market outcomes.

Conclusion

The empirical evidence reviewed here shows that concerns about the “costs” of current immigration policy are somewhat misplaced. There is very little evidence that immigrants have had a major negative impact on native earnings and employment opportunities (especially those of minorities), but there is strong evidence that the major shift in the law in 1965 had some unforeseen consequences: post-1965 immigrants do not perform as well in the labor market as the earlier waves did.

Consumption in the Business Cycle

Angus S. Deaton

One of the standard facts of economics is that consumers' expenditures fluctuate less over the business cycle than gross domestic product (GDP) or consumers' disposable income do. The standard explanation is that consumers' expenditures respond not to measured income, but to *permanent* income. Since permanent income has a horizon longer than a single year, any transitory fluctuations are ironed out, and permanent income is smoother than measured income. This interpretation has been widely accepted for the last 30 years and is one of the cornerstones of the empirical support for the permanent-income theory. This summary discusses recent research by myself and others

that challenges this explanation. There are two key issues: Is permanent income really smoother than measured income? If not, why is consumption so smooth?

The Puzzle

The theory of permanent income does not *presume* that permanent income should be smoother than measured income. A standard definition of permanent income is: the constant income flow that has the same present discounted value as the stream of current and expected future flows of labor income. Permanent income therefore will depend on how expectations are formed and on how labor income is generated. Given a description of the determinants of income and of the way in which expectations are formed, one can calculate permanent income and see whether it varies more than measured income does.

The standard view of consumption in the business cycle sees an underlying deterministic trend rate of growth of the economy around which cyclical fluctuations take place. In the upswing, consumers recognize that the economy is growing more rapidly than is sustainable, so that part of their current income is transitory. Therefore, permanent income will not follow measured income but will keep closer to the underlying trend, and neither permanent income nor consumption will be influenced much by the cycle.

An alternative explanation has recently emerged from time-series analysis of macroeconomic variables.¹ Many U.S. series, particularly income and GDP, have a rate of change that varies around a constant mean and is *positively* autocorrelated from one quarter to the next. After seasonal adjustment, if income growth is higher than its average value in one quarter, it will also tend to be higher in the subsequent quarter. Empirical analysis suggests that about 40 percent of the deviation from trend can be expected to persist from one quarter to the next.

Since the rate of change of income is also subject to random shocks, this alternative story is quite consistent with observed business cycles. Some random, unanticipated shock—an “innovation”—will disturb the rate of growth of income from its trend, thus initiating a “cycle.” Growth that is faster or slower than normal will then persist until either geometrical decay dampens out the original shock, or a sufficiently large innovation comes along to tip the process the other way, turning upswing into downswing or vice-versa.

While such a view gives as good an empirical “fit” to the business cycle as the traditional story does, it embodies a radically different view of the nature of economic fluctuations. In particular, it sharply contradicts

¹A. S. Deaton. “Life-Cycle Models of Consumption: Is the Evidence Consistent with the Theory?” NBER Working Paper No. 1910, May 1986.

the standard explanation of why consumption is so smooth. Imagine a consumer who typically receives, and has grown to expect, an annual increase of 3 percent in labor income. During the "cyclical upswing," his or her employer is doing well, and gives an increase of 5 percent. If this representative consumer's income has behaved like U.S. disposable labor income in the past, there is no reason to suppose that the additional 2 percent increase will ever have to be repaid. There is no mechanism in the process that will drag income back to some predetermined trend, so that income is now permanently higher. Indeed, because of the positive autocorrelation over the "cycle," some of this year's good fortune can be expected to repeat next year. In consequence, the initial innovation of the 2 percent increase is *more than permanent*. Not only will it last forever, but it also can be expected to be supplemented further by another infinitely lived gain in the next period. In such a world, innovations to actual income generate magnified innovations in permanent income, and permanent income is less smoothed than measured income is.

How Does Income Behave?

In my original paper, I drew attention to this puzzle and discussed a number of possible explanations. The most obvious is to reject the time-series model of the business cycle in favor of the traditional account in which income fluctuates around a predetermined and immutable growth path. Many economists find this attractive, partly because they are comfortable with the notion of a fixed growth path for the economy and uncomfortable with the idea of a random one, and partly because the permanent-income theory itself is attractive, and they would like to preserve it as part of the intellectual furniture. Ideally, the matter ought to be settled by empirical evidence, and it seems as if it ought to be easy to settle such a major question as whether or not the economy is on a random growth path. Unfortunately, and in spite of recent advances in time-series analysis, the answers are very far from clear.

One of the first problems is that the permanent-income theory of consumption asserts that permanent income ought to be formed from the expected values not of *total* income, but of *labor* income. In the United States, income taxes are not computed separately on labor and property income. So no data exist for after-tax labor income. Nevertheless, it is possible to create a labor income series from the official data by excluding various types of gross property income and making an attempt to prorate taxes.² Fortunately, the behavior of this series over time and business cycles is very similar to that of standard official series, such as total household disposable income and GDP. Unfortunately, the

evidence is not clear whether these series are best described by fluctuations about a deterministic trend or by a simple model of positively autocorrelated rates of growth with no deterministic trend.

In a recent paper, John Campbell and I ran statistical tests on both labor and total income.³ Standard methods of time-series analysis tend to lead to specifications without deterministic trends in which permanent income is much less smooth than measured income, and in which an innovation in labor income generates an innovation in permanent income that is about 1.8 times as large. Even so, it is not possible to reject the alternative model: that a deterministic trend exists and that permanent income is smoother than measured income. What is clear is that, if there are forces that cause income to revert to trend after each shock, these forces act very slowly. In the absence of further shocks, the return to trend will take more than 10, and possibly 20 to 30 years.

In spite of all the uncertainty about the results of the tests, one thing is clear and should be emphasized. While it is certainly not possible to provide incontrovertible evidence that permanent income is less smooth than measured income, the evidence for the contrary and conventional position is weak. Indeed, for a proposition that has been held as all but self-evident for 30 years, the empirical evidence in favor of trend reversion is *astonishingly* weak.

Possible Resolutions: Why Is Consumption So Smooth?

Campbell and I considered a number of possible resolutions for the original puzzle. One very attractive possibility, also emphasized by Kenneth West,⁴ is that consumers have more information about their future income prospects than is contained in the past history of their incomes. If an employee is given advance notice of an increase in income, consumption should be altered when the information becomes available, not when the pay raise actually takes effect. In the extreme case in which the individual has prior knowledge of all income changes, permanent income as seen by the consumer will be constant over time, even though, to an observer, changes in measured income would seem to warrant changes in permanent income.

Perhaps surprisingly, it is possible to test this explanation. In earlier work,⁵ Campbell had pointed out that

²A. S. Blinder and A. S. Deaton, "The Time-Series Consumption Function Revisited," *Brookings Papers on Economic Activity* 2 (1985), pp. 465-511.

³J. Y. Campbell and A. S. Deaton, "Is Consumption Too Smooth?" NBER Working Paper No. 2134, January 1987.

⁴K. D. West, "Dividend Innovation and Stock Price Volatility," NBER Working Paper No. 1833, February 1986.

⁵J. Y. Campbell, "Does Saving Anticipate Declining Labor Income? An Alternative Test of the Permanent-Income Hypothesis," NBER Working Paper No. 1805, January 1986.

Economic Outlook Survey

consumers' superior information about innovations to permanent income will show up in their consumption or saving behavior, so that, to an outside observer, saving will help predict future changes in income. Empirical analysis confirms this prediction, so that if, in addition to using the past history of labor income to predict its future, we also use past saving, we can calculate the innovations to permanent income as perceived by the consumer. While these innovations are certainly smaller than those that are calculated without using saving to predict income, they are still too large. We find, once again, the permanent income is less smooth than measured income. Even if we recognize that consumers have more information than we do, the permanent-income theory is still incapable of explaining why consumption is so smooth. Using quite different techniques, West has reached exactly the same conclusion recently.⁶

A substantial literature has shown that, in the United States, changes in consumption are correlated with changes in income in the previous quarter. This correlation, which exists for labor income and for total income, is inconsistent with the permanent-income theory since, for forward-looking consumers, consumption should change in response only to *new* information. It turns out that the correlation is also responsible for the smoothness of consumption relative to a nonsmooth permanent income.

One way of thinking about the result is to suppose that consumption adjusts only slowly to changes in permanent income, because there is "habit formation" and consumers recognize that increasing consumption too rapidly now will generate a loss of utility in the future once new standards of living have been experienced. Such models, although widely used in the 1950s, have received relatively little attention since, perhaps because it was thought that their predictions were identical to those of the permanent-income theory while the latter was to be preferred because it was based on choice theory. However, the research discussed here has shown that the partial adjustment, or habit formation, story is more in accord with the evidence. Permanent income still helps to determine consumption, even if it is less smooth than measured income. Consumers adjust at once to new information, albeit partially, so that saving still helps to predict future income. At the same time, the partial nature of the adjustment explains why changes in consumption are related to past changes in income. Much work still remains to be done along this and other avenues, but a reasonably coherent synthesis of theory and evidence seems well within sight.

⁶K. D. West, "The Insensitivity of Consumption to News About Income," NBER Working Paper No. 2252, May 1987.

Third Quarter 1987

Victor Zarnowitz

According to the September survey of 22 professional forecasters taken by NBER and the American Statistical Association, there will be a continuation of moderate growth in real GNP. Their median forecasts are 2.6 percent in 1986-7 and 2.8 percent in 1987-8. They also project growth of 2.8 percent for the year immediately ahead, 1987:3-1988:3. Thus, the current economic expansion is expected to last for at least another year, which would be its sixth. No peacetime expansion on record in the United States has been longer than five years. Most respondents see the chances of a downturn in the near future as low, although a show-down next spring is considered likely. The prevailing outlook is that inflation and interest rates will increase, but slowly. The unemployment rate may remain below 6 percent during 1988.

Growth Forecasts Mostly Moderate but Dispersed

Forecasts of growth in the economy's total output average 2.5 percent, 2.9 percent, 3.5 percent, 1.9 percent, and 2.9 percent at annual rates (a.r.) for the five successive quarters 1987:3-1988:3. There is considerable dispersion around these median figures. The percentage distributions of the longer forecasts are:

	Point Forecasts of Relative Change in Real GNP	
	1987:3 to 1988:3	1987-8
3.0 to 3.9 percent	47	42
2.5 to 2.9 percent	37	42
2.0 to 2.4 percent	5	5
Less than 2.0 percent	11	11

The results for 1987-8 suggest slightly more optimism since the June survey. About one out of nine forecasters now worries about a sluggish 1988, instead of one out of six or seven, as was the case then.

Projections of GNP and Other Economic Indicators, 1987-8

	Annual				
	1986 Actual	1987 Forecast	1988 Forecast	Percent Change	
				1986 to 1987	1987 to 1988
1. Gross National Product (\$ billions)	4235.0	4485.5	4804.0	5.9	7.1
2. GNP Implicit Price Deflator (1982 = 100)	114.1	117.8	122.6	3.2	4.1
3. GNP in Constant Dollars (billions of 1982 dollars)	3713.3	3809.0	3915.0	2.6	2.8
4. Unemployment Rate (percent)	7.0	6.3	6.0	-0.7 ¹	-0.3 ¹
5. Corporate Profits After Taxes (\$ billions)	126.8	136.0	147.5	7.3	8.5
6. Nonresidential Fixed Investment (billions of 1982 dollars)	443.8	437.0	454.3	-1.5	4.0
7. New Private Housing Units Started (annual rate, millions)	1.81	1.66	1.60	-8.08 ²	-3.61 ²
8. Change in Business Inventories (billions of 1982 dollars)	13.8	30.2	20.9	16.4 ³	-9.3 ³
9. Treasury Bill Rate (3-month, percent)	5.97	5.80	6.22	-0.17 ¹	0.42 ¹
10. Consumer Price Index (annual rate)	1.9	3.7	4.5	1.8 ¹	0.8 ¹

	Quarterly							Percent Change	
	1987 Q2 Actual	1987		1988			Q2 87 to Q2 88		
		Q3	Q4	Q1	Q2	Q3			
1. Gross National Product (\$ billions)	4448.8	4516.6	4595.5	4676.0	4753.4	4841.8	6.8	7.2	
2. GNP Implicit Price Deflator (1982 = 100)	117.2	118.3	119.5	120.7	122.0	123.2	4.1	4.1	
3. GNP in Constant Dollars (billions of 1982 dollars)	3796.4	3820.0	3847.5	3881.0	3899.5	3927.8	2.7	2.8	
4. Unemployment Rate (percent)	6.2	6.1	6.1	6.0	5.9	5.9	-0.3 ¹	-0.2 ¹	
5. Corporate Profits After Taxes (\$ billions)	135.6	137.0	141.0	144.0	147.0	148.5	8.4	8.4	
6. Nonresidential Fixed Investment (billions of 1982 dollars)	434.2	441.0	447.0	450.0	455.0	455.3	4.8	3.2	
7. New Private Housing Units Started (annual rate, millions)	1.61	1.61	1.60	1.60	1.60	1.60	-0.74 ²	-0.62 ²	
8. Change in Business Inventories (billions of 1982 dollars)	41.2	18.9	16.4	20.0	21.7	21.4	-19.5 ³	2.6 ³	
9. Treasury Bill Rate (3-month, percent)	5.73	5.88	6.00	6.10	6.30	6.35	0.57 ¹	0.47 ¹	
10. Consumer Price Index (annual rate)	5.1	4.0	4.3	4.6	4.5	4.6	-0.6 ¹	0.6 ¹	

SOURCE: National Bureau of Economic Research and American Statistical Association, Business Outlook Survey, September 1987. The figures on each line are medians of twenty-two individual forecasts.

¹Change in rate, in percentage points.

²Possible discrepancies in percentage changes are caused by rounding.

³Change in billions of dollars.

Inflation Projected around 4.5 Percent in 1988

The median forecasts of the GNP implicit price deflator (IPD) are 3.2 percent for 1986-7 and 4.1 percent for 1987-8. For the consumer price index (CPI), which reflects the higher import prices, the corresponding figures are 3.7 percent and 4.5 percent. The quarterly forecasts (a.r.) vary from 3.8 percent to 4.2 percent for IPD and from 4.0 percent to 4.6 percent for CPI.

About 70 percent of the respondents expect inflation in 1988:3 to be higher than in 1987:3. The range of the individual CPI predictions for 1988:3 is 3.5-6.2 percent, the mean is 4.7 percent, and the standard deviation is 0.8 percent.

Interest Rates Likely to Rise Gradually

The three-month Treasury bill rate is expected to increase in each quarter, from 5.9 percent in 1987:3 to 6.4 percent in 1988:3. Three-quarters of the forecasters think that the rate will be higher a year from now. The range of the individual predictions for 1988:3 is 5.0-7.9 percent.

The yield on new high-grade corporate bonds will rise slightly, from 9.7 percent in 1987:3 to 10.0 percent in 1988:3, according to the group's median forecasts. The range for 1988:3 is 9.0-11.7 percent. The annual averages for 1987 and 1988 are 9.4 percent and 10.1 percent, respectively.

Chances and Risks

Probabilistic forecasts reflect uncertainty more than point forecasts do. The following tabulation of mean probabilities attached to possible percentage changes in U.S. output shows this clearly when compared with the distributions summarized earlier in this report.

Probability of Different Growth Rates of Real GNP

	1986-7	1987-8
4.0 percent or more	7	10
2.0 to 3.9 percent	82	62
0 to 1.9 percent	10	22
Negative	1	5

The chances of very high growth are somewhat larger, but the chances of very low or negative growth are much larger, in 1988 than in 1987.

The individual assessments that real GNP will decline average 6, 8, 11, 21, and 26 chances in 100 for the five successive quarters 1987:3-1988:3. Thus, most of the forecasters view the probabilities of a recession as negligibly low in this quarter and the next two but rising significantly later in 1988.

For inflation, the shift is toward higher figures in 1988. Here the results show little change from the previous survey.

Probabilistic Forecasts of Relative Change in IPD

	1986-7	1987-8
8.0 percent or more	1	3
6.0 to 7.9 percent	4	9
4.0 to 5.9 percent	20	55
2.0 to 3.9 percent	72	31
Less than		
2.0 percent	3	2

More Strengths in Exports and Industrial Production

Although large trade deficits in current dollars persist, real exports have been growing faster than real imports for some time now, and the forecasters generally expect more of the same. In billions of 1982 dollars (that is, adjusted for projected domestic and foreign inflation), net exports of goods and services are predicted to average -124 in 1987:3 and -102 in 1988:3. In these terms, the trade deficit should decline by some 18 percent in the year ahead. The annual averages lead to a similar conclusion. There is little change here from the forecasts produced by the group earlier this year.

According to the forecasters, the stronger exports, and also the increase in domestic demand, notably from investment in business equipment, will help maintain a good growth rate of industrial production. Output of manufacturing, mining, and utilities is expected to gain 3 percent in 1986-7 and 3.2 percent in 1987-8 (in contrast to the meager 1.1 percent in 1985-6). The average forecast for 1987:3-1988:3 is 3.7 percent. The June survey forecasts were significantly less optimistic on the prospects for manufacturing.

The Expected Upturn of Business Investment

Nonresidential fixed investment in constant dollars is expected to drop 1.5 percent in 1987, a little less than the current estimate of its decline in 1986 (2.3 percent). Moreover, a turnaround seems to be in the making, judging from the recent upturn in orders and expenditures on business equipment (a significant proportion of which is exported). The forecasters predict that real investment in plant and equipment will increase 3.2 percent in 1987:3-1988:3 and 4 percent in 1987-8. All but two of them anticipate gains in business capital formation.

The median forecasts for inventory investment are 30 billion 1982 dollars for 1986-7 and 21 billion 1982 dollars for 1987-8. The first of these figures is much higher than its counterpart in the previous survey was.

Good Outlook for Corporate Profits

Corporate profits after taxes in current dollars, having declined about 1 percent in 1985-6, are predicted to average 7.3 percent higher in 1987 than in 1986 and 8.5 percent higher in 1988 than in 1987. The gain for 1987:3-1988:3 is set at 8.4 percent by the median forecast. In sum, the prospects for profits remain good, although they are scaled down somewhat from the forecast of the previous survey.

Modest Gains in Consumption

Real consumption is expected to rise about 4 percent a.r. in the current quarter but only 2-2.5 percent in each of the next four quarters through 1988:3, according to the median forecasts from the survey. The annual predictions, at 2.1 percent for 1986-7, 2.3 percent for 1986:3-1987:3, and 2.6 percent for 1987-8, are all smaller than the corresponding forecasts for real GNP. (In the recent past, on the contrary, consumption was growing faster than output at large.)

Slack in Housing

Residential fixed investment in billions of 1982 dollars is expected to be stagnant, near its 1986 level (\$196) in both 1987 and 1988, with housing starts flattening out at the level of 1.6 million units in 1988, down from 1.8 million in 1986 and 1.7 million in 1987. These averages conceal considerable directional disagreements among the individual forecasters who, for example, are almost evenly divided on whether residential construction will rise or fall in 1987-8. But the projected changes that tend to offset each other are relatively small on the whole.

Government Spending and Policy Assumptions

Federal government purchases of goods and services in constant dollars are predicted to rise hardly at

all in 1987 (0.3 percent) and rather weakly in 1988 (1.7 percent). State and local government purchases are expected to grow at significantly higher rates—3.5 percent in 1987 and 2.6 percent in 1988. Here the median forecasts reflect a high degree of consensus among the individual predictions.

There are 6 reported assumptions about defense outlays varying from “no change” to “slight downward drift.” Seven respondents assume mostly small increases in 1987–8 of 1–2.5 percent, while 3 respondents assume 2.6–4 percent. On tax policy, 9 respondents assume “little or no change,” while 8 assume some increases, perhaps in excise taxes.

Estimates of monetary growth rates range from 4 percent to 10 percent for M1 (6 responses) and from 5 percent to 9 percent for M2 (11 responses). Almost all of these responses refer to 1987–8.

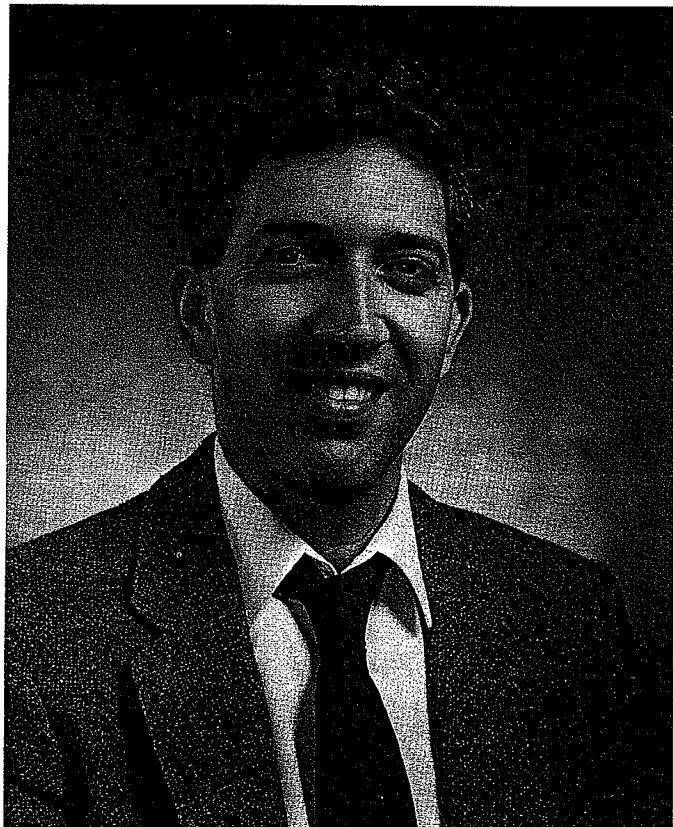
Seven forecasters see the dollar as weakening some more, but four see it as steadying or strengthening. All references to the trade balance (7 responses) have it improving gradually.

Several respondents assume stable or rising energy demand. Oil prices are expected to move in the \$16–22 bbl range in 1987 (5 responses) and in the \$18–24 bbl range in 1988 (11 responses).

This report summarizes a quarterly survey of predictions by 22 business, academic, and government economists who are professionally engaged in forecasting and are members of the Business and Economics Statistics Section of the American Statistical Association. Victor Zarnowitz of the Graduate School of Business of the University of Chicago and NBER, assisted by Robert E. Allison and Deborah A. Nicholson of NBER, was responsible for tabulating and evaluating this survey.

George J. Borjas

George Borjas is a research associate in NBER's Program in Labor Studies and a professor of economics at the University of California, Santa Barbara.



NBER Profiles

Correction

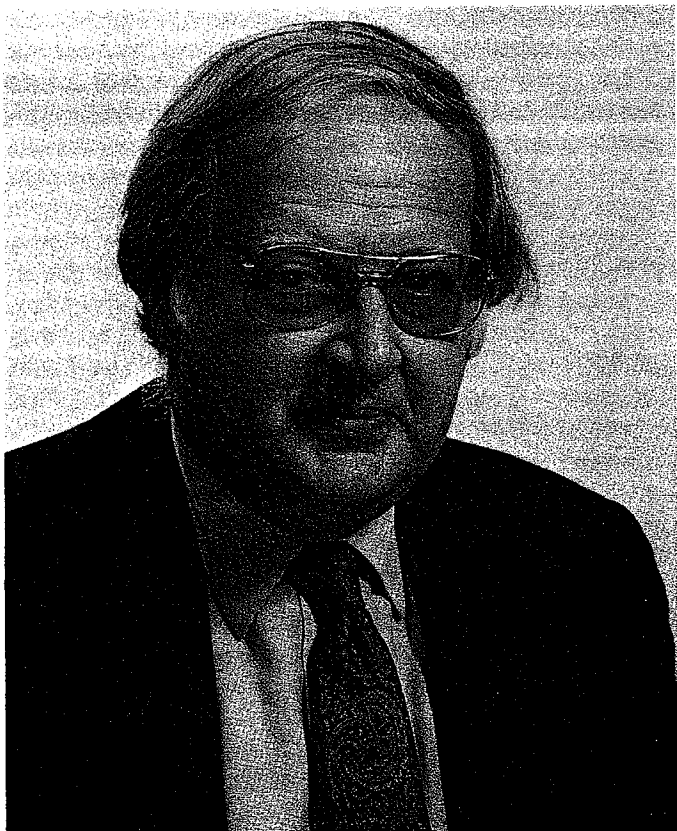
In a profile in the Summer 1987 *NBER Reporter*, Matthew D. Shapiro was incorrectly identified. He is a faculty research fellow in NBER's Program in Economic Fluctuations.

Borjas was born in Havana, Cuba. He received his B.S. from St. Peter's College (NJ) and his M.A., M.Phil., and Ph.D. degrees from Columbia University. Borjas was a senior research analyst at NBER's New York office from 1972–8. During 1977–8, he held a National Institute of Mental Health postdoctoral research fellowship at the University of Chicago. He then joined the economics faculty at Santa Barbara, where he was an assistant professor from 1977–80, an associate professor from 1980–2, and was promoted to professor in 1982. Borjas has also been vice chairman of the economics department and director of its graduate program since 1984.

A resident of Montecito (CA), Borjas plays piano and enjoys listening to rock music and watching old “sit-coms” on television. He is single.

Angus S. Deaton

Angus Stewart Deaton, a research associate in NBER's Program in Economic Fluctuations since 1984, is professor of economics and international affairs at Princeton University.



Deaton was born in Edinburgh (U.K.) and received his B.A., M.A., and Ph.D. degrees from Cambridge University. Before joining the Princeton faculty, he was professor of econometrics at the University of Bristol (U.K.) from 1976-83.

In 1978, Deaton was the first recipient of the Frisch Medal presented by the Econometric Society for the best applied paper in *Econometrica* in the previous five years. He also was named a Fellow of the Econometric Society in 1979.

Deaton was assistant editor of the *Review of Economic Studies* from 1975-80 and has been editor of *Econometrica* since July 1984. His own work has been published in a number of British and American journals and books.

Deaton retains his British citizenship, and lives in Princeton with his wife Helge and two children. He plays the piano and is a keen trout fisherman.

Conferences

The United States in the World Economy

An NBER conference on "The United States in the World Economy" brought together a group of NBER research associates with 20 distinguished individuals whose policymaking positions in government and industry render them expert in the field of international economy policy. The conference, organized by NBER President Martin Feldstein and held on March 6-8, focused on nine areas: Latin America; Asia; international debt; financial innovation; domestic policies and international capital flows; services; agriculture; international investment to and from the United States; and basic industries. For each topic, an NBER research associate prepared a nontechnical background paper; the discussion was launched by prepared statements from two or three speakers.

The authors and associated speakers for the nine topics were:

Latin America

Background paper: Sebastian Edwards, NBER and University of California at Los Angeles

Prepared remarks:

Thomas Enders, Managing Director, Salomon Brothers, former Assistant Secretary of State for Inter-American Affairs

Jesus Silva-Herzog, professor, University of Mexico, former Minister of Finance, Mexico

Asia

Background paper: Robert E. Baldwin, NBER and University of Wisconsin

Prepared remarks:

Robert Ingersoll, former U.S. Ambassador to Japan
Woo-Choong Kim, chairman and founder, the Dae-woo Group

International Debt

Background paper: Rudiger Dornbusch, NBER and MIT

Prepared remarks:

Thomas Johnson, President, Chemical Bank and Chemical New York Corporation
Anne O. Krueger, former Vice President, World Bank; NBER and Duke University

Financial Innovation

Background paper: Richard M. Levich, NBER and New York University

Prepared remarks:

E. Gerald Corrigan, President, Federal Reserve Bank of New York
George Vojta, Executive Vice President, Bankers Trust Company
Charles Sanford, Chairman, Bankers Trust Company

Domestic Policies and International Capital Flows

Background paper: Jeffrey A. Frankel, NBER and University of California, Berkeley

Prepared remarks:

Saburo Okita, former Foreign Minister of Japan; President, International University of Japan
Peter G. Peterson, former U.S. Commerce Secretary
James R. Schlesinger, former U.S. Defense Secretary

Services

Background paper: Rachel McCulloch, NBER and University of Wisconsin

Prepared remarks:

Maurice Greenberg, member of the President's Advisory Committee on Trade Negotiations; President and CEO, American International Group
Lionel Olmer, former Under Secretary of Commerce for International Trade; partner, Paul, Weiss, Rife, Wharton, and Garrison

Agriculture

Background paper: Bruce Gardner, University of Maryland

Prepared remarks:

H. Brewster Atwater, Jr., Chairman of the Board, General Mills
John R. Block, former U.S. Secretary of Agriculture

International Investment to and from the United States

Background paper: Robert E. Lipsey, NBER and Queens College

Prepared remarks:

Mario Schimberni, President, Montedison, S.p.A.
Robert Lindsay, retired President, J. P. Morgan & Co.; Chairman, International Council of Morgan Guaranty Bank

Basic Industries

Background paper: Barry J. Eichengreen, NBER and University of California, Berkeley

Prepared remarks:

Charles Parry, CEO, Alcoa
Philip Caldwell, retired CEO, Ford Motor Co.

In the first session, Silva-Herzog argued that a resolution of the current crisis in Latin America will require

resumption of economic growth, which in turn implies domestic policy reform, a clear resolution to the debt problem, and a healthy external environment. More indigenous solutions are needed, as well as a more pragmatic U.S. attitude. Enders noted the lack of apparent progress toward a resolution of the debt crisis over the past five years. There has been great sacrifice in Latin America, but in the crucial area of public finance, little has changed. Systematic solutions, such as the Baker plan or debt moratoriums, are unlikely but current trends suggest that the debt will shrink significantly in this decade. The discussion highlighted the close linkage of world capital markets and the possible contradictions in an improvement in the U.S. trade balance and repayment of LDC debt.

In the discussion of Asia, Ingersoll emphasized the mutual benefits from trade and the dangers inherent in the misinterpretation by East Asian NICs of Japan's economic development. While U.S. economic policy is partly to blame for U.S. trade problems, East Asian markets for U.S. exports are hard to crack, and pressure should be brought to open them. Kim proposed that Western ideas must be combined with East Asian approaches. Free trade requires a confidence and trust between trading partners as well as stable markets.

In the international debt session, Krueger described how the worldwide recession in 1982 made bad, but previously sustainable, policies infeasible. Most countries should be able to grow out of debt with the right policies, but the outlook is not bright since most reforms are partial at best. Capital flows should increase to those countries that undertake far-reaching reforms. Johnson argued for a systematic solution to the debt crisis. The current situation is fundamentally unsustainable, he believes. We must correct the saving/investment imbalance that is at the heart of the problem and get new capital to the LDCs.

In the session on financial innovation, Vojta described how technology and deregulation have created a globally integrated market for new types of financial instruments. Incomplete deregulation and an emphasis on protecting the individual bank and not the system have generated instability, and regulation should be revised. Corrigan argued that financial innovation has provided important benefits but has raised new issues in international interdependence, riskiness of financial markets, and policy coordination. Fundamental reform in our financial system and budget are necessary.

Addressing the issue of domestic policies and international capital flows, Okita described the sources of Japanese capital surpluses and U.S. borrowing and suggested that although the Japanese economy is changing, it will continue to record current account surpluses. Without coordinated policy intervention, this will flow to the United States rather than to the developing countries where it is desperately needed. Peterson explained how the unsustainability of current U.S. imbalances implies a sharp reversal over the next few years in manufacturing exports, and adjust-

ments in the rest of the world that may or may not take place smoothly. The need to produce more than we consume will have serious foreign policy implications. Schlesinger attacked the idea that prices and markets will necessarily bring smooth adjustment to the current trade problem and lamented the lack of a single country willing to make the system work. Adjustment through a lower dollar will harm the U.S. security position and the economies of export-oriented countries, especially Japan.

Olmer explained that the importance of services in world trade has been vastly overstated. However, they deserve attention at the GATT. A variety of specific issues, such as copyright protection, need particular attention. Greenberg emphasized the importance of services and the recent relative decline in the U.S. position, attributable to protectionism abroad.

Atwater explained the fundamental reasons for the sharp declines of the United States in world agricultural markets in the 1980s. U.S. agricultural policies must change to reflect the new reality of increased world production, as difficult as this may be politically. Block related the current ill-adapted U.S. farm policy to the collapse of world agricultural markets in the 1980s. While radical change is unlikely soon, the ultimate solution should involve decoupling, in which aid to farmers comes as unconditional cash grants, allowing farmers to respond to market signals.

On the topic of international investment, Schimberni explained that European businesses are interested in investing in the United States to gain access to new technologies. The export orientation of European firms compares favorably with the domestic-oriented U.S. attitude. Lindsay described some of the benefits and potential costs to the United States of foreign direct investment. The supportive environment, the size of the market, and financial market developments suggest that foreign direct investment will continue. The discussion emphasized the globalization of production and the difference between European and U.S. business strategies.

Finally, Parry attributed the current poor conditions of basic industries to a permanent shift of comparative advantage and a poor macroeconomic environment. Unions and public policy on energy and the environment have played a role as well. Caldwell emphasized the importance of the high dollar in the current trade deficit but argued that we may have to rethink our theories of international competition. The discussion contrasted the view that macroeconomic policy and a lower dollar will resolve the problem with the position that liberalized capital flows and free trade are contradictory and that more government intervention is necessary.

The background papers, prepared remarks, and a summary of the discussion, with an introduction by Martin Feldstein, will be published by the University of Chicago Press in an NBER conference volume. In addition, a brief Summary Report of the proceedings is now available from NBER.

The Misalignment of Exchange Rates: Effects on Trade and Industry

On May 7-8 NBER held a conference in Cambridge on the misalignment of exchange rates. The conference, sponsored by the Ford and Mellon Foundations, brought together 25 economists to discuss the causes of misalignment and its effects on production, employment, and trade. The program, nine papers and a panel discussion on exchange rate policy, was:

The Problem of Misalignment

William H. Branson, NBER and Princeton University, "Sources of Misalignment in the 1980s"

Discussant: Maurice Obstfeld, NBER and University of Pennsylvania

Charles Bean, London School of Economics, "Sterling Misalignment and British Trade Performance"

Discussant: Willem H. Buiter, NBER and Yale University

Paul De Grauwe and Guy Verfaillie, University of Leuven, "Exchange Rate Variability, Misalignment, and the European Monetary System"

Discussant: Jacques Melitz, INSEE

Bonnie Loopesko, Federal Reserve Board, and Robert A. Johnson, U.S. Senate Committee on the Budget, "Realignment of the Yen-Dollar Exchange Rate: Aspects of the Adjustment Process in Japan"

Discussant: Richard C. Marston, NBER and Wharton School, University of Pennsylvania

Roundtable on Exchange Rate Policy

Stanley Black, University of North Carolina; Jacob A. Frenkel, NBER and International Monetary Fund; Dale W. Henderson, NBER and Georgetown University; and John Williamson, Institute for International Economics

Effects on Trade and Industry

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

Discussant: Stephen J. Turnovsky, NBER and University of Illinois

Louka T. Katseli, Athens School of Economics and Centre for Economic Policy Research, "On the Effectiveness of Discrete Devaluation in Balance-of-Payments Adjustment"

Discussant: Alberto Giovannini, NBER and Columbia University

J. David Richardson, NBER and University of Wisconsin, "Exchange Rates and U.S. Auto Competitiveness"

Discussant: Robert Lawrence, The Brookings Institution

William H. Branson and James P. Love, Princeton University, "U.S. Manufacturing and the Real Exchange Rate"

Discussant: Robert Stern, University of Michigan

Paul R. Krugman, NBER and MIT, "Long-Term Effects of Misalignment"

Discussant: Kala Krishna, NBER and Harvard University

Commentary: New Directions for Research

Rudiger Dornbusch, NBER and MIT

In the first paper, Branson advances an explanation for the dollar's misalignment in the 1980s, centering on fiscal policy and the associated federal budget deficits. He argues that the 1981 budget program of the Reagan administration, by raising real interest rates and the real value of the dollar, led to a "crowding out" of both private domestic demand and foreign demand for U.S. products. The resulting current account deficits, however, eventually had to lead to a lower real value for the dollar as foreigners accumulated dollar claims. Branson uses a model of portfolio and saving-investment behavior to trace the initial rise in the dollar, and then to explain its subsequent fall as dollar claims accumulated and as prospects for a reduction in the deficit improved (as a result of the Gramm-Rudman-Hollings legislation of 1985).

Bean investigates the misalignment of the pound sterling and its effects on British trade. He uses a small-scale model of the British economy to study alternative explanations of the appreciation in the real exchange of the pound by 23 percent between 1978 and 1981. He finds that the discovery of North Sea oil and the subsequent rise in its price as a result of the Iranian revolution can explain 12 percent of the appreciation. Bean attributes much of the remaining appreciation to adverse supply-side factors (which raise domestic prices relative to foreign prices). Using time-series data extending back to 1900, he also searches for evidence of "hysteresis" (long-term effects of the misalignment) but finds only tentative evidence.

Misalignment may be less of a problem for countries in the European Monetary System (EMS) because they are committed to fixing bilateral exchange rates between member currencies. De Grauwe and Verfaillie present evidence showing that this is indeed the case. The EMS also has succeeded in reducing the month-to-month variability of real exchange rates. Yet trade among EMS members has grown less rapidly since the beginning of the EMS. De Grauwe and Verfaillie attempt to explain this growth pattern for trade by estimating a cross-sectional model of trade flows among EMS and non-EMS members. The results show that the low growth in output among EMS countries held down the growth of trade even while lower exchange rate variability had a significant effect in expanding trade among EMS members. The net result was lower trade growth in the EMS.

Loopesko and Johnson analyze how the Japanese economy is adjusting to the recent fall of the dollar. They present tentative evidence that Japan's trade surplus has begun to fall in response to the lower dollar but also show that this adjustment is proceeding more slowly than historical experience would suggest. One reason for the slow pace of trade adjustment is that the yen's appreciation has been passed through to export prices less than in the past. This pass-through behavior may follow an asymmetric pattern that helps to protect Japanese market shares when the yen appreciates.

Aizenman specifies a model with overlapping labor contracts and an imperfectly competitive goods market in which the prices charged may differ from firm to firm. A monetary shock leads to immediate wage adjustments only for those firms with contracts negotiated in the current period, so the prices charged by firms differ according to the vintage of the labor contract. This model can explain the presence of misalignment because of pure monetary shocks, although the duration of the misalignment is limited to the longest labor contract.

Katseli investigates one form of imperfect competition in which firms set prices on the basis of partial information about aggregate price movements. She wishes to explain why the response of domestic prices to changes in exchange rates differs depending on whether these changes occur in small increments or as a large-scale devaluation or revaluation. After specifying a model that shows how price predictions depend on the relative importance of economywide and firm-specific variances, she uses Greek data to estimate the relationship between aggregate inflation and the variance of the exchange rate.

Richardson examines one key industry in the United States in which international competition has been steadily increasing: the auto industry. Using weighted averages for exchange rates and prices that reflect the relative importance of U.S. trade in autos, Richardson shows that the United States suffered a marked loss of competitiveness beginning even before the dollar started appreciating in 1981 as unit labor costs rose faster in the United States than in its trading partners. This trend in relative unit labor costs, however, was not matched by a corresponding change in the relative prices of U.S. automobiles and those of Japan (the producer of the three most popular imports). Richardson suggests that the voluntary restraint agreements that constrained Japanese sales may have induced Japanese manufacturers to raise their profit margins rather than lower their prices in dollars to reflect this increased competitiveness.

Branson and Love estimate the effects of changes in the real exchange rate on 20 manufacturing sectors in the United States. Changes in the real exchange rate had significant effects on employment in most sectors. They use their estimate that the dollar's misalignment in 1980-5 reduced manufacturing employment by almost *one million* jobs. They also calculate that most of the job loss has been sustained by production workers.

This suggests that manufacturing firms have moved production overseas while maintaining nonproduction staffs in the United States.

In the final paper, Krugman investigates three possible long-run consequences of a strong dollar. First, the current account deficits of the Reagan years have led to an accumulation of dollar debt that must be serviced, but the burden of servicing this debt should be quite manageable (on the order of \$10 billion per year) as long as foreigners are willing to maintain a fixed ratio of dollar debt to GNP. Second, a strong dollar should have caused a decline in investment in manufacturing as resources shifted to nontradables, but no such decline is evident in the data. Third, the sustained appreciation should have allowed foreign firms to establish "beachheads" in the American market, but Krugman finds no evidence of fundamental changes in trade behavior. Thus he tentatively concludes that the dollar's appreciation has caused less long-term damage to U.S. industry (the effects on U.S. employment are not addressed) than was originally feared.

In addition to the authors, discussants, and others on the program, conference participants included: Thomas Bayard, The Ford Foundation; Colin I. Bradford, NBER and Yale University; Geoffrey Carliner, NBER; Susan Collins and Martin Feldstein, NBER and Harvard University; Charles M. Engel, NBER and University of Virginia; Kenneth A. Froot, NBER and MIT; Michael Klein, Clark University; and Marie Thursby, University of Michigan.

A conference volume, to be edited by Richard C. Marston, will be published early next year. Announcement of this publication will appear in a future issue of the *NBER Reporter*.

Issues in the Uruguay Round of Trade Negotiations

NBER's Project on Trade Relations held a working meeting in Washington on May 29 and a follow-up conference in Cambridge on August 14 to discuss "Issues in the Uruguay Round of Multilateral Trade Negotiations." Both programs were organized by NBER Research Associates Robert E. Baldwin and J. David Richardson.

In the morning of the May 29 meeting, staff members of the Office of the U.S. Trade Representative presented an update on the status of the negotiations with regard to selected key issues. The presentations were:

Caryl Miller, "The General Structure and Objectives of the Negotiations"

Richard Self, "Trade in Services: Negotiating Status and Key Issues"

Len Condon, "Agricultural Negotiations: Status and Key Issues"

Warren Maruyama, "Subsidies, Dumping, and Other Unfair Trade Practices: Negotiating Status and Key Issues"

That afternoon, authors of the papers to be presented at the August 14 conference outlined their research findings.

The papers presented and discussed at the August 14 conference were:

Geza Feketekuty, Office of the U.S. Trade Representative, "Negotiations on Trade in Services"
Discussant: Jeffrey Schott, Institute for International Economics

Robert L. Thompson, Purdue University, "Agriculture in the Uruguay Round"
Discussant: Fred Sanderson, National Center for Food and Agricultural Policy

J. David Richardson, NBER and University of Wisconsin, "Safeguards Issues in the Uruguay Round and Beyond"
Discussant: William H. Branson, NBER and Princeton University

Joseph Pelzman, George Washington University, "The Multifiber Arrangement: Is There a Future Post Uruguay Round?"
Discussant: William Reinsch, Office of Senator John Heinz

Robert E. Baldwin, NBER and University of Wisconsin, "Other Issues: North-South Trade Issues, Intellectual Property Rights, and Subsidies"
Discussant: Anne O. Krueger, NBER and Duke University

Raymond J. Ahearn and Alfred Reifman, Congressional Research Service, "Trade Legislation in 1987: Congress Takes Charge"
Discussant: Rufus Yerxa, House Ways and Means Committee

Feketekuty considers how the GATT needs to be modified in order to serve as a framework for international trade in services. He concludes that the services framework agreement should include provisions regarding the transparency of barriers to trade in services, the negotiation of binding commitments on market access, and national treatment of foreign enterprises covered by market access commitments. However, the national treatment concept will have to be augmented and reinforced with additional principles and rules covering such issues as the design and implementation of domestic regulations, the administration of restricted licensing regimes, and the establishment of a local presence in the importing market.

Thompson uses the concept of producer subsidy equivalent, or the ratio of policy-associated government transfers to gross revenues to measure the cost of agricultural policies in different countries. The OECD countries recently agreed to use this statistic as a measure of the extent of economic distortions in agriculture.

Thompson reports that the average degree of agricultural distortion is 72 percent in Japan, 33 percent in the European Community (EC), 22 percent in Canada, New Zealand, and the United States, and 9 percent in Australia. In discussing the sweeping U.S. Uruguay Round proposal to eliminate these distortions by phasing out all domestic and international agricultural barriers in ten years, he stresses the need for an across-the-board negotiation covering all commodities and for reducing subsidies simultaneously on all goods. Under the proposal, assistance to farmers would take the form of income transfers that are not related to production. Thompson predicts that there will be a 25-30 percent cut in the degree of agricultural trade distortions by the OECD nations within the next five years.

The GATT currently allows certain types of actions to protect domestic producers who are hurt by imports. However, Richardson notes that dissatisfaction with these "safeguards" has led countries to use other measures as substitutes for safeguards actions. These other measures include unilateral actions against alleged unfair trade practices, voluntary restraint agreements between two countries, and cartel agreements among groups of countries. He stresses two changes in the global trading environment since the GATT's safeguard provisions were adopted as being especially relevant to current trade issues: the growing mobility of corporate capital and the related attenuation of unanticipated adjustment pressures on immobile workers and owners of resources. The mobility of multinational firms and their professional work force internationalize ostensibly domestic government policies. In turn, globally integrated financial markets have created volatile changes in exchange rates, international competitiveness, and goods trade. These changes and the strategic sensitivity of multinational firms to governments and to each other have aggravated the adjustment problems faced by immobile factors.

Because of these developments, Richardson argues that the use of the most-favored-nation (MFN) principle in safeguard actions has fewer benefits in today's global trading environment than it once did and that a selective form of safeguards is now more useful. He also argues that an "arms-length agent," representing the member nations of the GATT, who would undertake mediation, monitoring, and surveillance activities in safeguards cases would improve the functioning of the safeguard provisions. He also considers the linkages and potential negotiating trade-offs between a Safeguards Code and Investment and new Subsidies Codes.

Pelzman reviews the history of international control of textile and apparel trade, including the country-specific control programs of the major importers and considers whether there is any realistic possibility for the phaseout of the Multifiber Arrangement (MFA). He discusses two options: the gradual elimination of the MFA as part of the larger Uruguay Round negotiations and rolling back the existing MFA to its initial Protocol.

The first approach would involve the United States and the EC first phasing out import restrictions on yarns and fabrics, which are currently competitive sectors, and, later on, apparel in return for concessions by the developing countries in the area of services and agricultural trade. While this solution would result in a larger decrease in trade distortions, Pelzman believes that the more politically feasible approach involves a rollback to the principles of the original 1973 MFA Protocol. This would entail such changes as restoring minimum growth rates of 6 percent annually in all restrained categories, limiting consultation calls to specific products from specific countries causing market disruption, and eliminating group and aggregate limits that restrain products that are not causing market disruption.

In discussing North-South trade issues, Baldwin notes that the developed countries are less inclined to give "special and differential treatment" for developing countries in trade matters as a consequence of the rapid increase in exports of manufactured goods from the newly industrialized countries (NICs) in recent years. The resultant increased emphasis by the industrial countries on bilateral negotiations in order to open markets in the developing countries and modify the nature of the special treatment granted them has important implications for the ongoing multilateral negotiations. Baldwin suggests that the developing countries might find it worthwhile in these negotiations to trade off tighter balance-of-payment restraints on imports for agreeing to easier conditions for establishing import injury but without giving up the MFN principle in the application of safeguard actions. Baldwin also discusses protecting intellectual property rights and improving the Subsidies Code negotiated in the Tokyo Round.

Ahearn and Reifman discuss the two omnibus trade bills that have been passed by the House and Senate. These bills continue a process begun in 1973 during consideration of the legislation authorizing the Tokyo Round whereby Congress is reasserting its authority in the trade field. The authors find that: (1) the bills are broadly similar in the trade-negotiating authority they grant and in the latitude they give the president to impose trade restrictions; (2) the bills are unprecedented in scope for legislation needed to undertake a trade negotiation, covering such matters as national security export controls, foreign corrupt practices, export trading companies, worker retraining and education, and patent and copyright protection; (3) except for the protectionist provisions dealing with countervailing and antidumping duties, the legislation should be regarded as activist rather than protectionist; (4) the impact of the bills on U.S. trade policymaking is uncertain, but probably small; (5) the impact of the bills on U.S. trade flows will depend heavily on the nature of the negotiations on the bills, how the final provisions are implemented by the administration, and the actions of foreign governments; and (6) on balance the bills show Congress moving to take charge of trade policy by forcing

this administration and future ones to address more systematically the need to balance the economic and political gains and losses from increased trade.

Conference Calendar

Each *NBER Reporter* includes a calendar of upcoming conferences and other meetings that are of interest to large numbers of economists (especially in academia) or to smaller groups of economists concentrated in certain fields (such as labor, taxation, finance). The calendar is primarily intended to assist those who plan conferences and meetings, to avoid conflicts. **All activities listed should be considered to be "by invitation only," except where indicated otherwise in footnotes.**

Organizations wishing to have meetings listed in the Conference Calendar should send information, comparable to that given below, to Conference Calendar, National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138. Please also provide a short (fewer than fifty words) description of the meetings for use in determining whether listings are appropriate for inclusion. The deadline for receipt of material to be included in the Winter 1987/8 issue of the *Reporter* is December 1. If you have any questions about procedures for submitting materials for the calendar, please call Kirsten Foss Davis at (617) 868-3900.

December 3-4, 1987

Special Meeting of Brookings Panel on Economic Activity, Brookings Institution

December 3-4, 1987

Annual Conference, International Association of Business Forecasting*

December 4-5, 1987

Universities Research Conference on Risk and Financial Markets, NBER

January 9-10, 1988

United States/Japan Savings Rates, NBER

January 12, 1988

Conference on Immigration, Trade, and Labor, NBER

February 5, 1988

Program Meeting: Economic Fluctuations, NBER

February 12, 1988

Program Meeting: State and Local Finance, NBER

February 18-19, 1988

Credit Conference, NBER

February 25-26, 1988

Program Meeting: Financial Markets and Monetary Economics, NBER

March 11-12, 1988

Annual Conference on Macroeconomics, NBER

March 24-25, 1988

Program Meeting: Taxation, NBER

April 7-8, 1988

Panel on Economic Activity, Brookings Institution

April 22-23, 1988

Public Policy Conference, Carnegie-Mellon University-University of Rochester

April 29-30, 1988

Universities Research Conference on Trade Policies for International Competitiveness, NBER*

May 12-13, 1988

Income and Wealth: 50th Anniversary Conference, NBER

May 19-21, 1988

The Economics of Aging, NBER

June 2-4, 1988

Conference on Public Finance, NBER

June 8-10, 1988

International Seminar on Macroeconomics, NBER

June 30-July 3, 1988

Annual Meeting, Western Economic Association*

August 8-11, 1988

Annual Meeting, American Statistical Association*

September 15-16, 1988

Panel on Economic Activity, Brookings Institution

September 25-28, 1988

81st Annual Conference, National Tax Association-Tax Institute of America*

September 25-28, 1988

Annual Meeting, National Association of Business Economists*

October 7-8, 1988

Conference on Housing, NBER

November 20-22, 1988

Annual Meeting, Southern Economic Association*

December 2-3, 1988

Conference on Savings, NBER

August 14-17, 1989

Joint Statistical Meetings, American Statistical Association*

September 17-20, 1989

Annual Meeting, National Association of Business Economists*

October 8-11, 1989

82nd Annual Conference, National Tax Association-Tax Institute of America*

November 19-21, 1989

Annual Meeting, Southern Economic Association*

*Open conference, subject to rules of the sponsoring organization.

*Open conference, subject to rules of the sponsoring organization.

Six Fellowships Available for 1988-9

John Olin Fellowships in Economics are designed to bring outstanding young economists to NBER's Cambridge office for a year of intensive research on important economic issues. Olin Fellows are free of all teaching and other university responsibilities. Six fellowships are available for the 1988-9 academic year.

The fellowships provide a stipend equal to one's university salary and a limited travel budget to cover moving expenses, travel connected to the research, and participation in scientific meetings. Funds are also available for research assistants, data, and computing costs.

Olin Fellows are selected from economics departments and business schools. To be eligible, you must have a Ph.D., preferably completed within the last five years. Anyone under the age of 35 is eligible. The key criteria for selection are general excellence and promise as an empirical researcher on a subject of potential national importance.

Anyone interested in applying should send a curriculum vitae, a list of publications, and a brief summary of research plans (not to exceed 1000 words) by November 20 to: Yasuko McDougall, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138. Winners will be announced by December 18.

Macroeconomists Meet in Cambridge

Nearly 100 members and guests of NBER's Program in Economic Fluctuations met in Cambridge on July 10 to discuss recent research. The program, organized by Alan S. Blinder and John Y. Campbell of NBER and Princeton University, was:

Ray C. Fair and Robert J. Shiller, both of NBER and Yale University, "Econometric Modeling as Information Aggregation" (NBER Working Paper No. 2233)

Discussant: Christopher A. Sims, NBER and University of Minnesota

Alan C. Stockman, NBER and University of Rochester, "Sectorial and National Aggregate Disturbances to Industrial Output in Seven European Countries" (NBER Working Paper No. 2313)

Discussant: Kenneth D. West, NBER and Princeton University

Robert B. Barsky and Jeffrey A. Miron, both of NBER and University of Michigan, "The Seasonal Cycle and the Business Cycle"

Discussant: Robert E. Hall, NBER and Stanford University

Stephen Johnson, Harvard University, Laurence J. Kotlikoff, NBER and Boston University, and William Samuelson, Boston University, "Can People Compute? An Experimental Test of the Life-Cycle Consumption Model" (NBER Working Paper No. 2183)

Discussant: Richard Thaler, Cornell University

Laurence Ball, New York University, and David Romer, NBER and Princeton University, "Real Rigidities and the Nonneutrality of Money"

Discussant: Robert J. Barro, NBER and Harvard University

Sanford J. Grossman, NBER and Princeton University, and Guy Laroque, INSEE, "Asset Pricing and Optimal Portfolio Choice in the Presence of Illiquid Durable Consumption Goods"

Discussant: Robert C. Merton, NBER and MIT

Fair and Shiller develop a method for testing the ability of econometric models to aggregate information and apply it to the Fair model. They conclude that the Fair model outperforms a model that consists of autoregressive components of real GNP, which in turn outperforms a conventional vector autoregressive model. Thus it seems to be a good aggregator of information.

Stockman analyzes sources of disturbances to output growth, using data from seven OECD countries and the United States. With some qualification, he argues that productivity shocks mainly produce industry-specific disturbances, while changes in macroeconomic policy primarily generate nation-specific disturbances. Stockman concludes that differences in national policies play a major role in output fluctuations.

Seasonal fluctuations are thought to be generated by a fundamentally different process than conventional business cycles are. But in their paper, Barsky and Miron demonstrate that each of the major stylized facts about the business cycle also applies to the seasonal cycle. That is, at seasonal frequencies as well as at business-cycle frequencies, output movements across broadly defined sectors are positively correlated. Labor productivity is procyclical; consumption and leisure move

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in opposite directions; prices vary less than quantities do; and prices fluctuate mildly procyclically.

Johnson, Kotlikoff, and Samuelson study the life-cycle/permanent-income theory, which perhaps is the cornerstone of contemporary macroeconomic analysis. For their study, they asked Boston University students what consumption choices they would make if: they were single, faced no uncertainty, had specified levels of future earnings and current assets, knew what their ages at retirement and death would be, and could borrow and save at a specified interest rate. The re-

sponses of the students suggest a widespread inability to make coherent and consistent decisions about consumption. A sizable fraction of the students undervalued their future earnings relative to their current assets; this could lead to systematic oversaving. The authors conclude that the standard time-separable, life-cycle model is inaccurate.

Ball and Romer argue that while the relative inertia of prices is not sufficient to explain the existence of nominal price rigidities, it may play an important role in explaining the magnitude of those rigidities. The

intuition underlying Ball and Romer's results is that adding the costs of changing relative prices to the (small) fixed costs of changing nominal prices will lower the net benefit from adjusting prices. Therefore, it increases the likelihood that quantities, rather than prices, will adjust to nominal disturbances. Overall, the addition of relative price inertia increases the distortion between the private and social benefits of nominal price changes that result from nominal disturbances.

The consumption-based capital asset pricing model (CCAPM) is often rejected statistically while the standard, one-factor, market-portfolio-based capital asset pricing model (CAPM) is confirmed. But if individuals can adjust consumption costlessly, then the two theories are equivalent. In their paper, Grossman and Laroque break the link between the two asset pricing theories. They analyze a model of optimal consumption and portfolio selection in which consumption services are generated by holding a durable good. The durable good is illiquid: a transaction cost must be paid when the good is sold. Consumption is not a smooth function of wealth; it is optimal for the consumer to wait until a large change in wealth occurs before adjusting consumption. As a consequence, the CCAPM fails to hold, while the CAPM remains valid.

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Bureau Books

Annual Volume on Macroeconomics Is Available

NBER Macroeconomics Annual, 1987, edited by Stanley Fischer, is now available from The M.I.T. Press. The annual is designed to link theoretical and empirical developments in macroeconomics with specific examples and problems in the real world.

This volume contains six articles that were presented at a conference in Cambridge in March 1987, and the comments and discussion of each. Kevin Murphy and Robert Topel analyze why the unemployment rate has increased since the late 1960s. Julio J. Rotemberg evaluates the microeconomic foundations of Keynesian macroeconomics. Jeffrey A. Frankel and Richard Meese study exchange rate fluctuations. Paul M. Romer examines the recent productivity slowdown in the United States and its relationship to long-term economic growth. Kemal Dervis and Peter Petri analyze the growth of 20 middle-income countries and the particular success of Korea in contrast to Turkey. Finally, B. Douglas Bernheim asks how government budget deficits affect national saving, the interest rate, and the balance of payments.

The cost of the annual is \$25.95 for the hardcover and \$12.95 for the paperback. It can be ordered directly from: The M.I.T. Press, 55 Hayward Street, Cambridge, MA 02142.

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Taxes and Capital Formation

Taxes and Capital Formation, edited by Martin Feldstein, is now available from the University of Chicago

Press for \$15.00. This volume includes seven short, nontechnical versions of papers prepared for a Bureau project on the effects of taxation on capital accumulation. (The more technical volume was published by the University of Chicago Press earlier this year.) It also includes brief summaries of the other studies that appeared in the technical volume.

Taxes and Capital Formation is written in a style that makes it accessible to a broad audience, including individuals in business and government. It also will be interesting and useful to students and professors of economics, public policy, business, and law.

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

Collection by Anna Schwartz Is Published

Money in Historical Perspective, a collection of 16 papers by Anna J. Schwartz with an introduction by Michael D. Bordo and Milton Friedman, is now available from the University of Chicago Press. The price is \$51.00.

These papers span Schwartz's distinguished career and are among her most cited articles on monetary economics. The first group, dating from 1947 to the present, examine money and banking in the United States and United Kingdom from a historical perspective. The second group of papers, written over the past two decades, discuss the importance of stable money. Finally, the volume concludes with four recent articles on international monetary arrangements, including Schwartz's well-known work on the gold standard.

Schwartz has been affiliated with NBER since 1941. She was named a Research Associate Emerita in 1985.

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Journal of Economic Literature (JEL) subject codes, when available, are listed after the date of the Working Paper. Abstracts of all Working Papers issued since June 1987 are presented below. For previous Working Papers, see past issues of the *NBER Reporter*. The Working Papers are intended to make results of NBER research available to other economists in preliminary form to encourage discussion and suggestions for revision before final publication. Working Papers are not reviewed by the Board of Directors of NBER.

Monopolistic Competition, Credibility, and the Output Costs of Disinflation Programs: An Analysis of Price Controls

Sweder van Wijnbergen
Working Paper No. 2302
June 1987

Brazil, Argentina, and Israel all used price controls as part of disinflation programs in 1985-6. In each case, the controls were intended to break an "inertial" component of inflation. This paper focuses on a specific mechanism through which inflation inertia can emerge: the interaction between lack of credibility in announcements of government monetary policy and the price-setting behavior of forward-looking firms. I show that this interaction can lead to inertia extending well beyond the price-setting period; that is important, since the price-setting period is likely to be short in economies with high inflation.

I develop a macromodel of an open economy in which firms set prices before uncertainty about government monetary policy is resolved. Lack of credibility then leads to output losses during a disinflation program. I demonstrate the effects of price controls and show that their temporary use can be defended on welfare grounds. The paper analyzes asset price behavior during disinflation programs with and without price controls and the influence of credibility problems. I discuss nominal and real interest rates, the stock market, and exchange rates. Finally, I show that if past government policy conveys any information about future government policy, then cheating on current announcements of tight policy buys current employment gains during the price control period at the cost of higher inflation afterward. Sustaining low inflation after the price control period thus requires restrictive monetary policy during the price control period.

Tests of International CAPM with Time-Varying Covariances

Charles M. Engel and Anthony P. Rodrigues
Working Paper No. 2303
July 1987
JEL No. 431

We perform a maximum-likelihood estimation of a model of international asset pricing based on the Capital Asset Pricing Model (CAPM). We test the restrictions imposed by CAPM against a more general asset pricing model. The "betas" in our CAPM vary over time for two reasons: the supplies of the assets (government obligations of France, Germany, Italy, Japan, the United Kingdom, and the United States) change over time, and so do the conditional covariances of returns on these assets. We let the covariances change over time as a function of macroeconomic data. We also estimate the model when the covariances follow a multivariate ARCH process. When the covariance of forecast errors are time-varying, we can identify a modified CAPM with measurement error. We also estimate this model. We find that the model in which the CAPM restrictions are imposed (which involves cross-equation constraints between coefficients and the variances of the residuals) performs much better when variances are not constant over time. Nonetheless, we reject the CAPM in favor of the less restricted model of asset pricing.

Productivity Levels and Productivity Change under Unionism

Steven G. Allen
Working Paper No. 2304
July 1987

This paper examines how unions affect the rate of change of productivity over time. Economic theory cannot predict the direction of union impact: firms may tend to select more productive technologies to offset the cost of higher union wages, or they may tend to select less productive technologies to keep union wage demands in line. Evidence from manufacturing industries indicates that unions have not affected productivity growth. In the construction industry, however, productivity growth has been much slower in areas in which there is a high initial level of unionization or where unionization is growing.

Homeownership Rates of Married Couples: An Econometric Investigation

**Donald R. Haurin, Patric H. Hendershott,
and David C. Ling**

Working Paper No. 2305

July 1987

JEL Nos. 323, 932

Homeownership patterns for young (under 45) married couples are striking in two respects. First, ownership rates rise dramatically with age: couples 35–44 consistently have ownership rates nearly 50 percentage points higher than couples under 25 have. Second, one-half of the sharp ownership gains of young married couples in the 1970s were reversed in the first half of the 1980s. These patterns do not hold either for single or other households, or for married couples over 44.

To understand this variability by age and over time, we analyze the behavior of young married couples using aggregate income/age data from the 1973–83 Annual (American) Housing Surveys (AHS). Household income affects housing choice both directly (the taste for ownership rises with income) and indirectly (the cost of owning declines as income rises because of the greater value of investment in a nontaxed asset for investors in higher tax brackets). Age affects housing choice because older households have higher incomes, are less mobile (annual-equivalent transactions costs are lower), have more wealth (portfolio diversification for owner-occupiers is easier), and have more certain income (and are thus more willing to commit to ownership).

We compute price and income elasticities for housing choices; interpret the rise in ownership rates between 1973 and 1979, and the subsequent decline; and predict the impact of the Tax Reform Act of 1986.

Wage Structures and Labor Turnover in the United States and Japan

Jacob A. Mincer and Yoshio Higuchi

Working Paper No. 2306

July 1987

JEL No. 800

The starting point of this study is the proposition that intensive formation of human capital on the job is the basic proximate reason for the strong degree of worker attachment to the firm in Japan. The greater emphasis on training and retraining, much of it specific to the firm, also results in steeper wage trajectories, because of growth of skills in the firm.

We explore this insight more thoroughly by a detailed use of microdata for the two countries: we measure wage profiles and turnover in age groups, and we test the inverse relationship between the two on industry sectors within each of the countries.

Using productivity growth indexes for industries in the United States and in Japan, we test the hypothesis that rapid technical change that induces greater and continuous training is responsible for steeper profiles and hence is indirectly responsible for less turnover. We confirm the hypothesis on the sectorial level in both countries.

Finally, we try to standardize for the cultural background of workers by observing a sample of Japanese plants in the United States that employ American workers and use Japanese labor policies in recruitment and training. We find that steeper tenure–wage slopes and lower turnover make this sample more like Japan than the United States.

U.S. Firms in Latin American Service Industries

Magnus Blomström and Robert E. Lipsey

Working Paper No. 2307

July 1987

JEL Nos. 440, 121, 635

The participation of U.S. service industry firms in Latin American markets for services consists mainly of the activities of U.S.-owned affiliates operating in Latin America and very little of direct exports of services from the United States. The important policy issues thus involve barriers to the establishment and operation of affiliates in host countries rather than trade barriers. Since direct investment rather than trade is at issue, the comparative advantages that are important are those of U.S. multinational firms rather than those of the United States as a country.

The characteristics we observe in U.S. multinationals in these industries, particularly their low R and D intensity, are not those usually associated with the comparative advantages of U.S. multinationals. However, their skill intensity is relatively high. A more detailed breakdown of the sector does show at least some industries, particularly in finance, in which skill levels are very high, and these are the most likely candidates for major gains for U.S. multinationals. Nevertheless, U.S. shares in the Latin American service sector are very small overall and not likely to reach the levels in manufacturing or petroleum in the foreseeable future.

A Positive Theory of Fiscal Deficits and Government Debt in a Democracy

Alberto Alesina and Guido Tabellini

Working Paper No. 2308

July 1987

JEL No. 023

This paper considers an economy in which policymakers with different preferences concerning fiscal policy alternate in office as a result of democratic elections. We show that in this situation, government debt becomes a strategic variable that each policymaker uses to influence the choices of his successors. In particular, if different policymakers disagree about the desired composition of government spending between two public goods, then the economy exhibits a bias toward deficits. That is, debt accumulation is higher than it would be with a social planner. According to our model, the equilibrium level of government debt is larger, the degree of polarization between alternating governments is larger, and it is more likely that the current government will not be reelected. The paper has empirical implications that may contribute to explaining the current fiscal policies in the United States and in several other countries.

Political versus Currency Premia in International Real Interest Differentials: A Study of Forward Rates for 24 Countries

Jeffrey A. Frankel and Alan T. MacArthur

Working Paper No. 2309

July 1987

JEL No. 431

Different approaches to quantifying the degree of capital mobility for a cross section of currencies—particularly saving–investment correlations and tests of real interest parity—seem to show a surprisingly low degree of financial market integration. We use a new data set—forward rate data for 24 countries, including many small industrialized countries and seven LDCs—to decompose the real interest differential into two parts: the covered interest differential, or political premium, and the real forward discount, or currency premium. In turn, the latter can be decomposed into the exchange risk premium and expected real depreciation.

For our sample period of 1982 to 1987, we find a high degree of capital mobility across political boundaries for most of the G-11 countries, plus Hong Kong and Singapore. Even for most of the other LDCs and smaller industrialized countries, where covered interest parity clearly fails, the political premium is not as big a component of the real interest differential as the currency premium is. France appears to have higher capital mobility than most countries do, by the criterion of real

interest differentials, but in fact has low capital mobility by the criterion of covered interest differentials. That is a clear example of the superiority of the latter criterion.

Exchange Rate Policy Reconsidered

Richard C. Marston

Working Paper No. 2310

July 1987

JEL No. 430

The Bretton Woods Conference of 1944, which fixed exchange rates for over 25 years, is often cited as a model of economic cooperation among countries. Yet over 15 years have elapsed since the breakdown of the Bretton Woods System without any serious efforts to restore fixed exchange rates among the currencies of the major industrial countries. This paper considers why governments may have refrained from “reforming” the exchange rate system.

The first section of the paper examines the principal problem that exchange rate policy is designed to address: variability. The paper distinguishes between the short-run volatility of exchange rates, which firms can hedge against in the financial markets, and longer-term swings in real exchange rates, which can lead to costly resource reallocation.

The paper reviews evidence concerning the effectiveness of exchange market intervention, which suggests that intervention may not be effective unless it is monetized. The paper goes on to analyze arguments concerning fixed exchange rates, and to assess the experience of two fixed rate systems: Bretton Woods and the European Monetary System. Finally, the paper examines the target zone system that has been proposed as an alternative to freely floating and fixed exchange rates.

Menu Costs and the Neutrality of Money

Andrew S. Caplin and Daniel F. Spulber

Working Paper No. 2311

July 1987

We present a model of endogenous price adjustment under money growth. Firms follow pricing policies and price revisions are imperfectly synchronized. In the aggregate, price stickiness disappears and money is neutral. We also investigate the connection between firm price adjustment and relative price variability in the presence of monetary growth. The results contrast with those obtained in models with exogenous fixed timing of price adjustment.

Inflation: Theory and Evidence

Bennett T. McCallum

Working Paper No. 2312

July 1987

JEL Nos. 130, 023

This survey attempts to cover an extremely broad topic by organizing around three sets of issues: ongoing (steady-state) inflation; cyclical interaction of inflation with real variables; and positive analysis of monetary policy behavior. With regard to ongoing inflation, the paper demonstrates that the principal conclusions of theoretical analysis are not highly sensitive to details of model specification, provided that the latter posits rational agents free of money illusion. Whether one assumes finite-lived or infinite-lived agents, such models suggest that: steady-state inflation rates will conform fairly closely to money stock growth rates; superneutrality is not strictly implied, but departures should be minor; and socially optimal inflation rates correspond to the Chicago Rule. The first two of these conclusions are consistent with available evidence.

With regard to the cyclical interaction of inflation with aggregate output and employment, there is much less professional agreement: four classes of aggregate-supply (or Phillips curve) theories are currently in use by researchers and at least two have been able to withstand attempts at refutation thus far.

With regard to policy, a leading question is why, over the postwar era, the authorities have behaved in a manner that has resulted in a manifold increase in the price level of most industrialized nations. A full answer will require a better theory of the political process than is now available, but an important insight regarding inflationary bias is suggested by models that focus on the effects of "discretionary" period-by-period decision-making by a monetary authority that seeks to avoid unemployment as well as inflation.

Sectorial and National Aggregate Disturbances to Industrial Output in Seven European Countries

Alan C. Stockman

Working Paper No. 2313

July 1987

JEL No. 131

A class of real business cycle models suggests that shocks to technology can explain aggregate fluctuations in output and employment. This paper begins from the premise that shocks to productivity may vary across industries but are unlikely to vary systematically across national boundaries for a set of developed

countries. However, alternative sources of macroeconomic fluctuations, such as those caused by nation-specific government policies, may produce variations in output growth across nations that are common to industries. This paper discusses these implications within the context of a simple theoretical model. Then the paper decomposes the quarterly and annual growth rate of industrial production in two-digit manufacturing industries in seven European countries and the United States into components that are specific to industries but common to nations and idiosyncratic components. Shocks that are nation-specific and common to industries are important, which casts doubt on the hypothesis that most macroeconomic fluctuations can be ascribed to shocks to technology.

Income Originating in the State and Local Sector

Charles R. Hulten and Robert M. Schwab

Working Paper No. 2314

July 1987

JEL No. 324

In this paper we develop an accounting framework for the state and local sector consistent with the accounting framework for the private sector of the economy. We show that the public sector capital stock generates an imputed return that takes the form of a reduction in local taxes. Failure to recognize this income distorts the measurement of the output of this sector, confuses the debate over federal tax reform, and hides the distinction between general subsidies for capital formation.

Our implementation of those accounts for 1959-85 indicates that current national income accounting procedures misstate the amount of income originating in the state and local sector. In recent years, this misstatement has been on the order of \$100 billion. We also show that the state and local sector is one of the more capital-intensive sectors of the economy.

Costly Adjustment and Limited Borrowing: A Welfare Analysis of Policies to Achieve External Balance

Joshua Aizenman and Marcelo Selowsky

Working Paper No. 2315

July 1987

JEL No. 400

This paper develops a framework for the analysis of adjustment to adverse shocks in the presence of limited access to the international credit market. We consider an economy that produces traded and nontraded

goods and experiences a permanent, unanticipated drop in the availability of external resources. A direct effect of the shock is that previous consumption and production patterns are not feasible anymore, and the economy consequently must undergo an adjustment that will allow it to regain its external balance. We introduce several frictions in the form of time-dependent reallocation costs and nominal labor contracts. We assess the welfare consequences of restricted access to the capital market by comparing the welfare loss induced by the drop in income between the cases of credit rationing and perfect access to international credit.

Our analysis demonstrates that restricted borrowing has three effects—the intertemporal cost, the contemporaneous reallocation cost, and the dead-weight loss in the labor market. Restricted access to international capital markets requires a greater real depreciation, implying greater reallocation of resources and consequently a greater loss of output in the short run. Access to the capital market will require smaller contemporaneous reallocation, allowing partial postponement of the adjustment to the future, when it will be associated with lower costs. In general, these costs can have a first-order effect. With nominal wage contracts, we will observe potential losses in the labor market caused by nominal rigidities. These effects can be (at least partially) overcome by optimal devaluation. Our analysis demonstrates that the effect of limited access to international credit is increased welfare loss because of nominal contracts, consequently necessitating a larger devaluation. We conclude that capital flows and credit assistance can have substantial benefits in reducing the welfare cost of adjustment to adverse real shocks.

Implicit Contracts, Labor Mobility, and Unemployment

**Richard J. Arnott, Arthur Hosios,
and Joseph E. Stiglitz**
Working Paper No. 2316
July 1987

The inability of firms to monitor their employees' search efforts forces a trade-off between risk-bearing and incentive considerations when designing employment-related insurance. Since the provision of insurance against firm-specific shocks adversely affects workers' incentives to find better jobs, the optimal contract provides only partial insurance. It prescribes low wages and underemployment to encourage workers to leave low-productivity firms and high wages and overemployment to encourage workers to stay at high-productivity firms. It also employs quits and layoffs as

alternative means of inducing separations at low-productivity firms; the mix depends on the relative efficiency of the on- and off-the-job search technologies.

Our analysis of implicit contracts with asymmetric search information establishes that any consistent explanation for worksharing, layoffs, severance pay, quits, and unemployment must focus on questions of labor mobility.

No Room for Weak Links in the Chain of Deposit Insurance Reform

Edward J. Kane
Working Paper No. 2317
July 1987

Unrecognized and deferred losses at financial institutions with insured deposits currently impair the capacity of the nation's principal deposit insurers (the FDIC and FSLIC) to discipline failing institutions and to discipline or take over insolvent ones. These agencies' accrued but unreported losses far exceed their explicit financial resources. Moreover, their backlog of unresolved problem cases far exceeds the workload that their existing staffs can handle.

What holds the deposit institution together is financial market participants' so far unshakable faith that politicians and bureaucrats cannot afford to let the FDIC and FSLIC renege on the obligations that they and their predecessors have permitted these agencies to assume. Underlying this belief is a conjectural economic assessment of the strength and constancy of incentives that direct elected politicians to bail out politically sensitive enterprises.

This paper addresses three tasks: (1) to clarify the defects in the information, monitoring, regulatory-response, and incentive subsystems of federal deposit insurance which, by subsidizing institutional risktaking, led so many deposit institutions and their insurers into economic insolvency; (2) to identify a generic mix of reforms that in principle could put the system right again; and (3) to explain how far proposals for reform that hold a place on the active legislative and regulatory agenda fall short of this ideal.

Financial Fragility and Economic Performance

Ben S. Bernanke and Mark Gertler
Working Paper No. 2318
July 1987
JEL Nos. 313, 131

Applied macroeconomists (for example, Eckstein and Sinai [1986]) have stressed the role of financial

variables, such as firm balance sheet positions, in the determination of investment spending and output. Our paper presents a formal analysis of this link. We develop a model of the process of investment finance in which there is asymmetric information between borrowers and lenders about the quality of investment projects and about the borrower's effort. In this model, the higher the cost of external investment finance under the optimal contract, the worse the borrower's balance sheet position (that is, the lower his net worth) will be. In general equilibrium, the lower borrower net worth is, the further the number of projects initiated and the average quality of undertaken projects will be from the unconstrained first-best.

We characterize a "financially fragile" situation as one in which balance sheets are so weak that the economy experiences substantial underinvestment, misallocation of investment resources, and possibly even a complete investment collapse. Our policy analysis suggests that, under some circumstances, government "bailouts" of insolvent debtors may be a reasonable alternative in periods of extreme financial fragility.

Why Have Private Saving Rates in the United States and Canada Diverged?

Chris Carroll and Lawrence H. Summers

Working Paper No. 2319

July 1987

JEL No. 321

One of the central questions in macroeconomics for many years has been: Can government policy affect private saving rates and, if so, to what extent and through what channels? The question has remained controversial because, as with other macroeconomic questions, experiments to check divergent hypotheses cannot be performed deliberately. Therefore, economists must rely on the often dubious evidence from the limited experiments endowed us by nature and history.

This paper discusses the results of an exceptionally good natural experiment that has been provided by Canada and the United States over the past 35 years. After moving in tandem for almost 25 years, American and Canadian private saving rates have diverged dramatically over the last decade. The primary conclusion emerging from our analysis of this phenomenon is that tax policies can have a potent impact on private saving behavior. Differences in tax structures, and in the interactions of taxation and inflation, appear to be important factors explaining the divergent behavior of the American and Canadian private saving rates. Recognizing the importance of asset revaluations, caused partially but not entirely by tax effects, also helps to explain the different behavior of U.S. and Canadian saving. There also may be a relationship between government deficits and the private saving differential.

Declining Unionization in Construction: The Facts and the Reasons

Steven G. Allen

Working Paper No. 2320

July 1987

This paper documents and examines the forces behind the decline of unionization in the construction industry. The proportion of construction workers belonging to unions has dropped from slightly less than one-half in 1966 to less than one-third in 1984. The employment share of union contractors has declined even further because the fraction of union members working in the open shop rose from 29 to 46 percent between 1973 and 1981. An important factor in the initial decline in the percentage unionized was the growth in the union-nonunion wage gap between 1967 and 1973. However, the gap did not widen any further after 1973 and actually has narrowed substantially since 1978. A key subsequent factor has been the erosion of the productivity advantage of union contractors, which dropped substantially between 1972 and 1977 and vanished by 1982. The decline of unionization is unrelated to changes in worker characteristics or to changes in the mix and location of construction activity.

The Mundell-Fleming Model: A Quarter Century Later

Jacob A. Frenkel and Assaf Razin

Working Paper No. 2321

July 1987

JEL No. 431

The Mundell-Fleming model of international macroeconomics originated in the writings of Robert A. Mundell and J. Marcus Fleming in the early 1960s. The key contribution of the model has been a systematic analysis of the role played by international capital mobility in determining the effectiveness of macroeconomic policies under alternative exchange rate regimes. During the ensuing quarter century, the model was extended in various directions and is still the main "workhorse" of traditional open economy macroeconomics.

This paper develops an exposition that integrates the various facets of the model and incorporates its extensions into a unified analytical framework. The distinction between short-run and long-run effects of policies, the implication of debt and tax financing of government expenditures, the role of the exchange rate regime in this regard, and debt revaluation and trade balance revaluation effects associated with exchange rate changes are all highlighted. The resulting integration clarifies the key economic mechanisms operating in the Mundell-Fleming model and helps to

identify its limitations. Among these is the neglect of intertemporal budget constraints and of the consequences of forward-looking behavior consistent with this constraint. The formulation in the paper casts the model in a manner that facilitates comparisons with more modern approaches. In so doing, the exposition provides a bridge between the traditional and the more modern approaches to international macroeconomics.

Treasury Bill Futures as Hedges Against Inflation Risk

Jayendu Patel and Richard J. Zeckhauser
Working Paper No. 2322
July 1987

An important risk facing agents in a monetary economy is inflation uncertainty: in the United States from 1953–84, unexpected quarterly inflation had a standard deviation of 2.1 percent. The costs of such uncertainty are likely to be high for multiyear contracts, since we estimate that a 1 percent unexpected inflation this year implies an upward revision of 0.43 percent for expected inflation for the forthcoming year and 1 percent for the years beyond that. The prospect of hedging exposure to inflation risk using conventional financial instruments is bleak, as has been widely documented.

We develop a theoretical case for Treasury bill futures as a hedge against inflation risk by assuming that: (1) the Fisher Hypothesis applies to Treasury bill yields; (2) the Unbiased Expectations Hypothesis (UEH) applies to futures prices; and (3) inflation is an autoregressive process. Our empirical analysis shows that Treasury bill futures can reduce single-period inflation risk by about 30–40 percent. The expected cost of using such futures is close to zero, since we find that the UEH for Treasury bill futures cannot be rejected. Our results provide new indirect support for the Fisher Hypothesis.

Employee Retirement and a Firm's Pension Plan

Laurence J. Kotlikoff and David A. Wise
Working Paper No. 2323
July 1987
JEL Nos. 820, 915

This paper describes the provisions of the pension plan in a large corporation. The implications of the provisions are indicated by pension accrual profiles. These profiles are set forth, with standard age-earnings and Social Security accrual profiles, in the form of lifetime budget constraints.

The plan provides very strong incentives to retire beginning at age 55. After age 65, negative pension and negative Social Security accruals effectively impose a tax rate of almost 100 percent on the wage earnings for many employees of the firm.

We find that inducements to retire early in the plan provisions have had a very substantial effect on departure rates from the firm. Over 50 percent of those employed by the firm at age 50 leave before age 60, and 90 percent leave before age 65. The jumps in departure rates at specific ages coincide precisely with the discontinuities and kink points in the worker compensation profiles resulting from the plan provisions, age-earnings profiles, and Social Security accrual.

Aging, Moving, and Housing Wealth

Steven F. Venti and David A. Wise
Working Paper No. 2324
July 1987
JEL Nos. 932, 300

This paper describes the relationship between family attributes and moving, and between moving and changes in housing wealth. Moving is often associated with retirement and with precipitating shocks, such as the death of a spouse or other changes in marital status. Yet we find that median housing wealth increases as the elderly age: even when the elderly move, their housing equity is as likely to increase as to decrease. Thus, the typical elderly mover is not liquidity constrained. Apparently the high transaction costs associated with moving do not cause reduced housing wealth as the elderly age. Therefore, the absence of a well-developed market for reverse mortgages may be explained by a simple lack of demand for these financial instruments. Our evidence suggests that the typical elderly family does not wish to reduce its housing wealth to increase current consumption. For whatever reason, homeowners apparently have a considerable attachment to past housing.

The Wealth and Poverty of Widows: Assets Before and After the Husband's Death

Michael D. Hurd and David A. Wise
Working Paper No. 2325
July 1987
JEL Nos. 914, 300

Widows are much more likely to be poor than couples are, and 80 percent of the poor elderly are widows or other single individuals. We seek to explain why the single elderly, especially widows, are poor. To do this, we trace their financial status back over time, using the Longitudinal Retirement History Survey.

The death of the husband very often induces the pov-

erty of the surviving spouse, even though the married couple was not poor when the deceased spouse lived. While only about 9 percent of the couples in our sample were poor, approximately 35 percent of the subsequent widows are. A large proportion of the wealth of the couple is lost when the husband dies.

In addition, we find that: (1) the prior households of poor widows earned and saved less than the prior households of nonpoor widows did; (2) more of the smaller accumulated wealth was lost at the death of the husband; and (3) the absence of survivorship benefits or life insurance made it probable that the loss in wealth would leave the widow poor thereafter.

The Poverty of Widows: Future Prospects

Michael D. Hurd

Working Paper No. 2326

July 1987

JEL Nos. 914, 300

I estimate the fraction of widows who will be poor based on the 1979 economic status of a cohort of the elderly. The projections are based on an economic model of consumption behavior. I define and estimate a consumption-based measure of poverty status that, I believe, is more appropriate for the elderly than the usual income-based measure is.

According to the projections, the fraction of widows in poverty should not increase substantially as the 1979 cohort ages. However, the fraction in poverty depends critically on the definition used: the differences between the consumption- and income-based measures are large. Even more important is the valuation put on Medicare/Medicaid: for two reasonable valuations, the fractions in poverty are very different.

Sticky Prices as Coordination Failure

Laurence Ball and David Romer

Working Paper No. 2327

July 1987

JEL No. 023

This paper shows that rigidity in nominal prices can arise from a failure to coordinate price changes. If a firm's desired price is increasing in others' prices, then the gains to the firm from adjusting its price after a nominal shock are greater if others also adjust. The "strategic complementarity" in price adjustment can lead to multiple equilibria in the degree of nominal rigidity. Welfare may be much higher in the equilibria that are less rigid. In addition, with multiple-equilibrium degrees of rigidity, the economy may have several short-run equilibria but a unique long-run equilibrium.

Long-Term Care, Wealth, and Health of the Disabled Elderly Living in the Community

Alan M. Garber

Working Paper No. 2328

July 1987

JEL No. 913

Providing and financing long-term care for the elderly is one of the most challenging policy issues facing the aging American population. This study examines the characteristics of, and selected measures of utilization in, the population most likely to use long-term care. It investigates a cohort of noninstitutionalized elderly Medicare recipients who were impaired in the performance of at least one basic activity. It describes their wealth, living arrangements, and health. I present Tobit regressions that relate utilization of hospital services, paid home health care, and reimbursed home care to these individual factors. I find that the number of limitations on activity increases with age, but in this population, household income and the value of home equity do not increase with either the level of disability or with age. The determinants of home health care utilization in this population are distinct from the factors that have been significant predictors of medical care utilization in other studies.

The Role of Education: Mobility Increasing or Mobility Impeding?

Axel Börsch-Supan

Working Paper No. 2329

July 1987

JEL No. 823

This paper studies the influence of education on labor and geographic mobility. Mobility is an important equilibrating factor in a changing economy. Therefore, any factor that induces mobility also alleviates the symptoms of disequilibrium, and any factor that inhibits mobility also impedes economic adjustments. Does the high level of education in modern industrial societies help or hurt economic transitions?

Economic theory provides conflicting arguments. On one hand, the theory of firm-specific capital predicts that education increases job duration and therefore inhibits job mobility (Jovanovic, 1979). On the other hand, education should increase mobility in markets with imperfect information because better-educated persons should be better able to collect and process information, reducing search and transactions costs.

I use a PSID subsample of 736 individuals to observe labor mobility and geographic mobility from 1968 to 1982 and how they relate to the level of education in 1968. It appears that labor and geographic mobility are governed by quite different behavioral mechanisms. Education strongly affects both labor and geographic mobility, but in opposite ways. A high level of education inhibits labor mobility, while increasing geographic mobility.

Ricardian Equivalence: An Evaluation of Theory and Evidence

B. Douglas Bernheim

Working Paper No. 2330

July 1987

JEL Nos. 023, 321

In evaluating the existing theory and evidence on Ricardian equivalence, it is essential to distinguish between the short-run effects of government borrowing (primarily the potential for stimulating aggregate demand) and the long-run effects (primarily the potential for depressing capital accumulation). I argue that the theoretical case for long-run neutrality is extremely weak, in that it depends on improbable assumptions that are either directly or indirectly falsified through empirical observation. In contrast, the approximate validity of short-run neutrality depends primarily on assumptions that have at least an aura of plausibility. Nevertheless, even in this case behavioral evidence weighs heavily against the Ricardian view.

Efforts to measure the economic effects of deficits directly through aggregate data confront a number of problems that, taken together, may well be insuperable. Therefore, it is not at all surprising that this evidence, by itself, has proven inconclusive.

Overall, the existing body of theory and evidence establishes a significant likelihood that deficits have large effects on current consumption, and there is good reason to believe that this would drive up interest rates. In addition, I find a complete lack of either evidence or coherent theoretical argument to dispute the view that sustained deficits significantly depress capital accumulation in the long run.

Operative Gift and Bequest Motives

Andrew B. Abel

Working Paper No. 2331

August 1987

JEL Nos. 320, 915

The Ricardian Equivalence Theorem—the proposition that changes in the timing of lump-sum taxes have

no effect on consumption or capital accumulation—depends on the existence of operative altruistic motives for intergenerational transfers. These transfers can be bequests from parents to children or gifts from children to parents. In order for the Ricardian Equivalence Theorem to hold, one of these transfer motives must be operative, in the sense that the level of the transfer is not determined by a corner solution resulting from a binding nonnegativity constraint. This paper derives conditions that determine whether the bequest motive will be operative, the gift motive will be operative, or neither motive will be operative in a model in which consumers are altruistic toward their parents and their children.

Concepts and Measures of Federal Deficits and Debt and Their Impact on Economic Activity

Michael J. Boskin

Working Paper No. 2332

August 1987

JEL No. 320

This paper extends the National Income Accounts to include a consistent treatment of consumer durables and government capital in the measurement of consumption and income. It then explicitly tests alternative propositions concerning the effects of government financial policy on real economic activity.

I also discuss adjustments to various measures of the budget deficit, national debt, or government “net worth.” These separate government tangible investment from consumption, accounting for government financial assets, inflation adjustments, and so forth.

Most important are estimates of consumption functions in which government consumption is subtracted from income. This is more in the spirit of the Ricardian equivalence hypothesis: Given the level of government consumption, would a shift from tax to debt finance alter consumption? The various measures of the deficit produce virtually identical impacts on consumption: A tax cut holding government consumption constant unambiguously increases consumption by about 40 cents on the dollar.

Estimating separate coefficients on private wealth net of government bonds and on private holdings of government bonds yields a coefficient on government bonds virtually identical to that of regular private wealth. The coefficient would be zero under Ricardian equivalence. The estimates of the net impact of Social Security wealth are consistent with recent research suggesting that the propensity to consume out of Social Security wealth is about half that of regular private wealth. The estimated impact of changes in net government explicit

assets—the value of government tangible capital over and above regular debt—again is quite similar to the propensity to consume out of private wealth. This suggests that government tangible assets substitute for private saving.

I present reduced-form estimates of the impact of federal deficits on the composition of GNP. Various specifications lead to the conclusion that a \$1 increase in the deficit, controlling for the level of economic activity, appears to be associated with about a 30 cent increase in private saving, a 35 cent decrease in domestic investment, and a 25 cent decrease in net foreign investment.

Thus, the results reported in the paper, using alternative concepts and measures of deficits and debt, tend to confirm the proposition that government deficits affect real economic activity.

The Right Combination of Demand and Supply Policies: The Case for a Two-Handed Approach

Willem H. Buiter

Working Paper No. 2333

August 1987

JEL No. 133

This paper considers the analytical underpinnings of demand and supply management. After restating a general policy effectiveness result for New Classical macroeconomic models, I consider several non-Walrasian equilibrium models. These use the efficiency wage hypothesis to generate equilibrium unemployment in the labor market and imperfect competition in the goods market to generate the scope for demand management. I also briefly review hysteresis models of the natural rate of unemployment. Finally, I draw tentative implications for the contributions of demand and supply management to the resolution of the European unemployment problem.

Sibling and Intergenerational Correlations in Welfare Program Participation

Gary Solon, Roger H. Gordon, Mary Corcoran, and Deborah Laren

Working Paper No. 2334

August 1987

JEL Nos. 914, 911

Many previous studies have used sibling correlations to measure the effect of family background on earnings, income, and occupational status. This paper

uses data on a sample of sisters to explore the importance of family background as a determinant of participation in welfare programs. The results show a strikingly high degree of sibling resemblance in welfare receipts. For example, a woman's estimated probability of having participated in welfare programs is 0.20 if her sister has *not* participated but is 0.66 if her sister *has* participated.

Taxation and Output Growth: Evidence from African Countries

Jonathan S. Skinner

Working Paper No. 2335

August 1987

JEL Nos. 320, 112

There is considerable debate over the appropriate role for tax policy in developing economies. In one view, tax hikes reduce deficits and ease budgetary pressures, thereby encouraging long-term growth. An alternative view emphasizes the distortionary effects associated with increased taxation and the positive benefits of a carefully designed tax system.

This paper tests these propositions by measuring the impact of government taxation and expenditure on aggregate output growth. I derive a theoretical model that shows that the impact of tax distortions on output growth is usually negative. I test the theoretical model using a pooled cross-section, time-series data set for 31 sub-Saharan African countries during 1965–73 and 1974–82.

The regressions imply that the positive benefits of government investment during 1965–73 outweighed the distortionary effects of taxes necessary to finance them. By 1974–82, however, the marginal productivity of government investment had fallen; tax-financed public investment was predicted to have reduced output growth. The empirical results also imply that a *revenue-neutral* shift from the import, corporate, and personal tax to a sales/excise (or consumption) tax will encourage output growth.

Risky Income, Life-Cycle Consumption, and Precautionary Saving

Jonathan S. Skinner

Working Paper No. 2336

August 1987

JEL No. 020

This paper argues that precautionary saving against uncertain income comprises a large fraction of aggre-

gate saving. I derive a closed-form approximation for life-cycle consumption subject to uncertain interest rates and earnings by taking a second-order, Taylor series approximation of the Euler equations. Using empirical measures of income uncertainty, I find that precautionary saving comprises up to 56 percent of aggregate life-cycle saving. The derived expression for n -period optimal consumption is easily implemented for econometric estimation and accords well with the exact numerical solution.

Empirical comparisons of saving patterns among occupational groups using the Consumer Expenditure Survey contradict the predictions of the life-cycle model. Those in riskier occupations, such as the self-employed and salespersons, save *less* than those in other occupations do, although this finding may reflect in part unobservable differences in risk aversion among occupations.

The Effects of Technological Change on Earnings and Income Inequality in the United States

McKinley L. Blackburn and David E. Bloom

Working Paper No. 2337

August 1987

JEL No. 824

This paper explores the relationship between technological change and inequality in the United States since the late 1960s. The focus is on patterns and trends in the dispersion of distributions of earnings and income during this recent period of rapid technological progress. We review relevant literature and perform several empirical analyses using microdata from the March Current Population Surveys from 1968 to 1986. We find little empirical evidence that earnings inequality, measured across individual workers, has increased since the late 1960s and even less evidence that any changes that have occurred are a result of the effect of technological change on the demand for labor. However, we do find evidence of an increase since the late 1960s in the inequality of total income, measured across families. Moreover, much of the increase appears to be caused by changes in family composition and labor supply behavior, suggesting that the main effects of recent technological change on inequality have been on the supply side.

Household Dissolution and the Choice of Alternative Living Arrangements among Elderly Americans

Axel Börsch-Supan

Working Paper No. 2338

August 1987

JEL No. 932

For the elderly, housing choices are more complex than merely choosing expenditure, dwelling size, and tenure. There also is the choice among alternative living arrangements, such as living in one household with adult children or sharing accommodations with other related or unrelated elderly.

I first contrast the living arrangements of elderly Americans with those of the population under age 65 and describe the changes that have taken place from 1974 to 1983. There has been a growing discrepancy in household formation/dissolution patterns between the elderly and the younger population: After a steady decline in the 1970s, there was a rapid increase in the rate of "doubled-up" young families in the beginning of the 1980s. I can find no such development among elderly Americans. Instead, the proportion of elderly living independently steadily increased from 1974 to 1983.

To explain this discrepancy, I estimate a multinomial choice model among "living independently" and six categories of alternative living arrangements. I find that demographic determinants rather than economic variables predominate. The difference in income growth between the young and the elderly—that is, a decline in real income for the young but an increase for the elderly—can explain only part of the discrepancy in household dissolution decisions. The remaining discrepancy must be attributed to inertia and low mobility rates.

Sources of Macroeconomic Imbalance in the World Economy: A Simulation Approach

Nouriel Roubini and Jeffrey D. Sachs

Working Paper No. 2339

August 1987

JEL Nos. 430, 431

This paper uses a global macroeconomic simulation model to identify the factors that have contributed to worldwide trade and financial imbalances in the 1980s. We ask whether the budgetary shifts in the OECD economies in the 1980s can explain the bulk of trade and exchange rate movements, and our conclusions are

mixed. The combination of sharply higher fiscal deficits in the United States and sharply reduced deficits in Japan goes far to explain the movements of the trade balances and exchange rates of those two economies. However, the drop in the dollar vis-à-vis the yen since late 1985 is not explained well by the model.

We also investigate the prospects for the reduction of the U.S. trade deficit through a reduction in the U.S. budget deficit, and the possible role for Japanese monetary and fiscal policies in reducing the trade imbalances of the two countries.

Interest-Only/Principal-Only Mortgage-Backed Strips: A Valuation and Risk Analysis

Arnold Kling and Alan J. Marcus

Working Paper No. 2340

August 1987

JEL No. 313

We examine the risk characteristics of each portion of interest-only/principal-only (IO/PO) mortgage strips, present results of a valuation model of these securities, and examine market prices of both the IO and PO portions of mortgage pools. We show that IO/PO securities are highly sensitive to the prepayment behavior of the underlying mortgage pool. Because that behavior varies systematically with the interest rate, and because prepayments affect the values of IO and PO components in opposite ways, the interest rate risk of strip securities can differ substantially from that of the underlying mortgage pool. The PO component has much longer duration than the underlying mortgage pool does. In contrast, the IO component typically will have a negative duration, at least in ranges for which interest rate movements induce meaningful changes in mortgage prepayment behavior. We also show how market prices of partially stripped mortgage-backed securities that are actively traded on secondary markets can be used to infer market values of pure IO/PO strips. Recent market data are fully consistent with the theoretical insights offered by our valuation model. When interest rates spiked last April, PO values fell far more dramatically than those of the underlying mortgage pool did, while IO values actually rose.

The Term Structure of Interest Rates

Robert J. Shiller and J. Huston McCulloch

Working Paper No. 2341

August 1987

JEL No. 311

This paper consolidates and interprets the literature on the term structure as it stands today. We treat defi-

nitions of rates of return, forward rates, and holding returns for all time intervals in a uniform manner and delineate their interrelationships, exact or approximate. We use the concept of duration throughout to simplify mathematical expressions. Where possible, we use continuous compounding to avoid arbitrary distinctions based on compounding assumptions, and we treat both the theoretical and the empirical literature.

The tables by McCulloch provide term structure data for U.S. government securities, 1946-87. The tables give discount bond yields, forward rates, and par bond yields as defined in the paper. The data relate to the concepts in the paper more precisely than any previously published data series does.

Breach of Trust in Hostile Takeovers

Andrei Shleifer and Lawrence H. Summers

Working Paper No. 2342

August 1987

JEL Nos. 521, 821, 512

This paper questions the common view that share price increases of firms involved in hostile takeovers measure efficiency gains from acquisitions. Even if such gains exist, most of the increase in the combined value of the target and the acquirer likely comes from losses in stakeholder wealth, such as declines in the value of subcontractors' firm-specific capital or of employees' human capital. Using event studies to gauge wealth creation in takeovers is unjustified.

The paper also suggests a theory of managerial behavior in which hiring and entrenching trustworthy managers enables shareholders to commit to upholding implicit contracts with stakeholders. Hostile takeovers are an innovation that allows stakeholders to renege on such contracts *ex post*, against managers' will. Under this view, shareholder gains are redistributions from stakeholders and in the long run can result in deterioration of the trust necessary for the functioning of the corporation.

Mean Reversion in Stock Prices: Evidence and Implications

James M. Poterba and Lawrence H. Summers

Working Paper No. 2343

August 1987

JEL Nos. 313, 211

This paper analyzes the statistical evidence of whether transitory components account for a large fraction of

the variance in common stock returns. First, it treats the methodological issues involved in testing for the components of transitory returns. Variance ratios are among the most powerful tests for detecting mean reversion in stock prices, but they have little power against the principal interesting alternatives to the random walk hypothesis.

Second, we apply variance ratio tests to market returns for the United States over 1871–1986, and for 17 other countries over 1957–85. We also test the returns on individual firms from 1926–85. We find consistent evidence that stock returns are positively serially correlated over short horizons and negatively autocorrelated over long horizons. Our point estimates suggest that the transitory components in stock prices have a standard deviation of between 15 and 25 percent and account for more than half of the variance in monthly returns.

The last part of the paper discusses two possible explanations for mean reversion: time-varying required returns and slowly decaying “price fads” that cause stock prices to deviate from fundamental values for periods of several years. We conclude that it is likely to be difficult to explain observed transitory components in stock prices on the basis of movements in required returns caused by risk factors.

The Worldwide Change in the Behavior of Interest Rates and Prices in 1914

Robert B. Barsky, N. Gregory Mankiw, Jeffrey A. Miron, and David N. Weil

Working Paper No. 2344

August 1987

JEL Nos. 310, 430

This paper evaluates the role of the destruction of the gold standard and the founding of the Federal Reserve, both of which occurred in 1914, in contributing to observed changes in the behavior of interest rates and prices after 1914. We present a model of policy coordination in which the introduction of the Fed stabilizes interest rates, even if the gold standard remains intact. The empirical evidence suggests that the dismantling of the gold standard did not play a crucial role in precipitating the changes in interest rate behavior.

The ECU—An Imaginary or Embryonic Form of Money: What Can We Learn from History?

Michael D. Bordo and Anna J. Schwartz

Working Paper No. 2345

August 1987

JEL Nos. 310, 432

We present historical examples of new forms of money that can be compared with the European Currency Unit

(ECU). We first define the ECU in its official role and then turn to developments for ECUs in the private market. We then examine historical antecedents of three attributes of ECUs: a unit of account; a basket of currencies; and a basis for monetary integration. We discuss which features of ECUs if any are unique and the contribution of the historical analysis to assessing the future of ECUs. We then ask whether governments or markets have been dominant in the emergence of new forms of money. Whatever emerges as money in an economy becomes the general means of payment. Prices of commodities, services, and bonds are expressed in units of the money. Buyers use the money to purchase goods or bonds and sellers receive the money in exchange for goods or bonds. We conclude that, at this stage in its history, the ECU is an embryonic form of money at best, closer to historical imaginary monies than to existing currencies that the world has known.

A Cost-Effectiveness Analysis of Strategies to Reduce Infant Mortality

Hope Corman, Michael Grossman, and Theodore J. Joyce

Working Paper No. 2346

August 1987

JEL No. 913

This study compares the cost-effectiveness of various health inputs and government programs in reducing race-specific neonatal mortality (that is, death in the first 27 days following birth). Approximately two-thirds of all infant deaths occur within this time. We consider these programs and inputs: teenage family planning; the supplemental food program for women, infants, and children (WIC); use of community health centers and maternal and infant care projects; abortion; prenatal care; and neonatal intensive care.

Using an economic model of the family as the analytical framework, we determine effectiveness by estimating infant health production functions across large counties in the United States in 1977. Estimates of costs come from a number of published sources. We find the early initiation of prenatal care to be the most cost-effective means of reducing the neonatal mortality rate for blacks and whites. Moreover, blacks benefit more per dollar of input use than whites do. Neonatal intensive care, although the most effective means of reducing neonatal mortality rates, is one of the least cost-effective strategies.

One Share/One Vote and the Market for Corporate Control

Sanford J. Grossman and Oliver D. Hart

Working Paper No. 2347

August 1987

JEL No. 520

A corporation's securities provide the holder with particular claims on the firm's income stream and particular voting rights. These securities can be designed in various ways: one share of a particular class may have a claim to votes that is disproportionately larger or smaller than its claim to income. In this paper we analyze some of the forces that make it desirable to set up the corporation so that all securities have the same proportion of votes as their claim to income (one share/one vote) does.

We show that security structure influences both the conditions under which a change in control takes place and the terms on which it occurs. First, the allocation of voting rights to securities determines which securities a party must acquire in order to win control. Second, the assignment of income claims to the same securities determines the cost of acquiring these voting rights. We show that it is in stockholders' interest to set the cost of acquiring control as high as possible, consistent with a control change occurring whenever this increases shareholder wealth. Under certain assumptions, one share/one vote best achieves this goal.

We distinguish between two classes of benefits from control: private benefits and security benefits. The private benefits of control are those that the current management or the acquirer obtain for themselves, but that the target security holders do not obtain. The security benefits refer to the *total* market value of the corporation's securities. The assignment of income claims to voting rights determines the extent to which an acquirer must face competition from parties who value the firm for its security benefits rather than for its private benefits.

Exchange Controls, Devaluations, and Real Exchange Rates: The Latin American Experience

Sebastian Edwards

Working Paper No. 2348

August 1987

JEL Nos. 400, 430, 120

This paper deals with the anatomy of devaluation in Latin America. In an effort to understand the economics surrounding the causes and consequences of exchange rate crises, it investigates in detail 18 devaluation episodes that took place between 1962 and 1982. The focus is on: (1) the relationship between (incon-

sistent) macroeconomic policies and exchange rate crises; (2) the role of real exchange rate overvaluation in the precipitation of balance-of-payment crises under predetermined nominal exchange rates; (3) the role of exchange controls, multiple exchange rates, and black markets in the period preceding devaluations; and (4) the effectiveness of nominal devaluations as a way to restore real exchange rate equilibrium. I make a distinction between stepwise devaluations and crawling peg regimes. Historically, most stepwise devaluations have had difficulty in sustaining a real devaluation over the medium term. Countries that adopted a crawling peg generally have been able to maintain a higher real exchange rate. In many cases, however, this has been achieved at the cost of substantial inflation.

Imputing Corporate Tax Liabilities to Individual Taxpayers

Martin Feldstein

Working Paper No. 2349

August 1987

JEL No. 323

This paper presents a method of studying the distributional consequences of corporate tax changes by imputing to individual tax returns the net effect of changes in effective corporate tax rates. It pays particular attention to the difference between nominal and real capital income, to the problem of corporate pension funds, and to the automatic effect of corporate tax changes on dividends and retained earnings.

Application of this imputation method to the tax changes enacted in 1986 shows that the actual distribution of the total tax change was very different from the traditional distribution of only the personal income tax change. The net imputed corporate tax increase was equivalent to a rise of six percentage points in the personal income tax among taxpayers with 1988 incomes over \$200,000 and four percentage points among taxpayers with incomes between \$100,000 and \$200,000. The corporate income tax increase also added the equivalent of an 8 percent rise in the income tax for taxpayers with incomes between \$10,000 and \$20,000. By contrast, the middle-income taxpayers (with incomes between \$30,000 and \$75,000) the corporate tax increase was equivalent to an income tax rise of only 1 or 2 percent. The analysis shows that the higher corporate tax represents a particularly large increase for taxpayers over age 65; on average, tax returns with at least one taxpayer over age 65 will pay 12 percent more tax under the 1986 tax legislation than they would have paid otherwise.

Distributional considerations will continue to play a large role in the public and congressional discussions of future tax reforms. This paper shows that it is very important to include the distributional consequences of corporate as well as personal tax changes in the analysis of any proposed tax reforms.

A Goodness-of-Fit Test of Dual Labor Market Theory

William T. Dickens and Kevin Lang

Working Paper No. 2350

August 1987

JEL No. 810

We subject our dual labor market model to a goodness-of-fit test and compare the results with those of a single-equation model with a complex error structure. The dual labor market does an excellent job of predicting the wage distribution except for failing to explain bunching at \$7.50 and \$10.00 per hour. The null hypothesis, that the model is correct, cannot be rejected at the .05 level. In contrast, the wage distribution predicted by the single labor market model differs significantly from the observed distribution.

Arbitrator Behavior in Public Sector Wage Disputes

David E. Bloom

Working Paper No. 2351

August 1987

This study analyzes a new set of data on the decisions of conventional arbitrators. The main goal is to draw inferences about the extent to which conventional arbitration decisions are fashioned as mechanical compromises of the parties' final offers, without reference to the exogenous facts involved in different disputes. The results of the analysis are remarkably clear: conventional arbitrators tend to split the difference between the parties' final offers with virtually no evidence of additional systematic reference to the facts of the cases. However, since there is a substantial amount of unexplained variance in the arbitration decisions, this evidence of mechanical compromise behavior should be viewed as characterizing the overall operation of conventional arbitration mechanisms and not the behavior of individual arbitrators in any particular case. Indeed, the results are consistent with the view that individual arbitrators pay close attention to the facts of the cases, but that there is considerable variation in the structure of different arbitrators' preference functions.

Government Saving, Capital Formation, and Wealth in the United States, 1947-85

Michael J. Boskin, Marc S. Robinson,

and **Alan M. Huber**

Working Paper No. 2352

August 1987

JEL Nos. 322, 324

This paper presents updated and improved estimates of various components of governments' contribution

to national wealth and its growth in the postwar period. We draw these primary conclusions: (1) The federal government's assets, tangible and financial, are substantial; they grew more rapidly than the national debt did in the 1970s. By 1980, federal tangible assets amounted to \$1.7 trillion and financial assets \$940 billion, compared to liabilities of \$1.5 trillion (in 1985 dollars). (2) Since 1980, conventional liabilities have grown much faster than assets have, causing about a \$727 billion decline in federal "net worth." (3) The state-local government sector contributes importantly to government and national wealth. State-local fixed reproducible capital is twice the amount of federal capital: about \$1.9 trillion in 1985. The difference between assets and liabilities is both larger and more stable for state-local governments than for the federal government. The estimated "net worth" of state-local governments was \$2.5 trillion in both 1980 and 1985. (4) Total government reproducible capital was about 55 percent of the corresponding private nonresidential capital stock in 1985. (5) Government net investment often has been sufficient to turn the government sector into a net saver despite large budget deficits. (6) Extending the traditional National Income Accounts to include imputed net returns to government capital and consumer durables while treating government net investment and durables purchases as saving indicates that the share of national output devoted to consumption has risen substantially, while that devoted to net saving has fallen sharply during 1951-85. The private consumption rate has risen from 63 percent to 69 percent over this period while the government consumption rate has fallen slightly. (7) The inclusion of consumer durables and government tangible investment raises the national saving rate substantially. In 1985, the gross and net saving rates rose from a traditionally measured 13.8 percent and 3.2 percent to 24.5 percent and 8.8 percent, respectively. (About one-and-one-half percentage points of this increase is caused by our different depreciation methodology.)

Thus, the data presented in this paper reveal much about the postwar fiscal history of the United States. In addition to their importance in understanding trends in national wealth, they may also prove to be important inputs into future studies of the long-term growth of the economy and to the short-run effects of fiscal policy.

The Marginal Excess Burden of Different Capital Tax Instruments

Don Fullerton and Yolanda K. Henderson

Working Paper No. 2353

August 1987

JEL No. 323

Marginal excess burden, defined as the change in deadweight loss for an additional dollar of tax revenue, has been measured for labor taxes, output taxes, and

capital taxes in general. This paper points out that there is no well-defined way to raise capital taxes, because the taxation of income from capital depends on many different policy instruments including: the statutory corporate income tax rate; the investment tax credit rate; depreciation lifetimes; declining balance rates for depreciation allowances; and personal tax rates on noncorporate income, interest receipts, dividends, and capital gains. We measure marginal excess burden for each of these different capital tax instruments, using a general equilibrium model that encompasses distortions in the allocation of real resources over time, among industries, between the corporate and noncorporate sectors, and among diverse types of equipment, structures, inventories, and land.

Although numerical results are sensitive to specifications for key substitution elasticity parameters, important qualitative results are not. We find that an increase in the corporate rate has the highest marginal excess burden, because it distorts intersectorial and interasset decisions as well as intertemporal decisions. At the other extreme, a reduction in the investment tax credit has negative marginal excess burden because it raises revenue while reducing interasset distortions more than it increases intertemporal distortions. In general, we find that marginal excess burdens of different capital tax instruments vary significantly. They can be more or less than the marginal excess burden of the payroll tax or the progressive personal income tax.

An Overlapping-Generations Model of Electoral Competition

Alberto Alesina and Stephen Spear

Working Paper No. 2354

August 1987

This paper presents a dynamic model of political competition between two "parties" with different policy preferences. A "party" is explicitly modeled as a sequence of overlapping generations of candidates, all of whom face finite decision horizons. In general, there is a conflict between the interests of the individual policymakers and those of the party, which includes subsequent generations of candidates. We characterize this conflict and suggest a scheme of intergenerational transfers within the party that can resolve or mitigate it. The paper shows how the overlapping-generations model can be applied to the political arena usefully.

Taxes, Budget Deficits, and Consumer Spending: Some New Evidence

Martin Feldstein and Douglas W. Elmendorf

Working Paper No. 2355

August 1987

JEL Nos. 320, 130

Because of the restrictive assumptions required to establish the theory of Ricardian equivalence, its relevance in practice is essentially an empirical question. The strongest direct evidence in favor of Ricardian equivalence is Roger Kormendi's article in the *American Economic Review* (1983). That paper appeared to provide strong empirical support for Ricardian equivalence by showing that increases in government spending on goods and services depress consumer spending while changes in tax receipts have no effect on consumer spending.

This paper shows that Kormendi's results are a misleading implication of the experience during World War II when shortages, rationing, and positive response to patriotic appeals for self-restraint caused an abnormally high rate of saving at the same time that the government deficit-financed a uniquely massive increase in defense spending. When those years are excluded from the sample, Kormendi's results are reversed.

The estimates presented here show that in the equation specified by Kormendi, but with 1941 through 1946 excluded, increases in tax receipts have had a substantial negative effect on consumption while increases in government spending on goods and services have had essentially no effect on consumption. This evidence is exactly the opposite of the implications of Ricardian equivalence. This conclusion is robust with respect to a variety of modifications in the way that the basic equation is estimated: using an AR1 correction to deal with serial correlation; limiting the analysis to the federal government's fiscal variables; respecifying the variables as ratios to net national product to reduce collinearity; estimating for the most recent 35 years instead of for the period since 1931; and using an instrumental variable procedure to reduce the problem of endogeneity. In each of these specifications, the results indicate that taxes depress consumer spending while government outlays on goods and services have either a smaller or a totally insignificant effect.

Employee Crime, Monitoring, and the Efficiency Wage Hypothesis

William T. Dickens, Lawrence F. Katz, Kevin Lang, and Lawrence H. Summers

Working Paper No. 2356

August 1987

This paper offers some observations on employee

crime, economic theories of crime, limits on bonding, and the efficiency wage hypothesis. We demonstrate that the simplest economic theories of crime predict that profit-maximizing firms should follow strategies of minimal monitoring and large penalties for employee crime. Finding overwhelming empirical evidence that firms expend considerable resources trying to detect employee malfeasance and do not impose extremely large penalties, we investigate a number of possible reasons why the simple model's predictions fail. It turns out that plausible explanations for firms' large outlays for monitoring of employees also justify the payment of premium wages in some circumstances. There is no legitimate a priori argument that firms should not pay efficiency wages once it is recognized that they expend significant resources on monitoring.

An Analysis of the Implications for Stock Futures Price Volatility of Program Trading and Dynamic Hedging Strategies

Sanford J. Grossman

Working Paper No. 2357

August 1987

JEL Nos. 520, 026

Recent advances in financial theory have created an understanding of the environments in which a real security can be synthesized by a dynamic trading strategy in a risk-free asset and other securities. I contend that there is a crucial distinction between a synthetic security and a real security. In particular the notion that a real security is redundant when it can be synthesized by a dynamic trading strategy ignores the informational role of real securities markets. The replacement of a real security by synthetic strategies in itself may cause enough uncertainty about the price volatility of the underlying security that the real security is no longer redundant.

Portfolio insurance provides a good example of the difference between a synthetic security and a real security. One form of portfolio insurance uses a trading strategy in risk-free securities (cash) and index futures to synthesize a European put on the underlying portfolio. In the absence of a real traded put option (of the appropriate striking price and maturity), there will be less information about the futures price volatility associated with current dynamic hedging strategies. Thus there will be less information transmitted to those people who could make capital available to liquidity providers. Therefore it will be more difficult for the market to absorb the trades implied by the dynamic hedging strategies. In effect, the stocks' futures price volatility can rise because of a current lack of information about the extent to which dynamic hedging strategies are in place.

Credibility, Real Interest Rates, and the Optimal Speed of Trade Liberalization

Kenneth A. Froot

Working Paper No. 2358

August 1987

JEL No. 420

This paper investigates the effects of imperfectly credible trade liberalization programs on welfare and the allocation of real resources. It presents a rational expectations model in which a government with limited access to international financial markets may be forced to abort a liberalization program if hard-currency reserves are depleted too quickly. The liberalization's lack of perfect credibility acts as a distortion that becomes (rationally) intensified under the typical first-best policy of a direct move to free trade. A gradual lowering of trade barriers is welfare-superior to an immediate liberalization and improves the chance that the program will succeed ultimately. I derive the optimal speed of liberalization, the intertemporal allocation of resources, and the liberalization program's credibility.

Integrated Regressors and Tests of the Permanent-Income Hypothesis

James H. Stock and Kenneth D. West

Working Paper No. 2359

August 1987

JEL Nos. 131, 211

We use recent research on estimation and testing in the presence of unit roots to argue that Hall's (1978) t and F tests, of whether consumption is predicted by lagged income or by lags of consumption beyond the first, are asymptotically valid. A Monte Carlo experiment suggests that the asymptotic t and F distributions provide a good approximation to the actual finite sample distribution.

Seasonality, Cost Shocks, and the Production-Smoothing Model of Inventories

Jeffrey A. Miron and Stephen P. Zeldes

Working Paper No. 2360

August 1987

JEL Nos. 131, 631

A great deal of research on the empirical behavior of inventories examines some variation of the produc-

tion-smoothing model of finished goods inventories. The overall assessment of this model as it exists in the literature is quite negative: there is little evidence that manufacturers hold inventories of finished goods in order to smooth production patterns.

This paper asks whether the negative assessment of the model is caused by one or both of its features: costs shocks and seasonal fluctuations. If firms are buffeted more by cost shocks than by demand shocks, production optimally should be more variable than sales are. Seasonal fluctuations account for a major portion of the variance in production and sales, are precisely the kinds of fluctuations that producers should smooth most easily, and seasonally adjusted data are likely to produce spurious rejections of the production-smoothing model even when it is correct.

We present a general production-smoothing model of inventory investment that is consistent with both seasonal and nonseasonal fluctuations in production, sales, and inventories. The model allows for both observable and unobservable changes in marginal costs. We then estimate this model using both seasonally adjusted and seasonally unadjusted data plus seasonal dummies. The goal is to determine whether the incorrect use of seasonally adjusted data has been responsible for the rejections of the production-smoothing model reported in previous studies. The third part of our approach is to examine explicitly the seasonal movements in the data. We test whether the residual from an Euler equation is uncorrelated with the seasonal component of contemporaneous sales. Even if unobservable seasonal cost shocks make the seasonal variation in output greater than that in sales, the timing of the resulting seasonal movements in output should not necessarily match that of sales.

The results of our empirical work provide a strong negative report on the production-smoothing model, even when it includes cost shocks and seasonal fluctuations. At both seasonal and nonseasonal frequencies, there appears to be little evidence that firms hold inventories in order to smooth production. A striking piece of evidence is that in most industries seasonal production closely matches seasonal shipments, even after accounting for the movements in interest rates, input prices, and the weather.

The Evolution of Public Sector Bargaining Laws

Henry S. Farber
Working Paper No. 2361
August 1987
JEL Nos. 830, 820

In 1955, only a few states had laws governing collective bargaining by public employees. By 1984, only a

few states were without such laws. The emergence of these policies coincides with a dramatic increase in unionization among public employees. An important puzzle is the direction of causality between the laws and public employee unionization. A key piece of the solution is understanding the evolution of public policy in this area.

I develop a Markov model of the evolution of these laws based on the idea that states will change their existing policy if and only if their preferences deviate from the existing policy by more than the cost of a change in policy. The key underlying constructs are: (1) the intensity of state preferences for or against public sector collective bargaining; and (2) the cost of changing an existing policy or enacting a new policy. I use state level data on policy for each year from 1955 to 1984 and find that state preferences for a pro-bargaining policy are positively related to: (1) the COPE score (a measure of pro-union congressional voting behavior on labor issues); (2) income per capita; and (3) the size of the public sector. They are negatively related to the southern region.

The costs of policy changes were hypothesized to be a function of structural measures of the legislative process, but I find no support for this in the data. Use of the estimates to predict probabilities of states having laws of various kinds suggests that the model can predict the aggregate distribution of laws relatively well but does less well at distinguishing among states with laws of different types.

Tests of Excess Forecast Volatility in the Foreign Exchange and Stock Markets

Kenneth A. Froot
Working Paper No. 2362
August 1987
JEL Nos. 430, 310

This paper develops simple regression tests that have power against the alternatives that asset prices and expected future asset returns are excessively volatile and performs them for the foreign exchange and stock markets. These tests have a number of advantages over alternative, variance bounds techniques. I find that both exchange rates and stock prices are excessively volatile and that *expected* returns on foreign exchange and stocks move too much. I also investigate whether these findings can be attributed to time-varying risk premiums, but the data provide little support for such an alternative hypothesis.

New Hope for the Expectations Hypothesis of the Term Structure of Interest Rates

Kenneth A. Froot

Working Paper No. 2363

August 1987

JEL Nos. 130, 310, 430

I use survey data on interest rate expectations to separate the forward interest rate into an expected future rate and a term premium and use these components to test two competing hypotheses of the term structure: that the expectations hypothesis does not hold, and that expected future long rates over and underreact to changes in short rates. While the spread consistently fails to predict future interest rate changes, the nature of this failure is different for short versus long maturities. For short maturities, expected future rates are rational forecasts. The poor predictions of the spread therefore can be attributed to variation in term premiums. For longer-term bonds, however, I am unable to reject the expectations theory, in that a steeper yield curve reflects a one-for-one increase in expected future long rates. Here the perverse predictions of the spread reflect investors' failure to raise their expectations of future long rates sufficiently when the short rate rises. I confirm earlier findings that bond rates underreact to short rate changes, but this result cannot be attributed to the term premium.

On the Interpretation of Near Random Walk Behavior in GNP

Kenneth D. West

Working Paper No. 2364

August 1987

JEL No. 131

Gross National Product (GNP) will have an autoregressive root very close to unity in a variant of Taylor's (1980a,b) overlapping wage contracts model, for stylized versions of simple money supply rules and plausible values for the model's parameters. In this variant, monetary policy is the only reason for serial correlation in GNP. Therefore, it is premature to conclude that the presence of such a root in U.S. GNP is inconsistent with either a stationary natural rate or with nominal shocks playing a major role in the business cycle.

Tariffs, the Real Exchange Rate, and the Terms of Trade: On Two Popular Propositions in International Economics

Sebastian Edwards and Sweder van Wijnbergen

Working Paper No. 2365

August 1987

JEL Nos. 400, 410, 430

We investigate the relationship among tariff changes, terms-of-trade changes, and the equilibrium real exchange rate using two models of a small open economy: (1) a three-goods version of the Ricardo-Viner model; and (2) a three-goods model with full intersectorial factor mobility. We show that, in general, it is not possible to know how the equilibrium real exchange rate will respond to these two disturbances. Moreover, the traditional wisdom that a tariff hike will always result in a real appreciation, while a terms-of-trade worsening will generate an equilibrium real depreciation, is incorrect.

Firm Characteristics, Unanticipated Inflation, and Stock Returns

Douglas K. Pearce and V. Vance Roley

Working Paper No. 2366

August 1987

JEL No. 313

This paper reexamines the effects of nominal contracts on the relationship between unanticipated inflation and an individual stock's rate of return. This study differs in three main ways from previous research. First, it uses announced inflation data to examine the effects of unanticipated inflation. Second, a different specification obtains more efficient estimates. Third, it considers nominal contracts.

The empirical results indicate that time-varying firm characteristics related to inflation predominantly determine the effect of unanticipated inflation on a stock's rate of return. A firm's debt-equity ratio appears to be particularly important in determining the response.

Recent Estimates of Time Variation in the Conditional Variance and in the Exchange Risk Premium

Jeffrey A. Frankel

Working Paper No. 2367

August 1987

JEL No. 431

The optimal diversification of investors' portfolio behavior can give a linear relationship between the ex-

change risk premium and the conditional exchange rate variance. This paper surveys recent empirical work that allows for the conditional variance itself, and therefore the risk premium, to vary over time. In particular, it examines the implications of recent empirical estimates for earlier arguments, based on the assumption that the conditional variance was constant over time and that the exchange risk premium had to be small in magnitude and variability.

Returns to Seniority in Union and Nonunion Jobs: A New Look at the Evidence

Katharine G. Abraham and Henry S. Farber
Working Paper No. 2368
August 1987
JEL Nos. 820, 830

One of the most prominent features of U.S. unionism is the key role played by seniority. However, in cross-sectional data, the positive association between seniority and earnings is typically much stronger for non-union workers than for union workers. This finding has puzzled previous researchers, since it seems inconsistent with the generalization that seniority is more important in the union sector than in the nonunion sector. We show that standard estimates of the return to seniority are likely to be biased upward. The bias is likely to be larger in the nonunion sector than in the union sector. Corrected estimates imply that the return to seniority, in fact, is larger in the union sector than in the nonunion sector.

Asset Pricing and Optimal Portfolio Choice in the Presence of Illiquid Durable Consumption Goods

Sanford J. Grossman and Guy Laroque
Working Paper No. 2369
August 1987

We analyze a model of optimal consumption and portfolio selection in which consumption services are generated by holding a durable good. The durable good is illiquid: a transaction cost must be paid when the good is sold. Optimal consumption is not a smooth function of wealth; it is optimal for the consumer to wait until a large change in wealth occurs before adjusting his consumption. As a consequence, the consumption-based capital asset pricing model fails to hold. Nevertheless, the standard, one-factor, market-portfolio-based capital asset pricing model does hold in this environment.

Numerical simulations show that small transactions costs can make consumption changes occur very infrequently. Further, the effect of transactions costs on the demand for risky assets is substantial.

Market Power and Exchange Rate Adjustment in the Presence of Quotas

Joshua Aizenman
Working Paper No. 2370
August 1987

This paper investigates the dependency of the adjustment of prices, exchange rates, and production on the nature of the trade regime. I contrast the adjustment between a quota and a tariff regime for a "semi-small" economy characterized by monopolistic competitive market structure and short-run nominal contracts under a floating exchange rate regime. I focus on the factors determining the behavior of the quota rent and the "pass-through" of exchange rate adjustment to the domestic prices of importable goods. The "pass-through" ratio (measuring the elasticity of the domestic price of importable goods with respect to the exchange rate) is determined both by the commercial policy and by the market power of the various producers. It tends to be higher in a tariff regime because the endogenous adjustment of the quota rent mitigates the "pass-through." The adjustment of the exchange rate also tends to be larger in the quota regime than in the tariff regime. In the tariff regime, there is a larger switch of domestic demand relative to the quota regime, and a correspondingly smaller exchange rate adjustment. In the quota regime, adjustment of the quota rent keeps the net domestic demand for foreign goods intact. As a result, the relative price (of the domestic good to the foreign good) facing the foreign consumer adjusts more in the quota regime than in the tariff regime. At the same time, the relative price facing domestic consumers in the quota regime adjusts by less than in the tariff regime.

Exchange Rates and U.S. Auto Competitiveness

J. David Richardson
Working Paper No. 2371
August 1987

This paper develops unique disaggregated data for three U.S. and three Japanese automakers to assess how changes in exchange rates, factor costs, and voluntary export restraints have affected recent price competitiveness in the U.S. passenger car market.

There is support for several familiar relationships: in the late 1970s, the dollar's foreign exchange value fell below its historical trend, in both nominal and cost-adjusted (real) terms, relative to the major suppliers of U.S. auto imports. U.S. price competitiveness tracked U.S. cost competitiveness quite closely, as average prices of U.S. automakers rose more slowly than those of their principal rival firms (all Japanese). "Misalignment" of the dollar toward weakness by historical norms was reflected in competitive relative pricing by U.S. auto firms, again with respect to a historical norm.

The experience of 1980-5 is more complex and interesting. Strong offsetting forces appear to have been at work. Relative to major auto suppliers, the effective nominal dollar rose gradually toward its level of the mid-1970s, but the effective real "auto dollar" rose much faster, increasing to a level well above its historical norm by early 1985. U.S. cost competitiveness deteriorated, not so much because of exchange rates but because unit labor costs in manufacturing rose in the United States relative to those in major auto suppliers. U.S. auto price competitiveness began to deteriorate correspondingly, but soon stopped, and instead improved gradually between 1982 and 1985, ending up at about the same level in 1985 as in 1980. The Voluntary Restraint Arrangements (VRAs) with Japan, which began in 1981, seem to explain why the negative effects of exchange rates and costs on U.S. auto price competitiveness were offset. The VRAs also provide a reason why average prices of U.S. automakers rose faster than other U.S. prices as measured by the Consumer Price Index, and why in Japan, average prices on auto sales to the United States rose much faster than other Japanese prices did. In sum, "misalignment" of the dollar toward strength by historical norms and deteriorating labor cost competitiveness, which tended to undermine the competitiveness of U.S. auto firms, were offset by the Japanese VRAs, which buttressed it. The VRAs, however, undermined the intersectoral competitiveness of autos.

Open Economy Macroeconomics: New Directions

Rudiger Dornbusch

Working Paper No. 2372

August 1987

JEL Nos. 431, 133

This paper reviews the directions of research that offer important insights into open-economy macroeconomic policy: pricing, waiting, and expectations.

The pricing discussion centers on the recognition that firms are price setters. This implies that industry shocks, such as exchange rate movements or changes in commercial policy, have effects on output and prices different from the standard model of a small country

under foreign competition. Industrial organization considerations, including market structure and product differentiation, determine the impact of shocks on output and prices.

Extensions of work on irreversible investment, drawing on the option literature, show the value of waiting. In open-economy macroeconomics, this theory can be applied not only to questions of employment but also to such topics as the return of capital flight.

The expectations literature is being extended to more ambitious stochastic models of policy. If agents extrapolate current disturbances, say in money, and expect a cumulative deviation of money from an initial path, there will be large immediate effects of money innovations on exchange rates. These new models extend the Mundell-Fleming models by showing that even small changes in the growth rate of money can bring about large changes, and volatility, in exchange rates.

Resolving the International Debt Crisis

Stanley Fischer

Working Paper No. 2373

September 1987

Since August 1982, the international debt crisis has dominated: economic policymaking in the developing countries; economic relationships between the debtor and creditor countries; the attention of the multilateral institutions in their dealings with the debtor nations; and private sector decisions on lending to the developing countries.

There has been some progress since 1982. Neither the commercial nor the central banks have had to deal with formal large-scale debt defaults. Balance sheets of creditor banks have been strengthened. There is an active secondary market in developing country debt, and debt-to-equity swaps are a reality. For the debtors, real interest rates have fallen between 1982 and 1987. Net exports showed extraordinary growth. Budget deficits have been reduced, despite falling incomes. In 1987 commodity prices have begun to recover. The period has seen a shift toward, rather than away from, democracy.

But five years after it began, the debt crisis is very much alive. None of the major Latin American countries has restored normal access to the international capital markets. At least one major debtor has been in trouble each year.

This paper describes and evaluates three classes of solutions. Least radical are proposals for procedural reform and changes in the nature of the claims on the existing debt. Some procedural reforms, such as mul-

tiyear reschedulings and exit vehicles for smaller banks, have already begun to be instituted. Others include changes in accounting rules, and U.S. provision of information on foreign accounts held in the United States. Changes in the nature of claims include: debt-equity swaps; country funds; interest capitalization; and payment by the debtors in their own currency.

The second type of solution is the creation of a facility, or new institution, to deal with the overhang of existing debt. The institution would buy the debt from the banks in exchange for claims on the institution, and in turn would collect from the debtor countries. The prices at which debt is purchased and the amounts to be collected from the debtors are the crucial issues. Finally, there are proposals for debt relief, either in direct negotiation between creditors and debtors and/or in conjunction with the creation of a facility.

Negotiated Trade Restrictions with Private Political Pressure

Robert C. Feenstra and Tracy R. Lewis

Working Paper No. 2374

September 1987

JEL Nos. 022, 026, 411, 422

We consider a home government with political pressure to restrict trade, at the expense of foreigners. The foreign country is compensated with an income transfer, which can be thought of as a portion of the tariff revenues or quota rents. In this setting, the two countries should negotiate over the level of tariff and the transfer of rents, depending on the level of political pressure at home. However, if this pressure cannot be observed directly abroad, then the home country may have an incentive to claim arbitrarily high political need and seek correspondingly high trade barriers. We resolve this problem by determining *incentive-compatible* trade policies, in which the home government has no incentive to overstate (or understate) the political pressure for protection.

Household Formation and Homeownership: The Impacts of Demographics and Taxes

Patric H. Hendershott

Working Paper No. 2375

September 1987

JEL Nos. 840, 932

This paper summarizes the impact of economic, social, and demographic variables on household formations and homeownership in 1960-85. I use this knowledge to forecast household formations, and their split

between owners and renters, through the year 2000. I report high- and low-growth forecasts, with and without enactment of the Tax Reform Act of 1986, and compare them with others' forecasts.

Net household formations are expected to be robust through 1990 (above 1½ million per year), but to tail off sharply in the 1990s (down to 1 million by 2000). Homeownership should rise slightly in the 1990s.

Financial Policy and Speculative Runs with a Crawling Peg: Argentina, 1979-1981

Robert E. Cumby and Sweder van Wijnbergen

Working Paper No. 2376

September 1987

This paper presents a model of a balance-of-payments crisis and uses it to examine the Argentine experiment with a crawling peg between December 1978 and February 1981. The approach allows us to examine the evolution of a crisis when the collapse is not a perfectly foreseen event. Implementation of the model yields plausible values of the one-month-ahead probabilities of a collapse of the crawling peg. The probabilities exhibit a sharp increase in the middle of 1980 and indicate a significant loss of credibility throughout the remainder of the year. The results suggest that viability of an exchange rate regime depends strongly on the domestic credit policy followed by the authorities. If this policy is not consistent with the exchange rate policy pursued by the authorities, then confidence in the exchange rate policy is undermined.

The Interaction between Capital Investment and R and D in Science-Based Firms

Saul Lach and Mark A. Schankerman

Working Paper No. 2377

September 1987

JEL No. 620

This paper analyzes the interaction among R and D, capital investment, and the stock market rate of return for 191 firms in science-based industries from 1973-81. Using dynamic factor analysis, we show how several prominent hypotheses about the determination of R and D and investment generate testable parameter restrictions. The data indicate that R and D Granger-causes investment, but that investment does not Granger-cause R and D. We use this finding to examine the validity of those hypotheses, to characterize the movements of R and D and investment over time, and to measure the stock market valuation of these movements.

Argentina: Debt and Macroeconomic Instability

Rudiger Dornbusch and Juan Carlos de Pablo
Working Paper No. 2378
September 1987
JEL Nos. 431, 131

This paper reviews Argentina's debt experience of the past ten years. The emphasis is on the interaction among relative prices, financial instability, budget deficits, inflation, and debt accumulation. A longer-run perspective shows that the continuing fiscal problems have stood in the way of investment and growth.

Debt Problems and the World Macro Economy

Rudiger Dornbusch
Working Paper No. 2379
September 1987
JEL Nos. 431, 133

This paper investigates the role of interest rates, commodity prices, and growth in bringing about the debt crisis and asks how they facilitated, or made more difficult, the first five years of adjustment. It also asks whether and how the world macroeconomy is likely to contribute to the solution of the debt problem in the next five years.

The paper starts with a conceptual framework and a review of the behavior of key macroeconomic variables in the past quarter of a century. Next it discusses the origins of the debt crisis and the adjustment period, 1982-7. Then there is a review of alternative scenarios for 1987-90 and their bearing on debt questions. I also ask what contribution commercial policies may make. The paper concludes pessimistically that a good performance of the world economy will not bring about a sufficient improvement for many debtors.

Is It Risk? Explaining Deviations from Uncovered Interest Parity

Robert E. Cumby
Working Paper No. 2380
September 1987
JEL Nos. 431, 441

This paper asks whether ex ante returns to forward speculation can be explained by models of a foreign

exchange risk premium. After presenting evidence that both nominal and real expected speculative profits are nonzero, I ask whether real returns to forward speculation are consistent with consumption-based models of risk premiums. I then present estimates of the conditional covariance between real speculative returns and real consumption growth; like ex ante returns to forward speculation, they exhibit statistically significant fluctuations over time and often change sign.

The Regularity of Business Cycles

Victor Zarnowitz
Working Paper No. 2381
September 1987
JEL No. 132

Do business cycles have predictable periodicities or are they random walks without past regularities or predictive value? This paper first examines the implications of the NBER chronologies and other findings for the question of the regularity of business cycles. It discusses hypotheses and presents evidence concerning the incidence and coexistence of cycles with different periods. An extension of the analysis covers growth cycles in the United States and other major countries.

The paper then considers different models—linear, nonlinear, endogenous, and exogenous—for what they have to say about the problem. The paper pays particular attention to the regularity of investment cycles and the possible asymmetries in cyclical behavior and provides some related data and tests.

The results suggest that business cycles defy simple characterizations: they show a strong tendency to recur, and at times even near-periodicity, along with great diversity and evolution of phase durations. The age of a phase is not of much help in predicting when it will end; the regularities are mainly in the dynamics of the developing business conditions.

Social Security Reforms and Poverty among Older Dual-Earner Couples

Olivia S. Mitchell
Working Paper No. 2382
September 1987

Most studies of retirement examine older married couples with the husband as the sole earner. This paper examines older dual-earner couples. It further evaluates the impact of Social Security reforms on older working couples' retirement ages and retirement incomes.

Specifically, I ask two questions: (1) What are the

likely effects of changes in Social Security rules on the retirement decisions of older working women and their husbands? (2) How are these changes likely to alter the incidence of poverty among retired dual-earner couples? The evidence suggests that benefit reforms intended to bolster the Social Security Administration's financial position are also likely to worsen the economic status of an important minority of dual-earner couples.

Consumption Risk and International Asset Returns: Some Empirical Evidence

Robert E. Cumby
Working Paper No. 2383
September 1987
JEL Nos. 431, 441

This paper asks whether real stock returns in four countries are consistent with consumption-based models of international asset pricing. I find that ex ante real stock returns exhibit statistically significant fluctuations over time, and that these fluctuations cannot be explained by consumption-based models when the conditional covariances between real stock returns and the rate of change of consumption are assumed to be constant over time. I then model these conditional covariances and find that they too exhibit statistically significant fluctuations over time. However, even when conditional covariances are allowed to change over time, the consumption-based models do not fully explain real stock returns.

The Impact of Money Targeting in the United States: 1976-1984

Carl E. Walsh
Working Paper No. 2384
September 1987
JEL No. 311

This paper attempts to assess empirically the impact of monetary policy on output and inflation in the United States during the period of M1 targeting from 1976 to 1984. Using impulse response functions, I examine the impact of policy shocks on output and inflation, and the impact of aggregate demand, aggregate supply, and money demand shocks on M1 and the Fed's target path. These response functions are based on an orthogonalization of VAR residuals derived from an estimated structural model. The VAR specification reflects the finding that M1 and the Fed's target for M1 are cointegrated.

The evidence suggests that money supply shocks and shocks to the M1 target have accounted for little of the observed volatility of output or inflation. However, the induced policy response to aggregate demand and supply shocks has contributed to subsequent inflation.

Order Backlogs and Order Smoothing

Kenneth D. West
Working Paper No. 2385
September 1987
JEL No. 131

Empirical examination of some data on aggregate manufacturing suggests that order backlogs may help to explain two puzzling facts: (1) the variability of production appears to be greater than that of demand, and (2) inventories appear to be drawn down when demand is low and built up when demand is high.

Imperfect Competition and the Keynesian Cross

N. Gregory Mankiw
Working Paper No. 2386
September 1987
JEL No. 320

This paper presents a simple general equilibrium model in which the only non-Walrasian feature is imperfect competition in the goods market. The model exhibits various Keynesian characteristics. In particular, as competition in the goods market becomes less perfect, the fiscal policy multipliers approach the values implied by the textbook Keynesian cross.

Financing Constraints and Corporate Investment

Steven Fazzari, R. Glenn Hubbard,
and **Bruce C. Petersen**
Working Paper No. 2387
September 1987

Most empirical models of investment rely on the assumption that firms are able to respond to prices set in centralized securities markets (through the "cost of capital" or q). An alternative approach emphasizes the importance of cash flow as a determinant of investment spending, because of a "financing hierarchy," in which internal finance has important cost advantages over external finance. We build on recent research concerning imperfections in markets for equity and debt. This work suggests that some firms do not have sufficient access to external capital markets to enable them to respond to changes in the cost of capital, asset prices, or tax-based investment incentives. To the extent that

firms are constrained in their ability to raise funds externally, investment spending may be sensitive to the availability of internal finance. That is, investment may display "excess sensitivity" to movements in cash flow.

In this paper, we work within the q theory of investment and examine the importance of a financing hierarchy created by capital market imperfections. Using panel data on individual manufacturing firms, we compare the investment behavior of rapidly growing firms that exhaust all of their internal finance with that of mature firms paying dividends. We find that q values remain very high for significant periods of time for firms paying no dividends, relative to those for mature firms. We also find that investment is more sensitive to cash flow for the group of firms that our model implies is most likely to face external finance constraints. These results are consistent with the augmented model we propose, which takes into account different financing regimes for different groups of firms. Finally, we discuss some extensions and implications for public policy.

Dynamic Behavior of Imperfectly Competitive Economies with Multiple Equilibria

Russell Cooper

Working Paper No. 2388

September 1987

This paper investigates the dynamic behavior of an economy with multiple Nash equilibria. The first part analyzes an abstract game that exhibits multiple equilibria. I propose a selection criterion dependent on history that induces correlated behavior in equilibrium even though agents are playing one-shot games and disturbances are not correlated over time.

The second part of the paper investigates a specific model of multiple equilibria. Here the multiplicity is induced by the presence of a discrete decision on the part of firms regarding their choice of technique. This example illustrates the implication of the selection criterion introduced in the first part of the paper. Again, correlated behavior emerges in a sequence of independent one-shot games. The model economy also may experience prolonged periods in which a low-productivity technology is in use and then, as a consequence of a large real disturbance, may switch to an alternative equilibrium in which a high-productivity technology is used. The paper also discusses the Pareto ordering of these equilibria.

Fiscal Policies and the Stock Market: International Dimensions

Assaf Razin

Working Paper No. 2389

September 1987

The dynamic effects of fiscal policies on the real equilibrium have been the subject of a large body of recent research that emphasizes the intertemporal dimensions of tax and spending policies both in closed- and open-economy contexts. This paper extends the intertemporal analysis that was conducted under full certainty to uncertain environments. Specifically, the paper uses a two-country stochastic general equilibrium model of the world economy to address the effects of government tax and spending policies on private sector consumption asset portfolios and stock market valuations. The key result is that the consequences of expected future policies, and the characteristics of their international transmission, depend critically on the precise variability of these policies across states of nature. The effects of current policies on consumption savings and stock market prices, however, conform closely to the predictions of the corresponding certainty intertemporal model.

U.S. and Swedish Direct Investment and Exports

**Magnus Blomström, Robert E. Lipsey,
and Ksenia Kulchycky**

Working Paper No. 2390

September 1987

JEL Nos. 420, 440

Overseas production by affiliates of Swedish and U.S. firms rarely displaces exports from the two home countries. In most cases, it either has no effect or tends to increase home country exports. The positive effect on Swedish exports is evident not only with respect to levels of exports to different countries at one time but also with respect to changes in exports over time. The positive effect on U.S. exports can be observed for minority-owned as well as for majority-owned foreign operations.

How Much Care Do the Aged Receive from Their Children? A Bimodal Picture of Contact and Assistance

Laurence J. Kotlikoff and John Morris

Working Paper No. 2391

September 1987

JEL No. 918

This paper presents some preliminary findings based on a new survey entitled The Hebrew Rehabilitation Center for the Aged-NBER Child Survey. The paper describes the survey and examines contact between the elderly and their children.

It appears that a significant minority of the elderly, many of whom need assistance with the activities of daily living, either have no children or have only limited contact with their children. There appears to be less contact between children and the vulnerable elderly than between children and the nonvulnerable elderly. The least amount of contact is between children and the institutionalized elderly. In addition, although many of the parents in our sample are very poor, financial support from children is uncommon, other than in the form of shared housing. Many of the elderly seem very well cared for by their children, while a significant minority either have no children or have no children who provide significant time or care.

We find that over one-fifth of the elderly have no children at all. Over one-half of them do not have a daughter, or do not have a daughter who lives within an hour of them. Over half of single elderly males and females, and over two-fifths of vulnerable single elderly males and females, live completely alone. Of the elderly who do have children, fewer than one-fourth of them live with their children.

A small fraction of the elderly with children hear from them once a year at most. Almost 10 percent of the children of the elderly have contact with their parents once a year at most.

Financial assistance from children to the elderly, even in cases in which the elderly are quite poor, is extremely rare. In a typical month, over a quarter of the elderly who have children do not spend time with them.

Asset Accumulation, Information, and the Life Cycle

Mervyn A. King and Jonathan I. Leape

Working Paper No. 2392

September 1987

JEL Nos. 022, 229, 820

Empirical tests of the life-cycle model have focused on its implications for the level of a household's total

net worth and have paid little attention to changes in portfolio composition over the life cycle. In this paper, we examine a new survey of the asset holdings of 6010 U.S. households and show that there is a pronounced life-cycle pattern to both the number and the value of assets held. Direct survey evidence suggests that incomplete information is a significant determinant of household portfolio composition. We test the hypothesis that information about investment opportunities arrives stochastically over time, estimating a Poisson model for the arrival of new information.

Prices of Single-Family Homes since 1970: New Indexes for Four Cities

Karl E. Case and Robert J. Shiller

Working Paper No. 2393

September 1987

JEL No. 932

This paper uses data on nearly a million homes sold in four metropolitan areas—Atlanta, Chicago, Dallas, and San Francisco—to construct quarterly indexes of existing home prices between 1970 and 1986. We propose and apply a new method of constructing such indexes that we call the weighted repeat sales method. We believe the results give an accurate picture of the actual rate of appreciation in home prices in the four cities. The paper explains the construction of the index, discusses the results, and compares them with the National Association of Realtors' data on the median price of existing single-family homes for 1981-6.

'Til Debt Do Us Part: The U.S. Capital Market and Foreign Lending: 1920-1955

Barry J. Eichengreen

Working Paper No. 2394

October 1987

JEL No. 441

This paper analyzes the U.S. experience with foreign lending in the half-century since 1920. A first question raised by this experience is: What ignited the process of U.S. foreign lending? I conclude that lending was restrained at the beginning of the period by the debt

overhang associated with reparations and by the post-World War I disruption of international trade. Intervention by creditor country governments—in the form of the Dawes Loan, League of Nations loans to Central Europe, and reconstruction of the gold standard system—was necessary to initiate long-term capital flows.

A second question is how to characterize the operation of the U.S. capital market once lending was underway again. I find that while lenders discriminated among potential borrowers and demanded compensation for default risk, they did not do so sufficiently. Neither an efficient-markets model nor a fads-and-fashions model provides an adequate characterization of the data.

A third question is whether default in the 1930s made it more difficult for countries to borrow in the 1940s and 1950s. I find no evidence that countries that interrupted debt service in the 1930s found it more difficult to borrow subsequently than countries that maintained debt service continuously. Rather, default reduced access to private portfolio capital flows for defaulting and nondefaulting countries alike.

tor concerned about the short run may be better off anticipating the guesses of others rather than choosing the appropriate β portfolio. Asset prices diverge from average values frequently but not permanently. This gives rise to patterns of mean reversion in stock and bond prices similar to those found directly by Fama and French (1987) for the stock market. It also gives rise to the failures of the expectations hypothesis of the term structure. Since investors in assets bear not only fundamental risk but also noise trader risk, the average prices of assets will be below fundamental values. One striking example of substantial divergence between market and fundamental values is the persistent discount on closed-end mutual funds; a second example is Mehra and Prescott's (1986) finding that American equities sell for much less than the consumption capital asset pricing model would predict. The more the market is dominated by short-term traders as opposed to long-term investors, the poorer is its performance as a social capital allocation mechanism. Dividend policy and capital structure can matter for the value of the firm, even abstracting from tax considerations. And, making assets illiquid and thus no longer subject to the whims of the market—as is done when a firm goes private—may enhance their value.

The Economic Consequences of Noise Traders

J. Bradford De Long, Lawrence H. Summers, Andrei Shleifer, and Robert J. Waldmann
Working Paper No. 2395
October 1987

The claim that financial markets are efficient is backed by an implicit argument that misinformed "noise traders" can have little influence on asset prices in equilibrium. If noise traders' beliefs are sufficiently different from those of rational agents to affect prices significantly, then they will buy high and sell low. They will then lose money relative to rational investors and eventually will be eliminated from the market.

We present a simple overlapping-generations model of the stock market in which noise traders with erroneous and stochastic beliefs: (1) significantly affect prices; and (2) earn higher returns than rational investors do. They earn high returns because they bear a large amount of the market risk that their presence creates in the assets that they hold: their presence raises expected returns, because sophisticated investors dislike bearing the risk that noise traders may be irrationally pessimistic and may push asset prices down in the future.

The model has many properties that correspond to the Keynesian view of financial markets. Stock prices are more volatile than can be justified on the basis of news about underlying fundamentals. A rational inves-

Why Are Wages Cyclical in the 1970s?

Rebecca M. Blank
Working Paper No. 2396
October 1987
JEL Nos. 131, 824

This paper analyzes cyclicalities in real wages between 1969 and 1982, using 14 years of data from the Panel Survey of Income Dynamics. First, it asks the extent to which movements in and out of the labor market create apparent wage cyclicalities. Second, it investigates whether cyclical movements of workers between heterogeneous wage sectors within the labor market create cyclicalities.

I find little evidence of the first effect. The second effect is much more important, and clearly cyclicalities occur in the movement of workers between different labor market sectors. However, sector selection is not correlated with wage determination. Thus, individual wage change estimates of cyclicalities need to control for sector location but need not account for sector selection.

Third, cyclicalities are present in real wages even within sectors over this time period and are the result both of cyclicalities in overall wage levels (cyclicalities in the constant term in wage equations) and in the coefficients associated with particular worker characteristics.

Disaggregating the Effect of the Business Cycle on the Distribution of Income

Rebecca M. Blank

Working Paper No. 2397

October 1987

JEL Nos. 131, 824, 914

This paper disaggregates total household income into a complete set of components and studies the comparative cyclical relationship of these components to economic growth. I compare the relative responsiveness to GNP growth of: wages; hours of work; total labor market income of household heads and wives; transfer income sources of households across income; race; sex; and age groups. This provides a picture of the channels by which economic growth produces income change. Significant differences in elasticities exist both between different income components and between different population groups for the same components. The narrowing income distribution in times of high growth occurs primarily because of large elasticities on the household head's labor market income among the poor. Both wages and hours show evidence of cyclicity. The labor market earnings of women—both wives and household heads—are far less responsive to growth. Cyclicity in transfer income varies enormously between population groups and by type of transfer.

Israel's Stabilization: A Two-Year Review

Michael Bruno and Sylvia Piterman

Working Paper No. 2398

October 1987

JEL No. 134

The comprehensive stabilization program that Israel launched in July 1985 has brought about a dramatic reduction in inflation at no visible cost in unemployment, at the same time improving the external financial position of the country. The program's success lies in a drastic cut in the government deficit but was also caused by the appropriate initial synchronization of the most important nominal variables.

In spite of the continued success of the stabilization program over the last two years, many problems remain. Excessive wage demands and a private consumption boom, in part the result of relative stability, so far have prevented the reduction of inflation to OECD rates. The stabilization process has also unearthed many structural problems, particularly an oversized public sector.

Further reduction of inflation depends on flexible wage policy and continued budget balance. A further cut in government expenditure and abstention from debt finance are also keys to the success of the capital market and tax reforms. These and other structural reforms will determine whether the recent upsurge in economic activity can be turned into sustained growth.

Contraction and Expansion: The Divergence of Private Sector and Public Sector Unionism in the United States

Richard B. Freeman

Working Paper No. 2399

October 1987

This paper contrasts the past several decades of public sector unionism—which has expanded in the United States—with private sector unionism—which has contracted. It uses the experience of other countries, particularly Canada, to rule out some explanations of the divergent trends.

The major reason for the decline in the private sector is increased management opposition to union organization, motivated in part by profit-seeking behavior and augmented by trade union responses. The major reason for the expansion in the public sector is decreased market opposition, motivated in part by vote-seeking behavior, and caused by passage of comprehensive collective bargaining laws.

Can Futures Market Data Be Used to Understand the Behavior of Real Interest Rates?

Frederic S. Mishkin

Working Paper No. 2400

October 1987

JEL No. 310

Understanding the behavior of real interest rates is central to monetary macroeconomics. Recently, researchers have begun to use futures markets data to

examine real interest rate behavior. Futures market data can be used directly to construct own-commodity real interest rates—that is, the ex ante real return on a bond in terms of specific commodities—and then those rates can be used to make inferences about the real interest rate for the aggregate economy.

I find that futures market data are not particularly informative about real interest rates. First, the ex ante relative price movement embedded in the own-commodity real rates (the noise) is over 100 times more variable than the aggregate real interest rate (the signal). Own-commodity real rates thus are unlikely to contain much information about the aggregate real interest rate. Second, several widely accepted facts about the behavior of aggregate real interest rates in the 1980s are not at all evident in the own-commodity real rate data. Thus, analysis of own-commodity real rates provides a misleading impression of aggregate real rate movements for a period that displays the most striking movements of real interest rates in the postwar period. Finally, econometric analysis of own-commodity real rate behavior finds no evidence of a shift in the behavior of real interest rates when the monetary policy regime changed in October 1979; this is at odds with previous strong findings in the literature.

Heteroskedasticity-Consistent Estimation of the Variance-Covariance Matrix for the Almost Ideal Demand System

Melvyn A. Fuss
Working Paper No. 2401
October 1987
JEL No. 210

This paper demonstrates that if the almost ideal demand system aggregate model is constructed as the aggregation of individual consumer demands, then the error structure for any individual equation is necessarily heteroskedastic unless the distribution of income is constant across aggregates. Maximum-likelihood estimation that ignores this heteroskedasticity yields inconsistent estimates of the variance-covariance matrix and renders likelihood ratio tests of the restrictions of consumer demand theory inappropriate. I propose a heteroskedasticity-consistent estimator of the variance-covariance matrix by adopting the technique of White (1980) to the case at hand.

What Do We Know about Worker Displacement in the United States?

Daniel S. Hamermesh
Working Paper No. 2402
October 1987
JEL No. 820

In the United States during the 1980s, roughly one-half-million workers with three or more years on the job have become unemployed each year because of plant closings. This appears to represent an increase over earlier periods with similar macroeconomic conditions. The wage cuts that we see lower only slightly the probability that a plant will close. There is a substantial average loss of earnings because of long spells of unemployment after displacement and subsequent reduced wages. While minorities suffer an above-average rate of displacement, their earnings losses upon displacement are not disproportionately high. Women and older workers are no more likely than others to become displaced, and their losses are not disproportionate; but workers who have been on the job longer lose more.

Trade in Risky Assets

Lars E. O. Svensson
Working Paper No. 2403
October 1987
JEL Nos. 411, 431, 441

This paper develops a theory of the pattern of international trade in risky assets by applying the law of comparative advantage to asset trade. According to this law, there is a tendency for a country to import assets that have relatively high autarky prices. The autarky price of an asset is high if the autarky real interest rate is low, or if the asset's autarky risk measure (the product of the risk premium and the asset price) is low. I analyze how autarky interest rates and risk measures are affected by international differences in stochastic properties of output/endowments; the rate of time preference; the degree of risk aversion; and subjective beliefs. I also ask how such differences predict overall capital account deficits or surpluses and predict the composition of the capital account into trade in arbitrary risky assets and the special cases of sure indexed bonds, stocks (claims to output), and Arrow-Debreu securities.

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