

# NBER Reporter

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## Program Report

### Health Economics

Michael Grossman

Health economists long have realized the importance of the distinction between health as an output and medical care as one input in the production of health. This distinction is reflected by two programs of health research at the NBER: the Program in Health Economics that I direct, and the Program in Health Care that Alan M. Garber directs. Current and recently completed studies by the members of my program focus on the determinants and effects of three unhealthy behaviors: excessive alcohol use, cigarette smoking, and the consumption of illegal drugs.

#### Alcohol Control Policies, Alcohol Use, and Motor Vehicle Fatalities

Since the mid-1970s, federal, state, and local governments have been involved in a campaign to reduce motor vehicle fatalities by discouraging alcohol abuse. Much of this campaign has focused on teenagers and young adults because motor vehicle accidents are the leading cause of death of persons under the age of 35, and because alcohol is involved in over half these fatal crashes. The major element of the campaign against adolescent alcohol abuse has been the Federal Uniform Drinking Age Act of 1984. This act pressured all states into raising the minimum legal drinking age to 21 by withholding part of their federal highway funding if they failed to comply. Currently, all 50 states and the District of Columbia have a drinking age of 21.

Other measures of the antidrinking campaign have been directed at all segments of the population. For example, the Alcohol Traffic Safety Act of 1983 provides financial incentives for states to enact and enforce new, more stringent drunk driving laws. It resulted in approx-

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This issue of the *Reporter* highlights the Bureau's Program in Health Economics. Next, Gilbert E. Metcalf describes his research on tax policy. After biographical sketches, summaries of NBER conferences, and other NBER news and reports, the *Reporter* concludes with short summaries of recent Working Papers.

imately 500 new state and local laws. Public Law 100-690 required that, as of November 1989, all alcoholic beverages sold in the United States carry warning labels alerting consumers to the dangers of drunken driving and drinking during pregnancy.

Increased taxation, which results in higher prices, is another policy that might significantly reduce alcohol abuse among young people. Yet this approach virtually has been ignored in the antidrinking campaign. In January 1991, the federal excise tax rates on beer and wine were increased for the first time in almost 40 years. In addition, the federal excise tax rate on distilled spirits was raised in 1991, for only the second time since 1951. Like the federal government, state and local governments have raised taxes on alcohol modestly and infrequently, almost always with the intent of increasing revenues rather than discouraging alcohol abuse.

In part because of the stability of these taxes, the real prices of alcoholic beverages (their prices after accounting for the effects of inflation) have declined significantly over time. For example, between 1975 and 1990, the real price of distilled spirits fell by 32 percent; the real price of wine fell by 28 percent; and the real price of beer fell by 20 percent. Moreover, the recent federal beer and spirits tax hikes were much smaller than the

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fivefold increase for beer and the fourfold increase for spirits that would have had to occur to achieve the 1951 tax rates in real terms.

In previous research, my colleagues and I found that youth alcohol consumption, excessive consumption, and motor vehicle accident mortality rates were inversely related to alcoholic beverage prices and state excise tax rates on alcohol.<sup>1</sup> This research used microdata for the 1970s and a time series of states for 1975–81. It capitalized on substantial variations in the prices of alcoholic beverages among U.S. states, caused primarily by differences in state excise tax rates on these beverages.

Frank J. Chaloupka, Henry Saffer, Adit Laixuthai, and I have updated the studies on youth alcohol use for 1982 and 1989.<sup>2</sup> Our data come from the nationally representative surveys of high school seniors conducted in those two years by the University of Michigan's Institute for Social Research. We find that increases in beer prices or beer excise taxes lead to substantial reductions in both the frequency of youth alcohol consumption and in heavy drinking among youths. We use our estimates to simulate the effects of indexing the federal excise tax on beer to the rate of inflation since 1951. Based on the 1989 survey, it appears that indexing taxes would have caused a 20 percent decline in the number of youths who drank frequently (that is, on more than 30 occasions) in the past year (13 percent of the 1989 sample), an 11 percent drop in the number of youths who drank frequently (on more than 9 occasions) in the past month (10 percent of the sample), and a 7 percent fall in the number who drank heavily (at least one drinking episode during which five or more drinks were consumed) in the past two weeks (32 percent of the sample).

Chaloupka, Saffer, and I also have updated the research on motor vehicle fatalities of persons aged 18 to 20 in 1982 through 1988.<sup>3</sup> We consider the effects of beer taxes, legal drinking ages, and a variety of policies to deter drunk driving on motor vehicle fatality rates. We find that the lives of approximately 5000 persons of all

<sup>1</sup>M. Grossman, D. Coate, and G. M. Arluck, "Price Sensitivity of Alcoholic Beverages in the United States," in *Control Issues in Alcohol Abuse Prevention: Strategies for States and Communities*, H. D. Holder, ed. Greenwich, CT: JAI Press, 1987, pp. 169–198; D. Coate and M. Grossman, "Effects of Alcoholic Beverage Prices and Legal Drinking Ages on Youth Alcohol Use," *NBER Reprint No. 1054*, October 1988, and *Journal of Law and Economics* 31, 1 (April 1988), pp. 145–171; and H. Saffer and M. Grossman, "Beer Taxes, the Legal Drinking Age, and Youth Motor Vehicle Fatalities," *NBER Reprint No. 913*, December 1987, and *Journal of Legal Studies* 16, 2 (June 1987), pp. 351–374.

<sup>2</sup>F. J. Chaloupka, H. Saffer, and A. Laixuthai, "Alcohol Price Policy and Youths: A Summary of Economic Research," *Journal of Research on Adolescence*, forthcoming.

<sup>3</sup>F. J. Chaloupka, M. Grossman, and H. Saffer, "Alcohol Control Policies and Motor Vehicle Fatalities," *NBER Working Paper No. 3831*, September 1991, and *Journal of Legal Studies*, forthcoming.

ages, including approximately 1700 youths age 18 to 20, would have been saved in a typical year if the beer tax had been indexed to the rate of inflation since 1951.

A uniform minimum legal drinking age of 21, on the other hand, would have saved the lives of approximately 200 youths per year. Of course, the drinking age effect is small in part because many states already had drinking ages of 21 in 1982–8. Raising the legal purchasing age in all 50 states from 18 to 21 would have saved 664 lives. Measured in lives saved, this is approximately equal to the impact of doubling the beer tax, and only two-fifths as large as the effect of indexing the beer tax to the rate of inflation since 1951. As with the studies of youth alcohol use, our research on motor vehicle accident fatalities leads us to conclude that increases in alcoholic beverage taxes are an effective means of reducing youths' drunken driving and related deaths in traffic crashes.

### **Empirical Analysis of Cigarette and Alcohol Addiction**

Studies by Gary S. Becker, Chaloupka, Kevin M. Murphy, and me challenge the conventional wisdom that harmful addictions, such as cigarette smoking and alcohol abuse, are insensitive to price.<sup>4</sup> In our empirical work we allow for the possibility that addicts may be rational: that is, that they take account of the harmful future effects of their current decisions when they determine how much of an addictive good to consume. The demand function of a rational addict is symmetric: increases in past or future consumption (caused by reductions in past or future prices) cause current consumption to rise. Put differently, the reinforcement property of an addictive good, which is emphasized by psychologists, suggests that an increase in past consumption raises the marginal benefit of current consumption. By symmetry, an increase in future consumption also raises the marginal benefit of current consumption.

Becker, Murphy, and I estimate the demand for cigarettes using state data, and Chaloupka performs a similar exercise with micro panel data. All four of us collaborate on a study of excessive alcohol consumption, measured by the mortality rate from cirrhosis of the liver. We find evidence of rational addiction, since an increase in future consumption causes an increase in current consumption. We also find that responses to price are larger in absolute value in the long run than in the short run.

<sup>4</sup>G. S. Becker, M. Grossman, and K. M. Murphy, "An Empirical Analysis of Cigarette Addiction," *NBER Working Paper No. 3322*, April 1990, revised March 1993; F. J. Chaloupka, "Rational Addictive Behavior and Cigarette Smoking," *NBER Reprint No. 1668*, December 1991, and *Journal of Political Economy* 99, 4 (August 1991), pp. 722–742; and F. J. Chaloupka, M. Grossman, G. S. Becker, and K. M. Murphy, "Alcohol Addiction: An Econometric Analysis," presented at the annual meeting of the American Economic Association, January 1993.

Moreover, our estimates of long-run price elasticity (–.75 for cigarettes and –1.06 for liver cirrhosis) are higher than those in research that ignores addiction. The message from our studies is that it is a mistake to assume that the behaviors at issue are insensitive to price.

### **Other Alcohol Studies**

Previous studies have found that alcohol advertising has modest effects on consumption. Given the small variations in alcohol advertising in these data and the possibility of a nonlinear advertising effect, these studies cannot be used to predict the impacts of a ban on broadcast advertising. Saffer capitalizes on the existence of such bans in some OECD countries but not others during 1970–83, and concludes that bans may have substantial effects.<sup>5</sup> Countries with bans had 16 percent lower alcohol consumption and 10 percent lower motor vehicle fatality rates.

There is controversial medical evidence that moderate alcohol consumption reduces deaths from coronary heart disease. Using the First National Health and Nutrition Examination Survey and its ten-year followup, Coate shows that this effect disappears when persons with heart problems at baseline are omitted from the analysis.<sup>6</sup> Thus, his study underscores the importance of controlling for causality from heart problems to abstinence.

### **Determinants and Consequences of Illegal Drug Use**

During the past year, we have undertaken five new projects dealing with the determinants and consequences of illegal drug use. Saffer and Chaloupka are studying the effects of fines, penalties, and probabilities of punishment for the use of illegal drugs on crime, drug use, and motor vehicle mortality. Chaloupka, Charles C. Brown, and I are estimating the demand for illegal drugs using drug prices obtained from the Drug Enforcement Administration of the U.S. Department of Justice. Theodore J. Joyce, Andrew D. Racine, and I are conducting a cost-benefit analysis of a prenatal substance abuse treatment program run by Kings County Hospital in Brooklyn, New York. In a related project, the three of us are investigating the neonatal care costs of maternal substance abuse using data on women who gave birth in New York City municipal hospitals. Hope Corman and H. Naci Mocan are studying the effects of drug use on crime in New York City using monthly data on crime rates and drug-related deaths (a proxy for drug use) for 1970–90.

<sup>5</sup>H. Saffer, "Alcohol Advertising Bans and Alcohol Use: An International Perspective," *NBER Reprint No. 1685*, January 1992, and *Journal of Health Economics* 10, 1 (May 1991), pp. 65–79.

<sup>6</sup>D. Coate, "Moderate Drinking and Coronary Heart Disease Mortality," *American Journal of Public Health*, forthcoming.

Low birthweight, defined as less than 2500 grams (5.5 pounds), is the most important proximate cause of infant mortality. Moreover, low-weight infants who survive the first year of life are more likely to encounter health problems in childhood and adolescence and impaired cognitive development and school performance. Therefore, it is alarming that the number of black low-weight births rose by 19 percent from 1984–9 in New York City. Some have attributed most of this increase to cutbacks in public programs during the 1980s. Using detailed New York City birth certificates for 1980–9, Joyce, Racine, and Mocan tell a very different story.<sup>7</sup> They find that more than half of this increase can be explained by the 175 percent rise in maternal drug users from 1984–9.

<sup>7</sup>T. J. Joyce, A. D. Racine, and H. N. Mocan, "The Consequences and Costs of Maternal Substance Abuse in New York City: A Pooled Time-Series, Cross-Section Analysis," *NBER Working Paper No. 3987*, February 1992, and *Journal of Health Economics* 11, 3 (October 1992), pp. 297–314.

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## Research Summary

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### Tax Policy

Gilbert E. Metcalf

My research on taxation has focused on three areas: taxes and government financing in a federal system; measuring tax incidence; and energy-related taxation. What is striking in many of the projects that I describe here is the range of effects that taxes can have on behavior, many of which are surprising.

### Financing Government in a Federal System

Taxes at the national level interact with the financing of state and local governments in a variety of ways. Many state and local taxes are deductible at the federal level, thereby reducing the cost of raising a dollar of state or local tax revenue for federal itemizers. Income from municipal debt in large part is untaxed at the national level. Equally important, income earned by the state and local sector is not subject to taxation. This provides a variety of arbitrage opportunities that can help explain the financial behavior of state and local governments.

Deductibility of state and local taxes became an important issue during the debate leading up to the Tax Reform Act of 1986 (TRA86). The elimination of this de-

duction was a major source of revenue to pay for lower marginal tax rates in the Treasury I plan. However, my research with Martin Feldstein called into question the revenue response predicted in Treasury I.<sup>1</sup> We argued that eliminating the personal deduction for state and local taxes would lead to a shift away from these taxes toward others that continue to be deductible at the corporate and business level. Using the NBER TAXSIM model to construct state-level average tax prices for state and local taxes, we found large price elasticities for tax shares.

One implication of this finding is that eliminating deductibility for state and local taxes would not necessarily increase federal tax receipts. Interestingly, we also found that changes in deductibility have large effects on the share of different tax instruments, but little effect on the overall level of spending at the state and local level. While there is still some controversy over the effect of changing tax prices on the overall level of state and local spending, subsequent research has found substantial price effects for tax shares in a variety of models.<sup>2</sup>

Ultimately, TRA86 eliminated deductibility of only state and local general sales taxes. Based on the research just cited, economists predicted that the use of general sales taxes would decline. Instead, it appears that state and local governments relied more heavily on sales taxes after 1986 than before. I rationalize this behavior with the strong price effects found in the previous literature,<sup>3</sup> because TRA86 increased the tax price for all state and local taxes, not just for the sales tax. For an itemizer at the federal level, the tax price of a deductible tax is one minus the federal marginal tax rate. Decreases in marginal tax rates at the federal level thus increase the tax price for deductible taxes. While it might appear that the tax price for sales taxes would increase by more than the tax price for deductible taxes, this will not be true if there is not complete deductibility of sales taxes at the margin prior to 1986. Evidence suggests that the sales tax "look-up" tables used by most taxpay-

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<sup>1</sup>M. Feldstein and G. E. Metcalf, "The Effect of Federal Tax Deductibility on State and Local Taxes and Spending," *NBER Reprint No. 911*, September 1987, and *Journal of Political Economy* 95 (1987), pp. 710–736.

<sup>2</sup>D. Holtz-Eakin and H. S. Rosen, "Tax Deductibility and Municipal Budget Structure," *NBER Working Paper No. 2224*, April 1987; L. B. Lindsey, "Federal Deductibility of State and Local Taxes: A Test of Public Choice by Representative Government," *NBER Working Paper No. 2292*, June 1987; and G. Zodrow, "Eliminating State and Local Tax Deductibility: A General Equilibrium Model of Revenue Effects"; and all three papers in *Fiscal Federalism: Quantitative Studies*, H. S. Rosen, ed. Chicago: University of Chicago Press, 1988. See also R. P. Inman, "The Local Decision to Tax: Evidence from Large U.S. Cities," *NBER Reprint No. 1406*, May 1990, and *Regional Science and Urban Economics* 19 (1989), pp. 455–491.

<sup>3</sup>G. E. Metcalf, "Deductibility and Optimal State and Local Fiscal Policy," *Economics Letters* 39 (1992), pp. 217–221.

ers to compute their deduction underestimated at the margin the sales tax liability actually incurred.<sup>4</sup>

TRA86 provided a natural experiment for studying the incentive effects of federal deductibility on the state and local tax structure and on state and local spending. Using data on state governments over a nine-year period and the Bureau's TAXSIM model, I find that state income taxes are sensitive to changes in their tax price.<sup>5</sup> There is also evidence in the data that high-income groups are more concerned about income taxes and middle-income groups are more concerned about sales taxes.

In addition to affecting the choice of tax instruments, federal taxation affects saving and borrowing decisions by state and local governments. Roger H. Gordon and Joel B. Slemrod have noted several arbitrage opportunities available to state and local governments because of the failure to tax their earned income and the failure to tax income on bonds they issued.<sup>6</sup>

In a series of papers, I have used panel datasets on state and local governments to study these different arbitrage opportunities. The simplest arbitrage opportunity available to state and local governments is to borrow funds at the tax-exempt rate and invest them in taxable (higher-yielding) securities. Although federal regulation attempts to prohibit this activity, I find strong evidence that this form of arbitrage was occurring prior to TRA-86.<sup>7</sup> Arbitrage possibilities can be used to build a model of the supply of municipal bonds. In effect, communities must decide how to raise funds; they can do so by borrowing publicly (issuing municipal debt) or by borrowing privately (taxing). This suggests that the spread between the aftertax rate of return available to residents in a community and the municipal borrowing rate for bonds issued by that community affects the supply of municipal debt. I find strong support for this model using data on both state and local governments.<sup>8</sup>

In another paper, Gordon and I explore the implications of these arbitrage opportunities for the size of the subsidy for municipal capital arising from tax-exempt

municipal debt.<sup>9</sup> We argue that the exemption provides little in the way of subsidies to municipal capital, but rather provides subsidies to individuals in high and low tax brackets. It subsidizes high-income people to the extent that tax-exempt interest rates are lower than the aftertax rates of return they can earn on equivalent taxable securities. It subsidizes low-income people by allowing them to borrow funds at lower rates of interest (through their community) than through private markets. In addition, the tax revenue that the federal treasury would obtain by eliminating this tax exemption would be small, given the decline in municipal borrowing that would occur if the tax exemption were eliminated.

## Tax Incidence

So far I have considered how governments choose to allocate their revenue requirements among different tax and borrowing instruments. Once that decision is made, it is important to understand its distributional effects. There has been considerable interest recently in measuring the incidence of taxes over the lifetime of taxpayers.<sup>10</sup> I find that the system of state and local taxes is significantly more progressive over individuals' lifetimes than over a year.<sup>11</sup> In fact, using data from the Consumer Expenditure Survey, I find that general sales taxes are progressive over the life cycle, and as progressive as state and local income taxes. Moving from annual to lifetime measures shifts sales taxes toward proportionality. Exempting necessities, as most states do, then moves the tax to progressivity.

If we ignore bequests, the lifetime budget constraint suggests that a flat tax on consumption should be proportional over the lifetime. Since bequests are small for the bulk of the population, this suggests that a value-added tax (VAT) with exemptions for necessities easily could be progressive over the lifetime. This is borne out in research that Erik Caspersen and I are conducting using data from the Consumer Expenditure Survey and the Panel Study of Income Dynamics.<sup>12</sup> Using two dif-

<sup>4</sup>R. Ebel, "Comment on 'Tax Exporting, Federal Deductibility, and State Tax Structure,'" *Journal of Policy Analysis and Management* 12 (1993), pp. 127-130.

<sup>5</sup>G. E. Metcalf, "Tax Exporting, Federal Deductibility, and State Tax Structure," *Journal of Policy Analysis and Management* 12 (1993), pp. 109-126.

<sup>6</sup>R. H. Gordon and J. B. Slemrod, "An Empirical Examination of Municipal Financial Policy," in *Studies in State and Local Public Finance*, H. S. Rosen, ed. Chicago: University of Chicago Press, 1986.

<sup>7</sup>G. E. Metcalf, "Arbitrage and the Savings Behavior of State Governments," *Review of Economics and Statistics* 72 (1990), pp. 390-396.

<sup>8</sup>G. E. Metcalf, "Federal Taxation and the Supply of State Debt," *Journal of Public Economics*, forthcoming, and "The Role of Federal Taxation in the Supply of Municipal Bonds: Evidence from Municipal Governments," *National Tax Journal* 44 (1991), pp. 57-70.

<sup>9</sup>R. H. Gordon and G. E. Metcalf, "Do Tax-Exempt Bonds Really Subsidize Municipal Capital?" *NBER Working Paper No. 3835*, September 1991, and *National Tax Journal* 44 (1991), pp. 71-80.

<sup>10</sup>D. Fullerton and D. L. Rogers, "Lifetime Versus Annual Perspectives on Tax Incidence," *NBER Working Paper No. 3750*, June 1991, and J. M. Poterba, "Is the Gasoline Tax Regressive?" *NBER Working Paper No. 3578*, January 1991, and *Tax Policy and the Economy* 5 (1991), pp. 145-164.

<sup>11</sup>G. E. Metcalf, "The Lifetime Incidence of State and Local Taxes: Measuring Changes During the 1980s," *NBER Working Paper No. 4252*, January 1993.

<sup>12</sup>E. Caspersen and G. E. Metcalf, "Is a Value-Added Tax Progressive? Annual Versus Lifetime Incidence Measures," mimeo, Department of Economics, Princeton University, February 1993.

ferent measures of lifetime income, we find that a VAT that excludes housing, health, and food costs is moderately progressive over the lifetime. This contrasts sharply from the results using an annual framework, in which the tax appears distinctly regressive.

## Taxes and Investments in Energy Efficiency

Do people respond to tax incentives for energy conservation investment by increasing their rate of investment in energy-efficient capital? While one might expect a clear-cut affirmative response, in fact there has been little evidence to support such a claim. Studies of tax incentives for conservation investment typically have used variation in state programs to identify the effects of tax incentives. Kevin A. Hassett and I argue that a major reason for the lack of a response is the endogeneity of state tax incentive programs.<sup>13</sup> If residents of a particular state are inclined to make investments in energy-efficient capital, then the states may feel less need to create a tax incentive to induce further investment. Using data from a panel of tax returns, we are able to construct a consistent measure of the effect of tax incentives on the probability to invest in conservation capital. We find this effect to be puzzlingly small. We argue that this is probably because these investments are both irreversible and risky. We then apply the models of Dixit and Pindyck to explain investment in energy-efficient capital.<sup>14</sup> This helps to explain the findings by Hausman and others of very high discount rates for investment in energy-efficient capital.<sup>15</sup>

<sup>13</sup>K. A. Hassett and G. E. Metcalf, "Energy Tax Credits and Residential Conservation Investment," NBER Working Paper No. 4020, March 1992.

<sup>14</sup>A. K. Dixit, "Investment and Hysteresis," *Journal of Economic Perspectives* 6 (1992), pp. 107-132, and R. S. Pindyck, "Irreversible Investment, Capacity Choice, and the Value of the Firm," NBER Working Paper No. 1980, July 1986, and *American Economic Review* 78 (1988), pp. 969-985.

<sup>15</sup>J. A. Hausman, "Individual Discount Rates and the Purchase and Utilization of Energy-Using Durables," *Bell Journal of Economics* 10 (1979), pp. 33-54.

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## Profiles

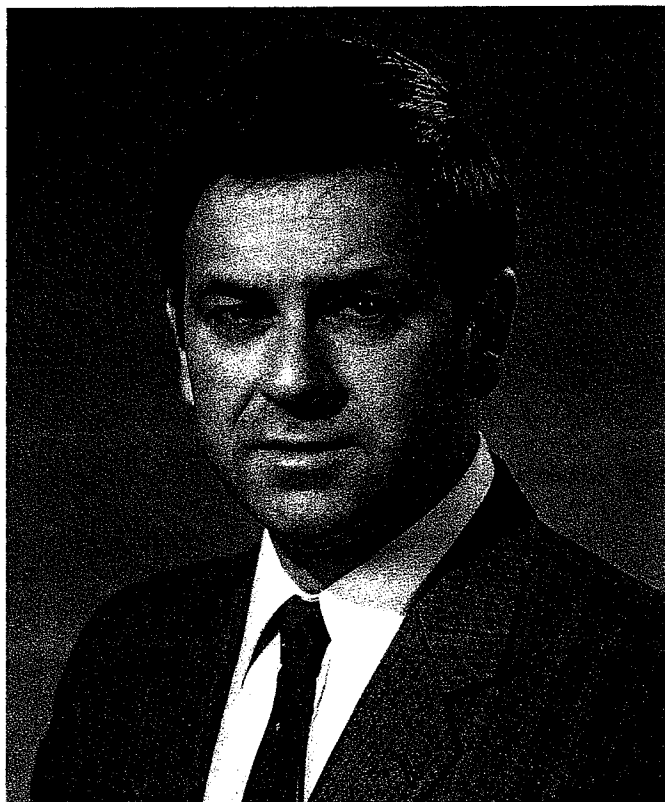
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### A. Ronald Gallant

A. Ronald Gallant has represented the American Statistical Association on the NBER's Board of Directors

since 1990. Gallant received his A.B. in mathematics from San Diego State University, his M.B.A. from the University of California, Los Angeles, and his Ph.D. in statistics from Iowa State University. Since 1971, he has taught at North Carolina State University, where he is now a professor of economics and statistics.

Gallant also has been an adjunct professor at Duke University since 1983, and has taught at the University of Chicago and at Northwestern University. He was editor of the *Journal of Business and Statistics* from 1986-9 and is currently coeditor of the *Journal of Econometrics*.



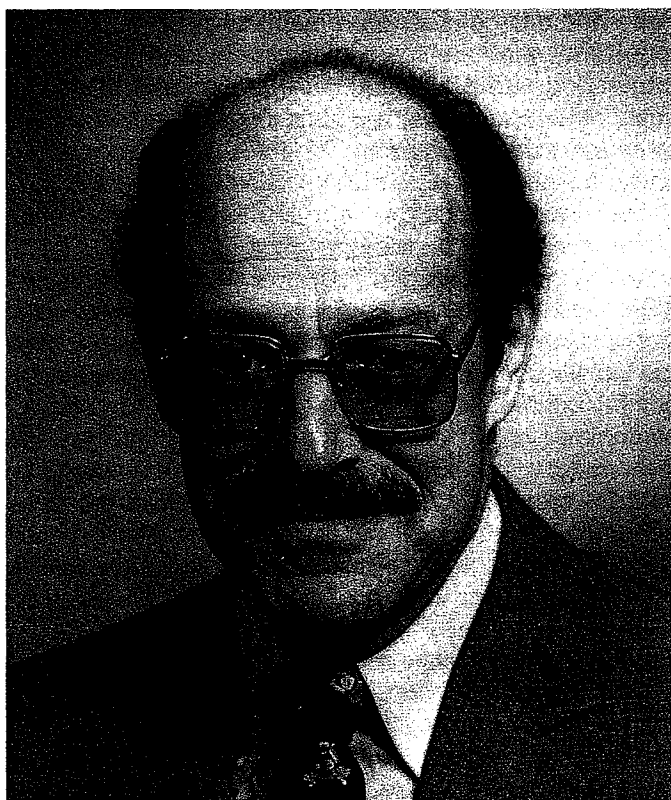
Gallant is a fellow of the American Statistical Association and the Econometric Society. He is also on the Board of Trustees of the National Institute of Statistics. His papers and articles have been published in numerous journals and books, and he is the author of *Nonlinear Statistical Models*, published in 1987 by John Wiley and Sons.

Gallant's wife, Marcia, teaches fifth grade. Their daughter, Megan Mary, is 18; their son, Andrew Joseph, is 16. In his spare time, Gallant enjoys surfing, camping, woodworking, and "riding a Harley."

### Saul H. Hymans

Saul H. Hymans is professor of economics and statistics and director of the Research Seminar in Quantitative Economics at the University of Michigan. Hymans

has been at the University of Michigan since 1964, and has held the additional rank of associate dean of the College of Literature, Science and the Arts since 1987. He has represented the university on the NBER's Board of Directors since 1989.



Hymans is a graduate of Harvard University and holds a Ph.D. in economics and an M.A. in statistics from the University of California, Berkeley. He served as senior staff economist on the President's Council of Economic Advisers in 1967-8 and was a member of the advisory panel to the U.S. General Accounting Office under the Gramm-Rudman-Hollings Budget Act in 1986. He also has served as a member of the Economics Advisory Panel to the Secretary of Commerce, U.S. Department of Commerce; a member of the National Science Foundation Economics Advisory Panel; and senior advisor to the Brookings Panel on Economic Activity.

In 1984, and again in 1987, Hymans received the national Theodore H. Silbert Award in recognition of the "accuracy and professionalism" of his macroeconomic forecasting activity.

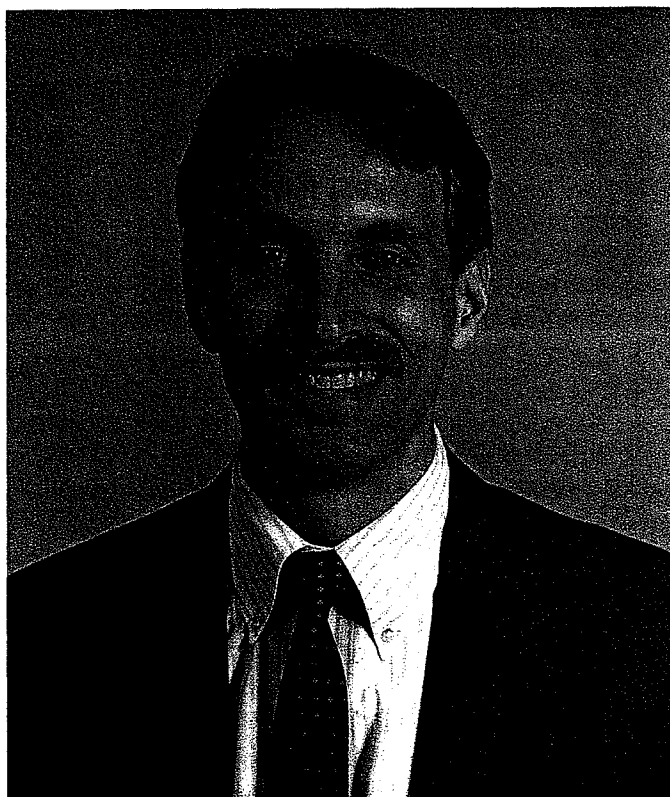
The author of numerous journal articles, chapters, and research papers, Hymans also has traveled to the Soviet Union on a U.S. scientific exchange delegation and has been a visiting scholar in Stockholm and Israel.

Hymans's wife, Eileen, is a dental assistant. They have three grown children, one son and two daughters, and three grandchildren. In his free time, Hymans reads both fiction and nonfiction, plays pinochle, and jogs "ever so slowly."

## Gilbert E. Metcalf

Gilbert E. ("Gib") Metcalf is an assistant professor of economics at Princeton University and an NBER faculty research fellow. He holds a B.A. in mathematics from Amherst College; an M.S. in agricultural and resource economics from the University of Massachusetts, Amherst; and a Ph.D. in economics from Harvard University.

At Princeton, Metcalf teaches public finance and econometrics. In addition to those subjects, his research interests include energy economics and environmental economics. His work has been published in a number of journals, including the *Journal of Political Economy* and the *Journal of Public Economics*.



Metcalf's wife, Rebecca Winborn, is the clinical supervisor at a drug and alcohol counseling agency in Princeton, NJ. They have twin sons, Simon and Calvin, aged 8, and enjoy all sorts of outdoor activities. In addition, Metcalf likes to tinker with bicycles, especially old ones.

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## Conferences

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### Financial Institutions and Macroeconomic Instability

An NBER-Universities Research Conference on "Financial Institutions and Macroeconomic Instability in

Historical Perspective” took place in Cambridge on December 11 and 12. NBER Research Associates Michael D. Bordo and Eugene N. White, both of Rutgers University, organized this program:

Charles W. Calomiris, NBER and University of Illinois, “The Costs of Rejecting Universal Banking: American Finance in the German Mirror, 1870–1914”

Discussant: Lawrence J. White, New York University

Randall Kroszner and Raghuram Rajan, University of Chicago, “Is the Glass–Steagall Act Justified? A Study of the U.S. Experience with Universal Banking Before 1933”

Discussant: George Kaufman, Loyola University

Herschel I. Grossman, NBER and Brown University, and Taejoon Han, Brown University, “War Debt, Moral Hazard, and the Financing of the Confederacy”

Discussant: Stanley L. Engerman, NBER and Rochester University

Christopher J. Waller and Willard E. Witte, Indiana University, “A Dynamic Policy-Game Analysis of the Level and Persistence of U.S. Inflation, 1870–1991”

Discussant: Stephen G. Cecchetti, NBER and Ohio State University

J. Bradford De Long, NBER and Harvard University, and Richard S. Grossman, Wesleyan University, “Excess Volatility on the London Stock Market, 1870–1990”

Discussant: Richard E. Sylla, NBER and New York University

Philip L. Brock, University of Washington, “The Government-Sponsored Securitization of Mortgages in Nineteenth-Century Chile: The Macroeconomic Consequences of the *Caja de Credito Hipotecario*, 1855–1880”

Discussant: Adam Klug, Rutgers University

Jeffrey A. Miron, NBER and Boston University; Christina D. Romer, NBER and University of California, Berkeley; and David N. Weil, NBER and Brown University, “Historical Perspectives on the Monetary Transmission Mechanism”

Discussant: Anna J. Schwartz, NBER

Richard A. Highfield, Maureen O’Hara, and Bruce Smith, Cornell University, “Do Open Market Operations Matter? Theory and Evidence from the Second Bank of the United States”

Discussant: Hugh T. Rockoff, NBER and Rutgers University

Martha Olney, University of Massachusetts, Amherst, “Household Credit, Default Consequences, and Consumption in the 1930s: The Importance of Institutional Characteristics”

Discussant: Levis Kochin, University of Washington, Seattle

**Calomiris** explains that limitations on the scale of U.S. banks early in this century effectively restricted the scope of banking activities, prevented banks from playing a direct role in financing large-scale industry, and increased the information and transaction costs of issuing securities. In contrast, German industry at the time was financed by large-scale universal banks that maintained long-term relationships with firms, involving ongoing monitoring and “discipline” of management. The low costs of German industrial finance were reflected in lower spreads on securities issues and a higher propensity to issue equity among investment banks.

The Glass–Steagall Act of 1933 legislated the separation of commercial and investment banking in the United States. **Kroszner** and **Rajan** evaluate the historical arguments for Glass–Steagall—that, because of conflicts of interest, commercial banks systematically fooled the public into investing in low-quality securities—by comparing the relative performance of securities offered by commercial banks with those offered by independent investment banks prior to the act. They then analyze the modern arguments for and against universal banking: primarily, the effects of conflicts of interest versus the potential scope economies in information processing when lending and underwriting can take place under one roof. They find that securities affiliates of commercial banks did not systematically fool the public markets, nor did they enjoy sizable economies of scope.

**Herschel Grossman** and **Han** find that the Confederacy undertook little external borrowing because it had large resources that could be mobilized. Further, the moral hazard associated with war debt had little effect on the policies of the Confederacy. However, the lack of importance of the moral hazard associated with war debt is not a generic property of war finance, Grossman and Han conclude.

**Waller** and **Witte** examine the inflation process in the United States since 1870. They find significant changes in inflation following changes in the Federal Reserve’s institutional structure and choice of operating rules. For example, they find that the inflation process changed dramatically in the 1980s, which cannot be explained by gold standard arguments.

**De Long** and **Richard Grossman** study “excess volatility” in long-run British stock prices from 1870–1990. They find that the British stock market exhibits “excess volatility” if the period before World War I is included in the sample. British price/dividend ratios before World War I were low relative to those of other nations or to post–World War I Britain, suggesting that prewar investors were extraordinarily suspicious of those equities quoted on the market. This fear of equities may have caused the British stock market to perform poorly as a social capital allocation mechanism before World War I, and may have played a role in British industrial decline.

**Brock** chronicles the origins and evolution of government financial guarantees in Chile that were given to the



bonds (*letras*) of the *Caja de Credito Hipotecario* (Land Bank) and to notes issued by banks between 1855 and 1880. The parliamentary evidence indicates that the explicit and implicit guarantees given to the *Caja's letras* were quite strong and were given willingly by the government. On the other hand, the guarantees on bank notes were given in times of crisis and were quite ambiguous in their coverage.

**Miron, Romer, and Weil** examine the importance of lending in the transmission of monetary shocks to the real economy. First, they isolate the observable factors that affect the strength of the lending channel. Then they show that, based on changes in the structure of bank assets, reserve requirements, and the composition of external firm finance, the lending channel should have been stronger before 1929 than after 1945. Finally, they demonstrate that conventional indicators of the importance of the lending channel, such as the spread between the loan rate and the bond rate, do not show the predicted decline in the importance of lending over time.

**Highfield, O'Hara, and Smith** investigate whether portfolio rearrangements of the central bank's balance sheet have any effect on equilibrium resource allocation and the path of the price level over time. They demonstrate that open market operations can be irrelevant, and apparently were, in an economy with a privately owned central bank. Their model captures the features of actual central banking as it existed in the United States (and elsewhere) in the early 19th century. They demonstrate that, from 1823 to 1832, the portfolio decisions of the Second Bank, which was the U.S. central bank at that time, were irrelevant for the behavior of the price level and had the predicted effect on the bank's market value.

**Olney** argues that financial institutions can create macroeconomic instability. The rise of consumer installment credit in the 1920s, while clearly fueling a concurrent rise in household spending for durable goods, laid the groundwork for an autonomous drop in consumption spending in 1930. Until the mid-1930s, default on an installment contract resulted in repossession without compensation of the buyer for any equity already acquired. This very costly consequence of default led indebted households to reduce consumption and increase saving when potential income reductions appeared. By the 1937-8 recession, this provision of installment contracts had been changed. Thus consumption spending did not fall autonomously in that latter downturn. Institutional characteristics had changed, and so had the potential for macroeconomic instability.

## Policies for Social Protection Are Discussed

A group of economists from the United States, Can-

ada, and Europe met in London to discuss their research on "Social Protection Versus Economic Flexibility: Is There a Trade-Off?" on December 14 and 15. Rebecca M. Blank, NBER and Northwestern University, organized this program:

Rebecca M. Blank, and Richard B. Freeman, NBER and Harvard University, "Social Protection and Economic Flexibility"

Siv Gustafsson, University of Amsterdam, and Frank R. Stafford, University of Michigan, "Child Care in the United States, the Netherlands, and Sweden"  
Discussant: John Ermisch, University of Glasgow

Maria J. Hanratty, NBER and Cornell University, "Social Welfare Programs for Women and Children in the United States and France"  
Discussant: Timothy Smeeding, Syracuse University

Douglas Holtz-Eakin, NBER and Syracuse University, "Health Insurance Provision and Labor Market Efficiency in the United States and Germany"  
Discussant: Stephen Machin, University College, London

Sara de La Rica, Universidad del Pais Vasco, and Thomas Lemieux, NBER and University of Montreal, "Does Public Health Insurance Reduce Labor Market Flexibility or Encourage the Underground Economy? Evidence from Spain and the United States"  
Discussant: Jonathon Thomas, Cambridge University

Rebecca M. Blank, "Public Sector Growth and Labor Market Flexibility: The United States and the United Kingdom"  
Discussant: Stephen P. Jenkins, University College of Swansea

Marcus Rebick, Cornell University, "Social Security and Older Workers' Labor Market Responsiveness: An International Comparison"  
Discussant: Ronald Dore, London School of Economics

Edward B. Montgomery, NBER and University of Maryland, "Patterns in Regional Labor Market Adjustment: The United States Versus Japan"  
Discussant: Andrew J. Oswald, Oxford University

Axel Börsch-Supan, NBER and University of Mannheim, "Housing Market Regulations and Housing Market Performance in the United States, West Germany, and Japan"  
Discussant: Barry McCormick, University of Southampton

Katharine G. Abraham, NBER and University of Maryland, and Susan N. Houseman, Upjohn Institute, "Does Weakening of Employment Protection Enhance Labor Market Flexibility? Lessons from Germany, France, and Belgium"  
Discussant: David Metcalf, London School of Economics

Over the last ten years, a variety of analysts have blamed high unemployment and stagnant growth in Europe on inflexible labor markets. They pointed to the United States as a more flexible economy, because its labor markets are less regulated and its social protection programs are less generous. But **Blank** and **Free-man** conclude that the limited existing research shows little evidence of a significant trade-off between social programs and labor market adjustment, nor does it confirm that social protection promotes economic growth.

**Gustafsson** and **Stafford** find that the labor supply of women with young children responds similarly to wage opportunities and income in U.S., Dutch, and Swedish households. However, historical differences in social institutions and beliefs, which have shaped public policies on daycare and parental leave, have a strong influence on labor market participation. U.S. women with young children rely more on their families and on reductions in their free time when they go to work outside the home. Swedish women, in contrast, reduce their labor market participation through paid parental leave when they have children under the age of two. Otherwise, they have higher labor force participation than U.S. women because of public daycare and income tax incentives. Dutch women have more public daycare than U.S. women do, but they work less throughout the child's preschool years because of beliefs about the importance of maternal child care.

While the U.S. transfer system continues to pay single-parent families until the youngest child reaches age 18, French transfer payments to single-parent families are cut back sharply when the youngest child reaches age three. At the same time, the French public nursery school system makes publicly provided daycare available to nearly all families with children under age three. **Hanratty** asks whether the French time-limited welfare benefit encourages single parents in France to enter the labor market more quickly than single parents in the United States. She finds no increase in total employment rates, but a sizable increase in full-time employment when the French welfare payment terminates. She also examines the impact of termination of transfer payments to French families with three or more children. Among two-parent families, termination of payments is associated with an increase in both full-time and total employment rates.

**Holtz-Eakin** finds little evidence that the provision of health insurance interferes with job mobility in either the United States or Germany. In both countries, there are weak effects on job mobility in the short run for married men, but not for other labor market participants. Moreover, over longer horizons, even these effects appear to dissipate.

**De La Rica** and **Lemieux** explain that, while most health insurance is provided to workers (by employers) privately in the United States, Spanish workers receive health insurance from the public social security system. The Spanish system is financed by a payroll (social se-

curity) tax shared by employers and employees. **De La Rica** and **Lemieux** find one major difference between the two systems: in Spain, unlike the United States, essentially all heads of households work in the covered sector and thus have full access to public health care for themselves and their dependents.

The United States and the United Kingdom have quite different long-term trends in public sector employment, but **Blank** finds a similar mix of occupations and workers in the public versus the private sector. In both countries the public/private wage differential narrowed over the 1980s, although the differential varies substantially by occupation and gender. Both countries also have seen an increase in private sector wage inequality relative to that of the public sector over the past decade. Variability in public sector employment and wages over time generally is as great as in the private sector, although the cyclical patterns are quite different. **Blank** concludes that there is substantial adjustment occurring in the public sectors of the two countries. However, the U.S. public sector seems to respond somewhat more strongly to changes in demand than the public sector in the United Kingdom does.

**Rebick** finds that government labor market programs, including early retirement programs, are used more heavily by workers in Sweden and Japan than in the United States. The responsiveness of older demographic groups to economic conditions is greater in those countries. He does not find, however, that introduction of these programs has had major effects on the labor market responsiveness of the older demographic groups: their responsiveness varies among the three countries for a variety of reasons, probably related to differences in firms' abilities to adjust their demand for the labor of different demographic groups.

**Montgomery** studies regional labor market behavior in the United States and Japan. He finds that regional differences in wages, unemployment, employment growth, and migration in Japan are substantially more stable than in state labor markets in the United States. Although wages, unemployment, and migration appear to be influenced by similar factors in both countries, these variables are far less sensitive to demand shifts in Japan than in the United States.

**Börsch-Supan** surveys housing markets and policies in Germany, Japan, and the United States. While government involvement in housing markets is substantial in all three countries, the programs have very different intentions and designs. He analyzes two specific policies—tenure protection legislation and homeownership subsidies—in order to assess how these policy differences are reflected in housing market performance, gauged in terms of social protection and economic flexibility.

**Abraham** and **Houseman** compare the adjustment of manufacturing employment and hours in the United States with West Germany, France, and Belgium, three countries with strong job security regulations and well-established short-time compensation systems. Although

the adjustment of employment to changes in output is much slower in the German, French, and Belgian manufacturing sectors than in U.S. manufacturing, the adjustment of total hours worked is similar. In addition, the weakening of job security regulations that occurred in Germany, France, and Belgium during the 1980s does not seem to have affected employers' adjustment to changes in output. This suggests that, given appropriate supporting institutions, strong job security need not inhibit employer adjustment to changing economic conditions.

Also attending the conference were: Andrew Dilnot and Paul Johnson, Institute for Fiscal Studies; John Hills and David Piachaud, London School of Economics; Julian LeGrand, University of Bristol; Stephen Nickell, Institute of Economics and Statistics; Peter Scherer, Organization for Economic Cooperation and Development; Ronald Schettkat, Wissenschaftszentrum Berlin für Sozialforschung; Kurt Vogler-Ludwig, Institute für Wirtschaftsforschung; and Johnny Zetterberg, Uppsala University.

A conference volume will be published by the University of Chicago Press. Its availability will be announced in a future issue of the *NBER Reporter*.

## International Seminar in International Trade

The third biennial International Seminar in International Trade (ISIT) was held in Brussels on December 17–18. It was sponsored jointly by the NBER, the Centre for Economic Policy for Research (CEPR) in London, and the European Center for Advanced Research in Economics in Brussels. Robert E. Baldwin, NBER and University of Wisconsin; Richard E. Baldwin, NBER and Graduate Institute of International Studies, Geneva; and Damien Neven, University of Liège, organized the following program:

Alessandra Casella, NBER and University of California, Berkeley, "Trade as an Engine of Political Change: A Parable"

Discussant: Guido Tabellini, Università degli Studi di Brescia

Richard H. Clarida, NBER and Columbia University, and Ronald Findlay, Columbia University, "After Maastricht: Public Investment, Economic Integration, and Capital Mobility"

Discussant: Riccardo Faini, Università degli Studi di Brescia

Valerie J. Chang and Catherine Mann, Federal Reserve Board, "Industry Restructuring and Export Performance: Evidence on the Transition in Hungary"

Discussant: Gérard Roland, Université Libre de Bruxelles

Richard E. Baldwin, and Anthony Venables, London School of Economics, "Path Dependencies in East Europe's Trade Pattern: The Impact of Western Europe's Policies"

Discussant: André Sapir, Université Libre de Bruxelles  
Michael Rauscher, Universität Kiel, "Using Environmental Legislation as a Tool of Trade Policy"

Discussant: Anthony Venables

Alistair Ulph, University of Southampton, "Environmental Policy and Strategic International Trade"

Discussant: Harry Flam, Institute for International Economic Studies, Stockholm

Carsten Kowalczyk, NBER and Dartmouth College, and Tomas Sjöström, Dartmouth College, "Bring GATT into the Core"

Discussant: Konstantine Gatsios, Fitzwilliam College

Axel Weber, Universität Gesamthochschule Siegen, "Exchange Rate Variability, Target Zones, and Trade: The Importance of a Policymaking Framework"

Discussant: Bernard Delbecq, Université Catholique de Louvain

The papers by **Casella** and by **Clarida** and **Findlay** both deal with regional and integration issues. Casella investigates the relationship between the expansion of trade and the organization of jurisdictions for the provision of public goods. She analyzes the trade-off between the administrative costs involved in multiplying the number of political jurisdictions, and the heterogeneity in preferences over public goods that makes such a multiplication desirable as trade expands.

Rather than focusing on the removal of trade barriers as the key feature of economic integration, Clarida and Findlay view integration as extending the decisionmaking domain over the provision of public goods. Using a model in which productivity in a country's private sector is augmented by public capital, they investigate the consequences of permitting capital to become mobile between countries as a result of integration. If there are spillovers across national borders in the productivity of public capital because of economic integration, then the two integrating countries both benefit, even though each country's public capital stock falls. However, if the decision about the provision of public investment is centralized into a single supranational entity, then both countries will benefit even more, the authors conclude.

**Chang** and **Mann**, and **Baldwin** and **Venables** consider issues relevant for eastern Europe's trade and development. Chang and Mann argue that a robust and well-developed sector of small and medium-sized enterprises is a hallmark of market economies but not of centrally planned systems. They examine the recent growth of this sector in Hungary, and find that restructuring enterprises into smaller units is associated with increased exports. Further, foreign investment by itself does not appear to enhance export performance significantly. Those industries that contribute most to gross production also contribute most to export performance, they find.

Pointing out that trade in goods and factors is substantially free in Eastern Europe, Baldwin and Venables

investigate the impact of factor movements—especially the migration of skilled labor—on a country's long-run trade pattern, production structure, per capita income and output. They find that policies discouraging emigration of skilled labor and encouraging foreign investment are likely to boost long-run per capita income in eastern Europe. They also explore the possibility of multiple rational expectations transition paths created by technology-absorbing externalities linked to skilled labor. They find that “vicious” and “virtuous” cycles involving outflows of human capital and inflows of physical capital can alter the long-run equilibrium outcome. Selection between the two cycles could be subject to self-fulfilling expectations, they conclude.

Two papers consider environmental issues. **Rauscher** points out that environmental policies, such as emission taxes, can affect trade, including improving a country's terms of trade. If environmental policy improves a country's trading terms, or shifts oligopoly rents from foreign to domestic firms, then domestic welfare is increased. However, if the environmental policies of other countries are taken into account, then using environmental policy for trade policy purposes can lower welfare in all countries.

Using a model in which two countries compete in supplying a homogeneous product to the world market, **Ulph** contrasts their governments' use of controls, taxes, and the price system to reduce the emissions of some pollutant. He concludes that the choice of taxes by both countries will lead to an inferior outcome in the case in which these countries consume only a small share of the total output of the good they produce. However, if they consume a significant share of this good, then the use of taxes will be the preferred outcome in terms of welfare.

**Kowalczyk** and **Sjöström** show that international transfers of income can be helpful in establishing an optimal global trading environment. Using a model in which the reason for trade is preference for diversity, and in which the producer of each good is a monopolist, they show that achieving a situation in which prices equal marginal costs of production generally requires income transfers between countries. They demonstrate, for example, that income transfers can be used to induce countries that might otherwise prevent optimal trade from being realized to refrain from using their blocking ability.

**Weber** reconsiders the relationship between trade flows and exchange rate variability. He argues that, in a system of currency bands or target zones, almost any correlation between trade flows and exchange rate variability may be found in the data because of nonlinearities. However, a unique linear relationship exists between trade flows and the exchange rate's band position: it is negative in credible target zones, positive in noncredible target zones, and zero under a free float. Weber gets mixed results when he tests this proposition with monthly data of German exports to ERM members.

Also attending the conference were: Pedro Pitta Barros and Cristina Corado, Universidade Nova de Lisboa; Jacques Bughin, Université Libre de Bruxelles; Alessandra Colecchia and Federico Trionfetti, Graduate Institute of International Studies, Geneva; Gerda Dewit, Centrum voor Economische Studien, Leuven; Michael Gasiorek, University of Sussex; Alessandro Goglio, Confindustria, Rome; Dieter Guffens, London School of Economics; Peter Johns, CEPR; Dermot Leahy, University College, Dublin; Giovanni Maggi, Stanford University; Davidson Adegoke Omole, Nigerian Institute of Social and Economic Research; Thierry Paul, University of Southampton; and Henry Tulkens, Université Catholique de Louvain.

This article was prepared with the assistance of Robert E. Baldwin. Selected papers from the conference will be published in the journal *Economica* in August 1993.

## Stabilization, Economic Reform, and Growth

More than 100 economists and policymakers from the United States and Latin America met at the Interamerican Development Bank (IDB) in Washington on December 17 and 18 for an NBER/IDB conference on “Stabilization, Economic Reform, and Growth.” NBER Research Associates Rudiger Dornbusch, MIT, and Sebastian Edwards, University of California, Los Angeles, organized this program:

Sebastian Edwards, “Trade Policy, Exchange Rates, and Growth”

Aaron Tornell, NBER and MIT, “Are Economic Crises Necessary for Trade Liberalization and Fiscal Reform? The Mexican Experience”

Discussants: Kenneth A. Froot, NBER and Harvard University, and Miguel Savastano, International Monetary Fund (IMF)

Mauricio Cárdenas, Fedesarrollo, and Miguel Urrutia, Banco de la República, Colombia, “Macroeconomic Instability and Social Progress”

Raúl Labán, Ministry of Finance, Chile, and Felipe Larraín, Pontificia Universidade Católica de Chile, “Continuity and Change in the Chilean Economy”

Discussants: Stanley Fischer, NBER and MIT, and Ricardo Lago, IDB

Eliana A. Cardoso, NBER and Tufts University, Ricardo Paes de Barros, Instituto de Pesquisa Econômica Aplicada, and Andre Urani, Universidade Federal de Rio de Janeiro, “Inflation and Unemployment as Determinants of Inequality in Brazil: The 1980s”

Gil Bufman and Leonardo Leiderman, Tel Aviv University, "Israel's Stabilization: Some Important Policy Lessons"

Discussants: Jose De Gregorio, IMF, and Jose Ocampo, Fedesarrollo

Rudiger Dornbusch, "Progress Report on Argentina"  
Federico Sturzenegger, NBER and University of California, Los Angeles, "Bolivia: From Stabilization to What?"

Discussants: Jacques Trigo, IDB, and John Williamson, Institute for International Economics

Arnold C. Harberger, University of California, Los Angeles, "Tax Lore for Budding Reformers"

Arturo Fernandez, ITAM, Mexico, "Deregulation as a Source of Growth in Mexico"

Discussants: Jonathan Gruber, NBER and MIT, and Andres Velasco, New York University

Anne O. Krueger, NBER and Duke University, "Partial Adjustment and Growth in the 1980s in Turkey"

Miguel A. Kiguel, World Bank, and Nissan Liviatan, Hebrew University, "Stopping Three Big Inflations: Argentina, Brazil, and Peru"

Discussants: William Cline, Institute for International Economics, and Holger Wolf, NBER and New York University

**Edwards** argues that more open economies will experience faster rates of productivity growth than countries that distort their external sectors. His analysis, based on a broad cross-country dataset and on evidence from recent Latin reforms, supports this view. However, the data on Mexico indicate that, in order for productivity increases to be widespread, it is necessary to first implement broad reforms and deregulation programs that affect a wide range of sectors.

**Tornell** notes that some LDCs recently have liberalized trade in response to economic crises. Traditionally, powerful interest groups have opposed trade liberalization because they stand to lose from it. However, this has been less true in certain countries undergoing crises. What Tornell finds puzzling is the lack of opposition to liberalization among powerful groups in Mexico: this enabled the country to open itself to trade, and to borrow.

**Cárdenas** and **Urrutia** argue that macroeconomic stability is necessary for sustained social progress. They use cross-section analysis to see whether more stable countries have higher rates of growth in social indicators, including infant mortality, life expectancy, birth rates, school enrollment, and income inequality. They examine 13 social indicators in four coffee-producing countries—Ivory Coast, Kenya, Costa Rica, and Colombia—and conclude that higher government budget deficits and lower social indicators go together. The fastest social progress occurs when the macroeconomy is most stable.

Since the mid-1970s, the Chilean economy has undergone a profound transformation, according to **Labán** and **Larraín**. From very high levels of protection, with pervasive state intervention, Chile has been transformed into an economy integrated to world markets, where the engine of economic growth is the private sector. Since 1990, when a democratically elected government replaced 16 years of authoritarian rule, the government has reduced inflation and trade barriers and increased social spending, raising taxes to pay for it. Labán and Larraín conclude that reducing poverty, improving the environment, and increasing education and investment are the major challenges facing Chile today.

**Cardoso**, **Paes de Barros**, and **Urani** estimate that income inequality in Brazil—measured as the ratio of the income of the richest 10 percent of the active population to the poorest 10 percent—rose from 22 in 1960 to 40 in 1970, 41 in 1980, and 80 in 1989. Rising unemployment increases inequality, because low-skilled, poorly paid workers lose their jobs before other workers do. Very high inflation also increases inequality, because the rich have access to assets that are fully indexed while the poor hold cash, and thus pay the "inflation tax." Wage differentials by education level are responsible for almost half of the inequality in labor incomes in Brazil, the authors report. But they conclude that increased macroeconomic instability during the 1980s was the major cause of rising inequality.

**Bufman** and **Leiderman** reexamine Israel's post-1985 disinflation in an attempt to draw lessons for stabilization policies in the future. They argue that part of the slow transition from stabilization to growth could be explained by the lack of government policies aimed at increasing public investment in infrastructure. In addition, Israel's exchange rate band from 1989 to 1991 lacked credibility, because it maintained a fixed central parity rate while domestic inflation continued to exceed world inflation. The shift to a crawling band in 1992 played an important role in restoring at least part of the policy's credibility.

**Dornbusch** notes that pervasive reforms in Argentina, ranging from deregulation and privatization to trade opening, have raised productivity and helped reduce budget deficits. In less than two years, inflation has been reduced. Growth has returned, and with it the confidence that Argentina can make it. However, Argentina has not yet escaped from its most traditional problem: overvaluation. Once again, the currency has become overvalued.

**Sturzenegger** concentrates on the sources of growth for the Bolivian economy and on their relationship to the current stabilization attempt. He finds that productivity has been driven mainly by the price of mineral products. Inflation has had a significant negative effect on the level of productivity, while political instability has not. Increased foreign sources of capital accumulation, such as cocoa production or foreign indebtedness, have increased output and caused the equilibrium real ex-

change rate to appreciate. During the hyperinflation, the economy worked at about 80 percent of its potential productivity, and productivity has not grown since 1985. Stabilization's positive impact on productivity barely compensated for the decline in Bolivia's terms of trade, Sturzenegger concludes.

**Harberger** focuses on some lessons from experiences with tax reform. He discusses uniformity of tariffs as a way of improving administration and compliance, and describes "radical reductions of distortions" as the most effective way to implement a tariff reform. He also specifies ways to build a system of value-added taxation that is moderately progressive. Finally, he explains the relationship between evasion and coverage, shows how better choices concerning coverage can help control evasion, and comments on the relationship between enforcement and evasion.

**Fernandez** discusses the role of deregulation in Mexico's growth. He notes that, before privatization took place, the vast network of regulations were strangling production and productivity. Further, certain workers benefited more than others from labor regulations, and abuses were widespread. Deregulation gave a boost to the automobile and telephone industries, in particular. Now Mexicans need to be mindful of potential side effects of deregulation, such as pollution, Fernandez warns.

**Krueger** explains that Turkey faced an economic crisis late in 1979. In January 1980, a program of policy reforms was undertaken with the dual objectives of moving to a market-oriented economy integrated with the rest of the world and of lowering the rate of inflation from triple digits. Reforms designed to liberalize the economy continued throughout the 1980s. Despite the difficult external environment, exports grew at an average annual rate of over 20 percent, and real GDP growth by the latter half of the 1980s exceeded 7 percent annually. However, failure to reduce the fiscal deficit sufficiently resulted in resumption of rapid monetary growth and with it, inflation. By the early 1990s, inflation was accelerating; there were questions as to whether the successful microeconomic reforms were sustainable in the presence of these macroeconomic difficulties.

**Kiguel** and **Liviatan** examine the recent hyperinflations in Argentina, Brazil, and Peru. In contrast to the European hyperinflations of the 1920s, these more recent inflations were not caused by a sudden, large increase in the budget deficit and seigniorage. Instead, they were the final stage of a long process of high and increasing rates of inflation that lasted for around two decades. In addition, the process of restoring price stability in the recent episodes appears to be longer, and more costly than Sargent's evaluation of the end-of the European hyperinflation suggested.

A conference volume will be published by the University of Chicago Press. Its availability will be announced in a future issue of the *NBER Reporter*.

## International Comparison of the Financial System and Regulations

The NBER, the Centre for Economic Policy Research, and the Tokyo Center for Economic Research jointly sponsored a conference on "International Comparison of the Financial System and Regulations" in Tokyo on January 11 and 12. Takatoshi Ito, NBER and Hitotsubashi University, and Kazuo Ueda, University of Tokyo, planned this agenda:

Brian J. Hall, Harvard University, "How Has the Basel Accord Affected Bank Portfolios?"

Discussants: Takatoshi Ito; Masamichi Kohno, Japan Ministry of Finance; and Tetsufumi Yamakawa, Bank of Japan

Robin Mason and William Perraudin, Cambridge University, "Evaluating Deposit Insurance for Japanese Banks"

Discussants: Yuzo Honda, Kobe University, and Edward J. Kane, NBER and Boston College

Akiyoshi Horiuchi, University of Tokyo, and Qing-yuan Sui, Tokyo Metropolitan University, "The Influence of the Japan Development Bank Loans on Corporate Investment Behavior"

Discussants: Brian J. Hall, and Paul Sheard, Australian National University

Naoyuki Yoshino, Keio University, "Japanese Postal Savings and the Fiscal Loan and Investment Program"

Discussant: Yutaka Harada, Ministry of Posts and Telecommunications, and Kazuo Ueda

Edward J. Kane, "What Can Japan Learn from the U.S. S and L Crisis?"

Discussants: Akiyoshi Horiuchi; Kazumasa Iwata, University of Tokyo; and Toshiharu Kitamura, Japan Ministry of Finance

Atsushi Inoue, University of Tokyo, and Shiro Yabu-shita, Waseda University, "The Stability of the Japanese Banking System: A Historical Perspective"

Discussant: Yuzo Honda and Naoyuki Yoshino

Risk-based capital standards, based on the Basel Accord, give banks an incentive to substitute away from loans into less risky assets, such as government securities. **Hall** finds that, in 1990 and 1991, banks were quite successful in raising their capital ratios to meet the risk-based requirements. However, to raise capital ratios, banks decreased lending, particularly to businesses. Total commercial bank lending was approximately \$150 billion lower because of the risk-based capital guidelines, **Hall** estimates.

**Mason** and **Perraudin** analyze the Japanese authorities' deposit guarantees for 16 city, trust, and long-term credit banks. The authorities exercise control over the capital raising and dividend payments of banks, and sometimes pressure profitable institutions to merge with troubled ones.

The Japanese Development Bank (JDB) was created by the Japanese government in 1951 to provide long-term loans to key industries. **Horiuchi** and **Sui** argue that the "subsidy effect" of the below-market-rate JDB loans could not have been important, because the amount of loans supplied to high-growth industries was small. They propose that the JDB existed to intermediate exchanges of information between the government and industrial companies. When firms were able to acquire JDB loans, their borrowing from other banks increased as well.

**Yoshino** studies the historical role of post office savings, and the function of the Fiscal Investment and Loan Program (FILP) of Japan. The FILP, mainly using the surplus funds of postal savings, postal insurance, and postal annuities, provides funds for private sector investments through public financial institutions: JDB, Export-Import Bank, the Housing Loan Corporation, and the Small Business Finance Corporation.

**Kane** argues that the main lesson of the U.S. S and L crisis for Japan is that agency problems must be minimized or corrected. Bank regulators answer more directly to bankers and politicians than to taxpayers. As a result, they have an incentive to avoid bank failures, which often means subsidizing inefficient and insolvent banks. Because the market value of Japanese bank capital has shrunk rapidly since 1988, the key challenge to Japanese authorities is to minimize agency problems before "zombie" institutions become a powerful voting bloc and begin making risky investments that may require taxpayer bailouts, Kane concludes.

**Inoue** and **Yabushita** examine the causes of bank runs and bank panics in Japan before World War II. During the banking crisis of 1927, for example, about 3 percent of all banks failed. Many of the bank failures were caused not only by lack of confidence of depositors but also by unsound management, which was reflected in the structure of assets and liabilities. Even though the government intervened actively on behalf of banks facing runs, there was a strong correlation between the probability of failure and the bank's capital ratios. Also, bank closing occurred more often for banks with unsound management and inefficient operations.

Also attending the conference were: Kimihiko Eto and Hiroo Taguchi, Bank of Japan; and Yuri Nagataki, Hitotsubashi University. This article was prepared with the assistance of Brian J. Hall.

## NBER Focuses on Monetary Policy at January Meeting

N. Gregory Mankiw of the NBER and Harvard University organized an NBER conference on monetary policy that took place on January 22 and 23. The program was:

Martin Feldstein and James H. Stock, NBER and Harvard University, "The Use of a Monetary Aggregate to Target Nominal GDP" (NBER Working Paper No. 4304)

Discussant: John B. Taylor, NBER and Stanford University

Robert E. Hall, NBER and Stanford University, and N. Gregory Mankiw, "Nominal Income Targeting"

Discussant: Kenneth D. West, NBER and University of Wisconsin

Robert B. Barsky, NBER and University of Michigan, "Commodity Prices as Indicators for Monetary Policy: A Skeptical View"

Discussant: Michael Woodford, NBER and University of Chicago

Alan S. Blinder, NBER and Princeton University, "On Sticky Prices: Academic Theories Meet the Real World"

Discussant: Olivier J. Blanchard, NBER and MIT

Laurence M. Ball, NBER and Princeton University, "What Determines the Sacrifice Ratio?" (NBER Working Paper No. 4306)

Discussant: Benjamin M. Friedman, NBER and Harvard University

Michael Bryan, Federal Reserve Bank of Cleveland, and Stephen G. Cecchetti, NBER and Ohio State University, "Measuring Core Inflation"

Discussant: Stephen P. Zeldes, NBER and University of Pennsylvania

Anil K. Kashyap, NBER and University of Chicago, and Jeremy C. Stein, NBER and MIT, "Monetary Policy and Bank Lending"

Discussant: Martin S. Eichenbaum, NBER and Northwestern University

Jeffrey A. Miron, NBER and Boston University; Christina D. Romer, NBER and University of California, Berkeley; and David N. Weil, NBER and Brown University, "Historical Perspectives on the Monetary Transmission Mechanism" (See "Financial Institutions and Macroeconomic Instability" earlier in this "Conferences" section.)

Discussant: Ben S. Bernanke, NBER and Princeton University

Matthew D. Shapiro, NBER and University of Michigan, "Federal Reserve Policy: Cause and Effect"

Discussant: Bennett T. McCallum, NBER and Carnegie-Mellon University

**Feldstein** and **Stock** consider using a monetary aggregate, M2, to influence the path of nominal GDP; the ultimate goal is reducing the average rate of inflation and the instability of real output. They conclude that the relationship between M2 and nominal GDP is strong and stable enough to warrant further investigation. Of course, the correlation between past values of M2 and nominal GDP is relatively weak, so the ability to control nominal GDP is far from perfect. Nevertheless, a simple rule for varying M2 in response to observed changes in nominal GDP would reduce the volatility of nominal GDP relative to the historic record and relative to the likely effect of a passive constant-money-growth-rate rule. Feldstein and Stock estimate that there is an 85 percent probability that this simple rule would reduce the variance of annual nominal GDP growth over a typical decade.

**Hall** and **Mankiw** suggest that, although nominal income targeting is not a panacea, it is a reasonably effective rule for the conduct of monetary policy. The primary benefit of nominal targeting is less volatility in the price level and the inflation rate. With nominal income targeting, real economic activity too could be somewhat less volatile than it has been over the past 40 years. If the elimination of spontaneous shifts in monetary policy markedly improves forecasts, then real activity could be considerably less volatile.

**Barsky** examines a number of indicators for the conduct of monetary policy that have been proposed by certain governors of the Federal Reserve System and other economists over the last decade: 1) the spot prices of indexes of raw and industrial commodities, and producer price indexes of sensitive intermediate materials prices; 2) nominal exchange rates with other major industrial countries; 3) spreads between long-term and short-term interest rates; and 4) a hypothetical set of government-issued index bonds that would span the term structure and, in conjunction with nominal bonds, provide a direct market-based indicator of expected inflation at different horizons. These indicators have in common a focus on signals from asset markets other than short-term credit markets. They tend to be favored by those who believe the Fed should concentrate primarily or even solely on the stabilization of the general price level. Barsky finds that commodity prices and wages both seem to have a promising potential role as indicator variables in a policy aimed at price stability.

**Blinder** presents direct survey evidence that changes in prices lag behind changes in the money supply. Indeed, almost 80 percent of GDP is repriced quarterly or less frequently, and the typical lag of a price change behind a shock to either demand or cost is about three months. Apparently, many firms hesitate to change their prices for fear that competitors will not follow suit. In

fact, this is the most popular theory among the 12 tested in Blinder's survey. The worst of the five theories, according to the respondents, is the notion that firms hesitate to cut prices in slumps because they fear that customers will misconstrue price cuts as signals of reductions in quality.

**Ball** examines disinflations from 1960 to the present in moderate-inflation OECD countries. His sample contains all episodes in which a moving average of actual inflation typically falls more than two percentage points. He identifies 28 such episodes in nine countries with quarterly data and 65 episodes in 19 countries with annual data. Ball concludes that the sacrifice ratio—the ratio of the total output loss to the change in trend inflation—decreases with the speed of disinflation. That is, gradualism makes disinflation more expensive in terms of lost output. Further, the sacrifice ratio is lower in countries with more flexible labor contracts, the most important feature of which is their duration.

**Bryan** and **Cecchetti** investigate several methods for measuring core inflation. These include the Consumer Price Index excluding food and energy, the weighted median, and a dynamic factor index. The authors conclude that the weighted median's performance is superior because it provides the best forecast of future inflation and has the most reliable correlation with past money growth. Furthermore, unlike the other price measures, it appears to be unrelated to future money growth. Finally, the median has a number of additional computational advantages: it does not require any actual statistical estimation; it is easy to link as the structure of the economy changes; and, it can be computed from one set of price data in one month to another set in the next month.

**Kashyap** and **Stein** clarify that the lending view of monetary policy transmission boils down to the assertion that: 1) open market operations affect the supply of bank loans; and 2) these shifts in loan supply in turn affect both the magnitude of aggregate output and its composition. Underlying this mechanism is the imperfect substitutability of bank loans and publicly issued bonds, both as corporate liabilities *and* as bank assets. In contrast, quantity rationing in the loan market is not necessary for a meaningful lending channel, although in practice such rationing is likely to be present to some degree. The lending view need not imply that the more traditional money channel of policy transmission is inoperative; clearly the two channels can coexist and can complement each other. Nonetheless, the distinction between the two is an important one: the existence of a lending channel can influence both the potency and the distributional consequences of monetary policy, as well as the information content of a variety of indicators that policymakers look to.

**Shapiro** finds that the Fed weighs the outlook for unemployment as much as the outlook for inflation in making its decisions about reducing the rate of inflation. He



then confirms that disinflations are predetermined indicators of the Fed's policy stance. Further, Shapiro finds modest to negligible responses of the inflation rate to the "disinflations." He concludes that the Volcker disinflation was a notable exception to the failure of disinflations to reduce inflation.

Also attending the conference were Donald Kohn, Director, Division of Monetary Affairs, and David Mullins, Vice Chairman, Federal Reserve Board of Governors; and Richard Syron, President of the Federal Reserve Bank of Boston.

The University of Chicago Press will publish the papers and commentary presented at the conference as the 29th volume of the NBER's "Studies in Business Cycles." Its title and availability will be announced in a future issue of the *NBER Reporter*.

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## Bureau News

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### NBER Economists Leave for D.C.

A number of NBER economists have recently gone on leave from the Bureau and their universities to take positions in Washington. At the same time, several economists are returning from Washington to the NBER.

President Clinton has nominated **Alan S. Blinder** and **Joseph E. Stiglitz** as members of the Council of Economic Advisers (CEA). Blinder is an NBER research associate in the economic fluctuations program and a professor of economics at Princeton University. Stiglitz is a research associate in the NBER's public economics program and a professor of economics at Stanford University.

**David M. Cutler**, who has been an NBER faculty research fellow in public economics and an assistant professor of economics at Harvard University, is Senior Staff Economist at the Council and a staff member of the newly formed National Economic Council.

In addition, NBER Research Associate **David T. Ellwood**, a member of the Bureau's labor studies program and a professor of public policy at the John F. Kennedy School of Government, Harvard University, is Assistant Secretary Designate for Planning and Evaluation, U.S. Department of Health and Human Services. **Lawrence F. Katz**, also an NBER research associate in labor studies, is now Chief Economist, U.S. Department of Labor. Professor Katz is on leave from Harvard University's economics department.

**Lawrence H. Summers**, most recently Vice President and Chief Economist at the World Bank, is the Undersecretary Designate for International Affairs, U.S. Department of the Treasury. Summers was a research associate in the NBER's public economics program and is a professor of economics at Harvard University.

**Michael J. Boskin**, who recently served as Chairman of the CEA, and **David F. Bradford**, a member of the CEA, are returning to the Bureau as research associates in the public economics program.

Two other Bureau economists have recently returned from policy posts in Washington. **Alan J. Auerbach**, a research associate in the NBER's public economics program and a professor of economics and law at the University of Pennsylvania, had been Deputy Chief of Staff at the U.S. Joint Committee on Taxation. **R. Glenn Hubbard**, an NBER research associate in monetary economics and professor of finance and economics at Columbia University Business School, had been Deputy Assistant Secretary, Tax Analysis, U.S. Department of the Treasury.

### CPS Labor Extracts Available

The National Bureau of Economic Research has recently prepared a CD-ROM diskette covering 13 years (1979 through 1991) from the Current Population Survey Outgoing Rotation Group Annual Merge Files. These are presented as Stata binary files. The annual files include interviews for everyone in a CPS outgoing rotation group during a single calendar year, or about 300,000 observations per year.

The extracts contain information for respondents who were 16 or older. The 50 or so variables selected for the extracts relate to employment: hours worked, earnings, industry, occupation, education, unionization. The extracts also contain many background variables: age, sex, race, ethnicity, geographic location, etc. Every effort has been made to keep the variables consistent over the years.

Also included on the CD-ROM is the complete 1991 Merged Outgoing Rotation Group file, as supplied by the BLS, but converted to ASCII and with DOS end-of-line characters after each record. This file is 292,590,662 bytes.

The diskette is available for \$100 from:

Publications Department  
National Bureau of Economic Research  
1050 Massachusetts Avenue  
Cambridge, MA 02138-5398  
Tel: 617-868-3900

Questions should be directed to:  
Feenberg@nber.harvard.edu.

# Corporate Finance Program Meets

Members and guests of the NBER's Program on Corporate Finance gathered in Cambridge on December 11. Robert W. Vishny, NBER and University of Chicago, prepared this agenda:

Maxim Boycko, Institute of World Economics; Andrei Shleifer, NBER and Harvard University; and Robert W. Vishny, "Property Rights, Soft Budget Constraints, and Privatization"

Discussant: Kenneth A. Froot, NBER and Harvard University

Carliss Baldwin and Benjamin Esty, Harvard University, "Market Discipline in the Thrift Industry and the Cost of Deposit Insurance"

Discussant: Edward J. Kane, NBER and Boston College

Roberta Romano, Yale University, "Public Pension Fund Activism in Corporate Governance Reconsidered"

Discussant: Mark Mitchell, University of Chicago

Roger H. Gordon and Jeffrey K. MacKie-Mason, NBER and University of Michigan, "Taxes and the Choice of Organizational Form" (NBER Working Paper No. 3781) and "Tax Distortions to the Choice of Organizational Form" (NBER Working Paper No. 4227)

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

Stewart C. Myers, NBER and MIT, and Lakshmi Shyam-Sunder, MIT, "Testing Static Trade-Off Against Pecking Order Models of Capital Structure"

Discussant: Robert Gertner, University of Chicago

**Boycko, Shleifer, and Vishny** suggest that, when the government wants a firm to maintain excessive employment or output, it must subsidize the firm to do so. One goal of privatization is to raise the cost to the state of subsidizing excessive employment and output, and thus to separate the firm from the state. Privatization that gives ownership and control to parties whose interests are closest to profit maximization and furthest from the interests of the government will be most effective in achieving this goal. Outside blockholder owners are the most likely to reduce excess output and employment, management owners less likely, and worker owners the least likely.

**Baldwin and Esty** ask whether the presence of different financial claimants affected the government's cost of providing deposit insurance during the 1980s. They relate the cost of deposit insurance to an institution's net worth ratio, and its portfolio risk. In tests on 2500 thrifts between 1982 and 1988, they find that most creditors

were not effective sources of discipline. They also find that stock-owned thrifts exhibited five times as much portfolio risk as mutuals. Baldwin and Esty estimate that the total cost of providing one year of deposit insurance to the thrift industry at the end of 1988 was \$70 billion, and that stock-owned institutions accounted for 92 percent of this cost.

**Romano** finds that the return on a pension fund's investments and the percentage of politicians on its governing board are inversely related. She also finds that, on most corporate governance issues, there are no differences in voting policies between private and public funds. She concludes by exploring a variety of institutional reforms that could mitigate the political pressure on public funds.

**Gordon and MacKie-Mason** estimate the effect of tax incentives on firms' decisions to incorporate. Using data from 1959-86, they find that profitable firms tend to shift out of the corporate sector when the tax distortion to incorporating is larger, and the converse is true for firms with tax losses. However, the measured effects are small. Using data from 1979-86, Gordon and MacKie-Mason also estimate the efficiency costs that result from tax-induced changes in the forms of organization chosen by firms.

**Myers and Shyam-Sunder** test traditional capital structure models against the alternative: a pecking order model of corporate financing. The basic pecking order model, which predicts external debt financing driven by the internal financial deficit, has greater explanatory power than a static trade-off model that predicts that each firm adjusts toward an optimal debt ratio. Myers and Shyam-Sunder question whether the available empirical evidence supports an optimal debt ratio.

Also attending this meeting were NBER associates Paul Asquith, MIT; Lucian A. Bebchuk and Michael C. Jensen, Harvard University; Geoffrey Carliner; and R. Glenn Hubbard, Columbia University. Guests of the NBER included: Laurie S. Bagwell, Northwestern University; Stuart Gilson, Joshua Lerner, Florencio López-de-Silanes, Timothy Luehrmann, Lisa Muelbrock, Krishna Palepu, Erik Sirri, and Peter Tuffano, Harvard University; Paul Healy, MIT; Lawrence Lang, New York University; Randall Mørck, University of Alberta; Michael Petersen, University of Chicago; Martha Schary, Boston University; and Michelle White, University of Michigan.

To order the 5.5 version of the Penn World Table, described in the Winter 1992/3 issue of the *NBER Reporter*, please send \$5.00 with your written request to the NBER Publications Department, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Add \$10.00 for postage/handling of orders shipped outside the United States.

## Bureau Economists Discuss R and D and Productivity

The NBER's Program in Productivity met in Cambridge on December 14 to discuss the following papers:

Bronwyn H. Hall, NBER and University of California, Berkeley, "R and D Tax Policy for the Eighties: Success or Failure?" (NBER Working Paper No. 4240)

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

Wesley M. Cohen and Steven Klepper, Carnegie-Mellon University, "A Reprise of Size and R and D"

Discussant: Iain M. Cockburn, NBER and University of British Columbia

Martin N. Baily, NBER and University of Maryland, "Productivity in the Service Sector: Case Studies for the United States, Europe, and Japan"

Discussant: Melvyn A. Fuss, NBER and University of Toronto

Charles R. Hulten, NBER and University of Maryland, "A 'Way-of-Life' Model of Economic Growth: Path-Dependent Utility as a Mechanism of Endogenous Growth"

Discussant: David N. Weil, NBER and Brown University

**Hall** estimates that the amount of additional R and D spending induced by the R and D tax credit in the 1980s was greater than its cost in foregone tax revenue. She concludes that the R and D tax credit had the intended effect, although it took several years for firms to adjust to it fully.

Within industries, the propensity to perform R and D is closely related to firm size. The larger the firm, the greater the future output over which it can apply the R and D, and hence the greater its returns from R and D. **Cohen and Klepper** show how this idea can explain the relationship between R and D and firm size, and additional features of that relationship that they develop.

**Baily** examines data for manufacturing productivity in five service sector industries in the United States, Germany, the United Kingdom, France, and Japan: airlines, banks, telecommunications, retailing, and restaurants. He finds that, except in the restaurant industry, the United States had a productivity advantage relative to the other countries, ranging from 20 to 40 percent in most cases. Economies of scale, differences in output mix, capital intensity, and technology all played a role in this advantage. However, the most important reason for productivity differences was the way in which the workplace was organized and managed. Generally, U.S. managers faced stronger competitive pressures than European or Japanese managers did, and there was less state ownership and less restrictive regulation in the U.S. industries.

**Hulten** includes cultural and institutional factors in a model of economic growth. In his model, each generation can choose between current consumption and the bequest of capital. Parents also may leave a cultural "world view" to their children. This introduces the possibility that generations are linked by preferences, so that the utility functions of one generation may come to resemble those of its predecessors. This may cause economic outcomes that inhibit persistence of growth, and may help to explain why some countries experience low levels of productivity and growth despite efforts at economic development.

## Economics Fluctuations Group Holds Spring Meeting

Members and guests of the NBER's Program on Economic Fluctuations met in Palo Alto on February 5. Marjorie A. Flavin, NBER and University of California, San Diego, and David H. Romer, NBER and University of California, Berkeley, selected these papers for discussion:

John Shea, University of Wisconsin, "Union Contracts and the Life-Cycle-Permanent-Income Hypothesis"  
Discussant: Joseph G. Altonji, NBER and Northwestern University

Angus S. Deaton, NBER and Princeton University, and Christina H. Paxson, Princeton University, "Intertemporal Choice and Consumption Inequality"  
Discussant: Sumru Altug, University of Minnesota

Guillermo Mondino, University of Chicago; Federico A. Sturzenegger, NBER and University of California, Los Angeles; and Mariano Tommasi, University of California, Los Angeles, "Recurrent High Inflation and Stabilization: A Dynamic Game"  
Discussant: Alessandra Casella, NBER and University of California, Berkeley

Michael Kremer, MIT, "Population Growth and Technological Change: One Million B.C. to 1990"  
Discussant: Robert E. Lucas, Jr., NBER and University of Chicago

Andrew Atkeson, NBER and University of Chicago, and Patrick J. Kehoe, Federal Reserve Bank of Minneapolis, "Industry Evolution and Transition: The Role of Information Capital"  
Discussant: Olivier J. Blanchard, NBER and MIT

J. Bradford De Long and Andrei Shleifer, NBER and Harvard University, "Princes and Merchants: City Growth Before the Industrial Revolution" (NBER Working Paper No. 4274)

Discussant: Jan De Vries, University of California, Berkeley

**Shea** uses published information on long-term union contracts to construct a measure of expected wage growth. He finds that predictable wage movements are reflected nearly one-for-one in consumption changes. Liquidity constraints and near-rationality cannot fully explain this failure of consumption smoothing.

**Deaton** and **Paxson** show that standard models of intertemporal choice—including the permanent-income hypothesis—imply that, for any given cohort of people born at the same time, inequality in consumption and income will grow with age. Each individual's consumption at any given date depends on the integral of unanticipated earnings shocks until that date, so that consumption becomes more dispersed with time. If earnings themselves do not similarly disperse, then assets will, so that the dispersion of total income will increase, regardless of the behavior of earnings. Data from 11 years of household surveys from the United States, 22 years from Great Britain, and 14 years from Taiwan, show that consumption and income inequality within cohorts grow with age in all three economies, and that the rate of increase is broadly similar in all three.

**Mondino, Sturzenegger,** and **Tommasi** show that fluctuations between low and high inflation are the outcome of an income distribution struggle. In Latin America, inflation is perceived as the costly outcome of the politico-economic system. Governments there repeatedly engage in transitory stabilization programs that are accepted by society. The authors conclude that high inflations always have a cyclical nature.

**Kremer** models long-run world population growth and technological change. He integrates the view that higher population leads to faster technological change with the Malthusian view that population is limited by technology. His model fits the history of population growth from pre-history to the present; cross-section evidence from technologically separate regions also indicates that higher population growth spurs faster technological change.

**Atkeson** and **Kehoe** predict that, in the initial phase of the optimal transition following large-scale economic reforms, there will be both a substantial drop in output and a prolonged pause in physical investment. Reform induces agents to close existing enterprises using old technologies of production and to open new enterprises adopting new technologies of production. However, this is costly because information capital is lost in the process, and it takes time to acquire information capital about new enterprises. Atkeson and Kehoe estimate that the loss of information capital accompanying a major acceleration in the pace of industry evolution in an economy leads initially to a decade of recession and a five-year pause in physical investment before the benefits of reform are realized.

According to **De Long** and **Shleifer**, absolutist monarchs stunted the growth of commerce and industry in western Europe, as measured by the pace of city growth

from 1000 to 1800. A region ruled by an absolutist prince saw its total urban population shrink by 100,000 people per century relative to a region without an absolutist government. This might be explained by higher rates of taxation under revenue-maximizing absolutist governments than under nonabsolutist governments, which care more about general economic prosperity and less about state revenue.

## Micro and Macro Perspectives on the Aggregate Labor Market

The NBER's Program on Economic Fluctuations held a workshop on "Micro and Macro Perspectives on the Aggregate Labor Market" on February 6. Organizers Richard Rogerson, NBER and University of Minnesota, and Randall Wright, University of Pennsylvania, prepared this program:

Peter Klenow, University of Chicago, "Not Learning by Not Doing"

Discussant: Per Kreusell, Northwestern University

Monika Merz, Northwestern University, "Search in the Labor Market and the Real Business Cycle"

Discussant: Thomas J. Sargent, NBER and Hoover Institution

Raquel Fernandez, NBER and Boston University, and Richard Rogerson, "Keeping People Out: Income Distribution, Zoning, and the Quality of Public Education"

Discussant: Victor Rios-Rull, University of Pennsylvania

Steven J. Davis, NBER and University of Chicago, and John C. Haltiwanger, University of Maryland, "Driving Forces and Employment Fluctuations: New Evidence and Alternative Interpretations"

Discussant: Dale Mortenson, Northwestern University

Truman F. Bewley and William C. Brainard, Yale University, "A Field Study of Employment and Compensation Determination During a Recession"

Discussant: John Kennan, University of Wisconsin

From 1931 to 1940, U.S. unemployment averaged 19 percent of the work force. By 1945, the unemployment rate had plummeted to below 2 percent but between 1943 and 1945 the armed forces accounted for 19 percent of the prewar civilian labor force. In other words, from 1931 to 1947, many U.S. workers were either unemployed or picking up nontransferable skills while serving in the military. **Klenow** calls this "not learning by not doing." He finds

that the subsequent rapid growth in human capital might explain the spurt in U.S. productivity growth over 1947 to 1973. His model, which includes human capital, is better at explaining the path of physical capital, hours, and output from 1947 to 1989 than the basic growth model without human capital.

Existing equilibrium models of the business cycle have not been able to explain the relative volatility and dynamic correlation between hours spent working and labor productivity. **Merz** introduces search in the labor market into these models and gets better results. As a mechanism that propagates technology shocks, search in the labor market also alters the potential for other economic disturbances to explain the low correlation between hours and productivity.

**Fernandez and Rogerson** analyze the role of community zoning regulations in explaining the disparity in per-student spending on public education across communities in the United States. Although zoning tends to make the rich community more exclusive, it may not increase the quality of its public education relative to the poor community. When zoning is introduced, some lower-income individuals benefit, and some higher-income individuals are made worse off. Voting on zoning regulations does not yield the preferred level of zoning for the individual with median income.

**Davis and Haltiwanger** ask what types of disturbances, such as oil price shocks and monetary policy innovations, drive cyclical fluctuations in employment, and how. They find that allocative disturbances played a modest role in net employment growth in the U.S. manufacturing sector during the 1970s and 1980s, and a major role in fluctuations in job reallocation.

**Bewley and Brainard** are surveying individual companies in the depressed Connecticut labor market to learn why average pay levels do not decline during recessions. They find that companies are reluctant to cut the pay of existing employees or to bring in new employees at greatly reduced pay, because of the effect of these actions on employee morale. Morale is linked both to productivity and to the long-run welfare of the company. Instead, the effective hourly pay of salaried overhead personnel is cut by asking employees to work longer hours for the same pay. Further, in sectors of the labor market where turnover is inevitable or doesn't matter, pay *does* decline in response to high unemployment. Still, none of the popular theories of wage rigidity seem to apply, except the morale version of the efficiency wage theory.

Also attending this workshop were: David M. Lilien, University of California, Irvine; Prakash Loungani, Federal Reserve Board; and Matthew D. Shapiro, NBER and University of Michigan.

## Winter Meeting of Industrial Organization Program

Nancy L. Rose of MIT, director of the NBER's industrial organization program, arranged the group's February 5-6 meeting held in Palo Alto. The program was:

Iain M. Cockburn, NBER and University of British Columbia, and Rebecca Henderson, NBER and MIT, "Scale, Scope, and Spillovers: The Determinants of Research Productivity in Ethical Drug Discovery"

Discussant: Bronwyn H. Hall, NBER and University of California, Berkeley

Paul Milgrom and John Roberts, Stanford University, "Complementarities and Fit: Strategies, Structure, and Organizational Change"

Discussant: Robert S. Pindyck, NBER and MIT

Gustavo Bamberger and Roy Epstein, Lexecon, and Dennis W. Carlton, NBER and University of Chicago, "Antitrust and Higher Education: What Are the Real Determinants of Tuition?"

Discussant: Thomas Gilligan, University of Southern California

Margaret Slade, University of British Columbia, "Strategic Motives for Vertical Separation: An Empirical Exploration"

Discussant: Michael D. Whinston, NBER and Harvard University

Kenneth Hendricks, University of British Columbia, and Robert Porter, NBER and Northwestern University, "Determinants of the Timing and Incidence of Exploratory Drilling on Offshore Wildcat Tracts"

Discussant: Jeremy I. Bulow, NBER and Stanford University

Barbara McCutcheon, University of Iowa, "Firm-Specific Market Power in the Market for Magazine Advertisements"

Discussant: Severin Borenstein, NBER and University of California, Davis

Glenn Ellison, Harvard University, "Theories of Cartel Stability and the Joint Economic Committee"

Discussant: Garth Saloner, NBER and Stanford University

Timothy F. Bresnahan and Peter C. Reiss, NBER and Stanford University, "The Measurement of Sunk Costs"

Discussant: Carl Shapiro, NBER and University of California, Berkeley

**Cockburn and Henderson** use data from ten major pharmaceutical companies and find no evidence of returns to scale at the level of the firm or the research program. However, there are economies of scope at the level of the research program, which are created by the

opportunity to exploit knowledge across program boundaries within the firm. Also, spillovers between firms play a major role in increasing the productivity of research. Finally, Cockburn and Henderson find that research productivity differs significantly across therapeutic classes and between firms.

**Milgrom** and **Roberts** ask how "complementarity" can help explain the need for fit between a firm's strategy and its organizational structure, and the apparent difficulty of organizational change. They analyze three case studies: the shift from mass production to modern, or lean, manufacturing methods; the unusual policies and processes at the Lincoln Electric Co.; and the characteristic structure of Japanese business practices. Lincoln uses product development teams, with members from both design engineering and manufacturing, and it provides employment guarantees. These are also common features of Japanese manufacturing firms. But the systems have totally different incentive pay schemes, the roles of group versus individual responsibility differ, and there are huge differences in levels of inventories.

In 1991, the Antitrust Division sued MIT and eight Ivy League schools for engaging in a conspiracy to fix the prices that students pay. The Antitrust Division claimed that the schools conspired in an effort to reduce aid and raise their revenues. The schools justified their cooperative behavior by explaining that it enabled them to concentrate aid only on those in need, thereby helping the schools to achieve their goals of need-blind admission coupled with financial aid to all needy admittees. **Bamberger**, **Carlton**, and **Epstein** find that the schools' agreement had no effect on average tuition paid.

**Slade** examines manufacturers' strategic motives for vertical separation from their retailers. She uses data on all contracts between private, integrated oil companies and their branded-service stations in Vancouver, British Columbia. She finds that strategic contracting exists, despite the ease of renegotiating agreements in this market.

**Hendricks** and **Porter** document exploratory drilling activity on offshore wildcat oil and gas leases in the Gulf of Mexico that were sold between 1954 and 1990, emphasizing the period before 1980. For each year of the lease, they study the determinants of the decision to begin exploratory drilling, and the outcome of any drilling activity. They find that plausible noncooperative models are reasonably accurate, and more descriptive than cooperative models of drilling timing.

**McCutcheon** examines price discrimination in the market for magazine advertisements. She finds that magazines choose prices that are consistent with price discrimination in a monopolistically competitive market. Each firm's pricing schedules are used to get information about how elasticities and market power vary among firms.

Several models have been proposed to explain the role of price wars in sustaining collusion under uncer-

tainty. **Ellison** discusses the pattern of price wars in the Joint Executive Committee, an 1880s railroad cartel. He also investigates the possibility of cheating by the firms.

**Bresnahan** and **Reiss** devise new methods for measuring how sunk costs affect market structure. They distinguish between entry and exit thresholds, and determine when differences between the two measure the extent of sunk costs or the option value of sunk costs. Using new panel data on dentists' practices, they find that sunk costs inhibit exit; this effect is greatest in concentrated markets. For instance, an incumbent will not exit a market unless demand falls by more than one-half the amount that a new entrant requires to enter.

Also attending the meeting were: Andrew Dick and Ivan Png, University of California, Los Angeles; Joseph Farrell, Richard Gilbert, Michael Katz, Suzanne Scotchmer, and Nancy Wallace, University of California, Berkeley; David J. Genesove, Princeton University; Avner Greif, Gillian Hadfield, and Geoffrey Rothwell, Stanford University; Peter Pashigian, University of Chicago; Nancy Ryan, University of British Columbia; Andrea Shepard and Frank A. Wolak, NBER and Stanford University; and Valerie Y. Suslow, NBER and University of Michigan.

## Reprints Available

The following NBER Reprints, intended for nonprofit education and research purposes, are now available. (Previous issues of the *NBER Reporter* list titles 1-1764 and contain abstracts of the Working Papers cited below.)

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

1765. "Monetary Problems of Post-Communism: Lessons from the End of the Austro-Hungarian Empire," by Rudiger Dornbusch
1766. "The Adjustment Mechanism," by Maurice Obstfeld (NBER Working Paper No. 3943)
1767. "International Adjustment with Habit-Forming Consumption: A Diagrammatic Exposition," by Maurice Obstfeld (NBER Working Paper No. 4094)
1768. "Government Relief for Risk Associated with Government Action," by Louis Kaplow (NBER Working Paper No. 3006)

1769. "Problems in Modeling Complex Dynamic Interactions: The Political Realignment of the 1850s," by Robert W. Fogel (NBER Historical Paper No. 12)
1770. "Does Executive Compensation Affect Investment?" by Robert S. Gibbons and Kevin J. Murphy (NBER Working Paper No. 4135)
1771. "Productivity in the Transportation Sector," by Robert J. Gordon (NBER Working Paper No. 3815)
1772. "Growth in Open Economies," by Sergio T. Rebelo
1773. "Endogenous Macroeconomic Growth Theory," by Elhanan Helpman (NBER Working Paper No. 3869)
1774. "The Bretton Woods International Monetary System: A Historical Overview," by Michael D. Bordo (NBER Working Paper No. 4033)
1775. "The Consequences and Costs of Maternal Substance Abuse in New York City," by Theodore J. Joyce, Andrew D. Racine, and H. Naci Mocan (NBER Working Paper No. 3987)
1776. "Moderate Inflation," by Rudiger Dornbusch and Stanley Fischer (NBER Working Paper No. 3896)
1777. "Hospital Expenditures in the United States and Canada," by Donald A. Redelmeier and Victor R. Fuchs
1778. "Intramarginal Intervention in the EMS and the Target-Zone Model of Exchange Rate Behavior," by Kathryn M. Dominguez and Peter B. Kenen (NBER Working Paper No. 3670)
1779. "Macroeconomic Implications of Production Bunching," by Russell W. Cooper and John C. Haltiwanger, Jr. (NBER Working Paper No. 2976)

## Additional Papers Available

Additional Papers are not official NBER Working Papers but are listed here as a convenience to NBER researchers and prospective readers. Additional Papers are priced the same as Reprints and may be ordered by title from the NBER Publications Department.

"Macroeconomic Policies, Growth, and Welfare in a Stochastic Economy," by Steven J. Turnovsky

- "The Economic Analysis of Chinese Fertility Behavior," by Tadashi Yamada, Tetsuji Yamada, and Gordon G. Liu
- "The Tragedy of the Commons and Economic Growth: Why Does Capital Flow from Poor to Rich Countries?" by Aaron Tornell and Andres Velasco
- "The Distribution of Rents and Growths," by Charles M. Engel and Kenneth M. Kletzer
- "Taxation, Information Asymmetries, and a Firm's Financing Choices," by Andrew B. Lyon
- "Imputing License Prices: Limitations of a Cost-Based Approach," by Kala Krishna, Will Martin, and Ling Hui Tan
- "The Meanings of Competition in Economic Analysis," by Joseph E. Stiglitz
- "The Private Life of Public Economics," by Charles T. Clotfelter
- "Who Is Bearing the Cost of the AIDS Epidemic in Asia?" by David E. Bloom and Sherry Glied

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## Bureau Books

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### Seventh Tax Volume Is Published

*Tax Policy and the Economy, Volume 7*, edited by James M. Poterba, is now available from the MIT Press. This volume includes the papers presented at an annual conference held in November 1992 in Washington. It examines:

- R and D tax policy during the 1980s;
- the experience here and in Britain with enterprise zones;
- tax policies designed to spur private saving;
- the experience rating system for unemployment insurance taxes; and
- information gleaned from the tax returns of very high income taxpayers.

These papers are all extremely timely, particularly because of the change of administration in Washington. This volume, written in a nontechnical manner, should have broad appeal. The clothbound version is \$28.95; the paperback is \$14.95.

Poterba directs the NBER's public economics program and is a professor of economics at MIT.

This volume should be ordered directly from the MIT Press, 55 Hayward Street, Cambridge, MA 02142; (617) 253-2884.

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

## Five New Titles from University of Chicago Press This Spring

The University of Chicago Press will release five new NBER volumes this spring:

***Studies of Supply and Demand in Higher Education***, edited by Charles T. Clotfelter and Michael Rothschild, is the second volume from the NBER's project on the economics of higher education. This book examines how colleges and universities compete within a marketplace; the trends in college enrollment, with special attention to race and ethnicity; the quality of students enrolling in graduate programs; and, how universities manage their endowments. It should be of interest to anyone concerned with higher education, and is priced at \$45.

Clotfelter and Rothschild are both NBER research associates in public economics. Clotfelter is also a professor of public policy studies and economics at Duke University. Rothschild is a professor of economics and dean of the division of social sciences at the University of California, San Diego.

***Price Measurements and Their Uses***, edited by Murray F. Foss, Marilyn Manser, and Allan H. Young, will be available for \$56. Among its topics, this volume presents new research on computer prices and semiconductors. Because computers are now so important in the economy, and because their prices have fallen so much, careful measurement of their long-run price behavior is essential for the proper measurement of trends in real GDP.

Other papers examine the difficulty of measuring prices of consumer products, such as clothing or food. On the whole, this volume should provide a wide audience with a view of the strengths and weaknesses of the consumer goods' indexes produced by the Bureau of Economic Analysis and the Bureau of Labor Statistics.

Foss is a visiting scholar at the American Enterprise Institute for Public Policy Research. Manser is assistant commissioner for economic research, Bureau of Labor Statistics, U.S. Department of Labor. Young is chief statistician, Bureau of Economic Analysis, U.S. Department of Commerce.

***Studies in International Taxation***, edited by Alberto Giovannini, R. Glenn Hubbard, and Joel B. Slemrod, analyzes the effects of international taxation on the business decisions of multinational corporations. It considers the form of ownership of foreign corporate equity; whether tax incentives affect the level and location of R and D activities; and the patterns of international income shifting. The empirical research presented in this volume will be useful to the ongoing policy debate on reforming the taxation of multinational businesses in the United States and abroad. It should be of interest to practitioners and students of public finance and international economics, and is priced at \$46.

Giovannini, Hubbard, and Slemrod are all NBER research associates. Giovannini is also the Jerome A. Chazen Professor of International Business at Columbia University. Hubbard is the former deputy assistant secretary for tax policy analysis of the U.S. Department of the Treasury, and is a professor of economics and finance at the Graduate School of Business, Columbia University. Slemrod is a professor of business economics, public policy, and economics at the University of Michigan School of Business Administration.

***Trade and Protectionism: NBER-East Asia Seminar on Economics, Volume 2***, edited by Takatoshi Ito and Anne O. Krueger, is now available from the University of Chicago Press. The dramatic increase in world economic growth since World War II has been related to an open global trading system. Still, recent setbacks in negotiations of the General Agreement on Tariffs and Trade and increased pressure for trade protection and regional trade agreements could alter current multilateral trade. This situation is of particular concern to the countries of East Asia because their economies depend critically on a healthy world trade system.

The essays in this volume, presented by American and East Asian scholars, address: 1) the context for current trade between the United States and East Asia; 2) sectoral issues that have led to trade frictions; 3) specific trade issues between East Asian countries and their trading partners; 4) economic relations among Asian countries; and 5) political factors affecting trade policies, especially the level of protectionism.

Ito and Krueger are both NBER research associates in international finance and macroeconomics. Ito is also a professor of economics at Hitotsubashi University. Krueger is a professor of economics at Duke University. The price of their volume is \$68.

***Japanese Monetary Policy***, edited by Kenneth J. Singleton, is the result of a 1991 conference that brought together scholars from the academic and corporate communities and the Bank of Japan. Its purpose was to analyze how monetary policy in Japan is determined, and to measure the role that policies of the Bank of Japan had in shaping the rapid economic expansion in Ja-



pan over the past 20 years. The six papers in this volume suggest that monetary policy during this period had a substantial influence on real economic activity. Furthermore, they provide a framework for observing future developments in Japanese monetary policy, and a background from which to explore other important issues related to monetary policy, such as how such policies affect real asset values.

Singleton is an NBER research associate and the C.O.G. Miller Distinguished Professor of Finance at the Graduate School of Business, Stanford University. This volume will be available for \$30.

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## Current Working Papers

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Individual copies of NBER Working Papers, Historical Factors in Long-Run Growth Papers, and Technical Papers are available free of charge to corporate associates. **For all others, there is a charge of \$5.00 per paper requested. (Outside of the United States, add \$10.00 per order for postage and handling.) Advance payment is required on all orders. Please do not send cash.** For further information or to order, please write: National Bureau of Economic Research, 1050 Massachusetts Avenue, Cambridge, MA 02138-5398.

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

Abstracts of all papers issued since January are presented below. For previous papers, see past issues of the *NBER Reporter*. Working Papers are intended to make results of NBER research available to other economists in preliminary form to encourage discussion and suggestions for revision before final publication. They are not reviewed by the Board of Directors of the NBER.

## NBER Working Papers

### **Inflation and the Informativeness of Prices**

**Laurence M. Ball and David H. Romer**

NBER Working Paper No. 4267

January 1993

JEL No. E31

Economic Fluctuations, Monetary Economics

We study the welfare effects of the relative price variability that arises from inflation. When agents interact in

anonymous markets, with customers buying from new suppliers each period, relative price variability benefits customers and cannot harm suppliers substantially. But if customers and suppliers form long-term relationships, then prices have an informational role: a potential customer uses current prices as signals of future prices. Inflation reduces the informativeness of current prices, causing customers to make costly mistakes about which relationships to enter. In addition, the reduced informativeness of prices makes demand less price elastic, thereby increasing markups. Both effects can be quantitatively significant at moderate inflation rates.

### **Labor Market Returns to Two- and Four-Year Colleges: Is a Credit a Credit, and Do Degrees Matter?**

**Thomas J. Kane and Cecilia Rouse**

NBER Working Paper No. 4268

January 1993

JEL No. J00

Labor Studies

In Current Population Survey (CPS) data, the 20 percent of the civilian labor force with one to three years of college earns 15 percent more than high school graduates do. We use data from the National Longitudinal Study of the High School Class of 1972, which includes postsecondary transcript data, and the National Longitudinal Study of Youth (NLSY) to study the distinct returns to two-year and four-year college attendance and degree completion.

Controlling for background and measured ability, we find that wage differentials for both two-year and four-year college credits are positive and similar. The average two-year or four-year college student earned roughly 5 percent more than high school graduates for every year of credits completed. Further, average recipients of bachelor and associate degrees did not earn significantly more than those with similar numbers of college credits and no degree. This suggests that degrees confer few credentials. We report similar results from the NLSY and the CPS.

We also attempt to identify measurement error and selection bias. In our data, the two roughly cancel each other, suggesting that, if anything, our results are understated.

### **A Simple Theory of Multinational Corporations and Trade with a Trade-Off Between Proximity and Concentration**

**S. Lael Brainard**

NBER Working Paper No. 4269

February 1993

JEL Nos. F12, F23

International Trade and Investment

This paper develops a two-sector, two-country model: firms in a sector with differentiated products choose between exporting and multinational expansion as alternative modes of penetration into a foreign market, based

on a trade-off between proximity and concentration advantages. The differentiated sector involves multistage production, with increasing returns at the corporate level associated with some activity, such as R and D, scale economies at the plant level, and a variable transport cost that rises with distance. A pure multinational equilibrium, in which two-way horizontal expansion across borders completely supplants two-way trade in differentiated products, is possible even in the absence of differences in factor proportion. It is more likely as transport costs increase relative to fixed plant costs, and as increasing returns at the corporate level rise relative to returns at the plant level. The model also establishes conditions for a mixed equilibrium, in which national and multinational firms coexist.

### **The Role of Fertility and Population in Economic Growth: Empirical Results from Aggregate Cross-National Data**

**James A. Brander and Steve Dowrick**

NBER Working Paper No. 4270

February 1993

JEL No. O40

Growth

We combine two recently improved sets of cross-country panel data in order to reexamine the effects of population growth and fertility on economic growth. Using a 107-country panel dataset covering 1960–85, we find that high birth rates appear to reduce economic growth through investment effects and possibly through “capital dilution,” although classic resource dilution is not evident in the data. Most significantly, however, birth rate declines have a strong medium-term positive impact on per capita income growth through labor supply or “dependency” effects.

### **Some Empirical Evidence on the Effects of Monetary Policy Shocks on Exchange Rates**

**Martin S. Eichenbaum and Charles Evans**

NBER Working Paper No. 4271

February 1993

JEL Nos. E32, E43, F31

International Finance and Macroeconomics,  
Monetary Economics

This paper presents new empirical evidence on the effects of monetary policy shocks on U.S. exchange rates, both nominal and real. We consider three measures of monetary policy shocks: orthogonalized shocks to the federal funds rate; the ratio of nonborrowed to total reserves; and the Romer and Romer (1989) index.

Using data from the flexible exchange rate era, we find that expansionary shocks to U.S. monetary policy lead to sharp, persistent depreciations in U.S. nominal and real exchange rates, as well as to sharp, persistent increases in the spread between various foreign and U.S. interest rates. The temporal pattern of the depreci-

ation in U.S. nominal exchange rates following a positive monetary policy shock is inconsistent with simple overshooting models of the type considered by Dornbusch (1976).

We also find that U.S. monetary policy was less volatile under fixed exchange rates than under floating exchange rates. Finally, we find less evidence that monetary policy shocks had a significant impact on U.S. real exchange rates under the Bretton Woods agreement than during other periods.

### **Generics and New Goods in Pharmaceutical Price Indexes**

**Zvi Griliches and Iain Cockburn**

NBER Working Paper No. 4272

February 1993

JEL Nos. D12, L65, O47

Productivity

We examine the issue of new goods and price indexes for the important and tractable case of generic and branded drugs. By treating generics as entirely distinct goods and “linking them in” to indexes with fixed weights, the standard price indexes fail to reflect the substantial welfare gains to those consumers who, like the FDA, regard generic and branded versions of a drug as perfect substitutes. We discuss the treatment of heterogeneous consumers in constructing aggregate price indexes. Then, using detailed data on wholesale prices of two anti-infective drugs, we calculate various alternatives to the official indexes. These reflect both differences in taste for brand names, and the empirically important phenomenon of diffusion of generic drugs into the market following patent expiration. We find very significant differences: for one of the drugs we study, the standard price index rose by 14 percent over the sample period, while our preferred alternative index fell by 48 percent.

### **The Design of Bank Loan Contracts, Collateral, and Renegotiation**

**Gary Gorton and James Kahn**

NBER Working Paper No. 4273

February 1993

JEL No. G21

Corporate Finance

Banks play a unique role in the savings–investment process, affecting firms’ costs of capital and the level of investment. We argue that this uniqueness is related to the design of bank loan contracts that allow banks to affect borrowers’ choice of project risk. Unlike corporate bonds, bank loans typically are secured senior debt and contain embedded options allowing the bank to “call” the loan. The call option allows the bank to control borrowers’ risk-taking via renegotiation of the loan.

We analyze renegotiation outcomes and show that: 1) debt forgiveness occurs; 2) monitoring by the bank is not always successful in preventing the borrower from increasing risk; 3) renegotiated interest rates are not monotonic by borrower type; and 4) inefficient liquidation

can occur. In renegotiation, seniority and collateral are crucial because they allow the bank to threaten the borrower and liquidate inefficient projects. We show that, when a prepayment option is included in the bank loan contract, bank debt is more valuable (ex ante) to borrowing firms than corporate debt is: it lowers the cost of capital.

### **Princes and Merchants: European City Growth Before the Industrial Revolution**

**J. Bradford De Long and Andrei Shleifer**

NBER Working Paper No. 4274

February 1993

JEL Nos. N13, K20, H11, H30

Growth

Absolutist monarchs stunted the growth of commerce and industry, as measured by the pace of city growth in western Europe from 1000 to 1800. The total urban population of a region ruled by an absolutist prince shrunk by 100,000 people per century relative to a region without an absolutist government. This might be explained by rates of taxation that were higher under revenue-maximizing absolutist governments than under nonabsolutist governments, which care more about general economic prosperity and less about state revenue.

### **Stochastic Trends and Short-Run Relationships Between Financial Variables and Real Activity**

**Toru Konishi, Valerie A. Ramey, and Clive W. J. Granger**

NBER Working Paper No. 4275

February 1993

JEL Nos. E44, E47

Economic Fluctuations, Monetary Economics

This paper reexamines the relationship between financial variables and real activity. We characterize the long- and short-run relationships between three sets of variables, and use that framework to assess how well alternative financial variables predict real activity. We find first that, although two sets of variables may not share the long-run trend, the error-correction terms from one set may have important explanatory power for the variables in another set. Second, we show that some of the key variables discussed in the literature can be interpreted as error-correction terms from another system. Third, we find that M2 velocity is a more consistent predictor of output than the interest rate spread between commercial paper and Treasury bills is.

### **“Outside” Intervention in Japanese Companies: Its Determinants and Its Implications for Managers**

**Steven N. Kaplan and Bernadette A. Minton**

NBER Working Paper No. 4276

February 1993

Corporate Finance

This paper estimates the determinants of appointments of “outsiders”—directors previously employed by

banks or other nonfinancial firms—to the boards of large (nonfinancial) Japanese companies. Appointments of both types of outsiders increase with poor stock performance. Appointments of bank outsiders also increase with negative current income and are related to firm debt levels. Appointments of corporate outsiders are related to shareholder concentration and group affiliation. Both types of outsider appointments appear to be disciplinary: top executive turnover increases substantially in the same year. Additional evidence on subsequent firm performance suggests that “bank” directors are appointed in financially distressed or shrinking firms, while “corporate” directors are appointed in firms with temporary problems.

### **Criminal Deterrence: Revisiting the Issue with a Birth Cohort**

**Helen V. Tauchen, Ann Dryden Witte, and Harriet Griesinger**

NBER Working Paper No. 4277

February 1993

JEL No. K14

Labor Studies, Productivity

We estimate the general deterrent effect of criminal justice resources on criminal behavior. Our panel data, which combine individual-level information on arrests and personal characteristics with aggregate measures of criminal justice resources, allow us to obtain deterrence measures that closely reflect theoretical concepts and are of potential policy relevance. We find robust evidence of a general deterrent effect of criminal justice resources.

### **Youth Alcohol Use and Public Policy**

**Adit Laixuthai and Frank J. Chaloupka**

NBER Working Paper No. 4278

February 1993

JEL No. I18

Health Economics

This paper examines the frequency of youth drinking and heavy drinking in 1982 and 1989. We consider the effects of minimum legal drinking ages and excise taxes on beer separately for each year. In both years, drinking responds to changes in price resulting from higher excise taxes. However, the price sensitivity of alcohol use among youth falls after the change to a uniform legal drinking age of 21.

### **Gender Differences in Departures from a Large Firm**

**Nachum Sicherman**

NBER Working Paper No. 4279

February 1993

JEL Nos. J16, J60, J63, J70

Labor Studies

Looking at the personnel records of workers in a large company where detailed reasons for worker departure are recorded, I find striking differences in the exit patterns between men and women. As is well known, a higher proportion of women leave for a variety of non-

market reasons. Further, women state more often than men that wages, and not opportunities, are a reason for switching jobs. On average, women are more likely to leave the firm. This is especially true in periods of early tenure. For both men and women, the likelihood of departure increases in the first two months of tenure, and then declines at a decreasing rate. This decline is stronger for women. I find that, at tenure beyond five years, women are less likely to leave the firm than men are.

### **Trade Wars and Trade Talks**

**Gene M. Grossman and Elhanan Helpman**

NBER Working Paper No. 4280

February 1993

JEL Nos. F13, D72

International Trade and Investment

Whether governments clash in trade disputes or negotiate over trade agreements, their actions in the international arena reflect political conditions back home. Previous studies of cooperative and noncooperative trade relations have focused on governments that are immune from political pressures and act as benevolent servants of the public interest. Here, we take a first step toward introducing domestic politics into the analysis of international economic relations. We study the interactions between national leaders who are concerned both with providing a high standard of living to the general electorate and with collecting campaign contributions from special interest groups. Our analysis reveals the determinants of the structure of protection in a noncooperative trade war and in a cooperative trade agreement.

### **The Economic Consequences of Legislative Oversight: Theory and Evidence from the Medical Profession**

**Shawn Everett Kantor and Patrick Legros**

NBER Working Paper No. 4281

February 1993

This paper shows how formal, periodic legislative oversight of regulatory agencies can influence market outcomes and the welfare of regulated industries. Previous research focused on the political distinction between passive and active legislative oversight, but this paper shows that there is also an important economic difference between the two mechanisms. We describe how a regulatory agent's incentives are influenced if its actions are scrutinized publicly. We conclude that formal oversight leads to measurable economic effects.

### **An Analysis of Factors Influencing ITC Decisions in Antidumping, Countervailing Duty, and Safeguard Cases**

**Robert E. Baldwin and Jeffrey W. Steagall**

NBER Working Paper No. 4282

February 1993

International Trade and Investment

This paper attempts to determine the economic factors that best explain the decisions of the International Trade

Commission (ITC) in antidumping, countervailing duty, and safeguard cases. Using the economic data collected by the ITC for each investigation, we also consider the extent to which these factors measure the injury conditions and causation relationships specified in U.S. trade laws.

We find that, while the ITC tends to require declining profits and employment in an industry before recommending import protection in safeguard cases, it is not clear that it delineates between serious injury caused by increased imports and that caused by other factors. Similarly, in countervailing duty and antidumping cases, economic conditions, including changes in industry shipments and the degree of capacity utilization, are taken into consideration in material injury decisions. However, other factors expected to be associated with affirmative decisions (for example, the ratio of unfair imports to consumption) do not seem to play a significant role.

### **Demographic Characteristics and the Public Bundle**

**David M. Cutler, Douglas W. Elmendorf,**

**and Richard J. Zeckhauser**

NBER Working Paper No. 4283

February 1993

JEL Nos. H42, H72

Aging, Public Economics

This paper explores the relationship between the demographic characteristics of a community and the quantities of goods and services provided by its government. We consider three models of public spending: a traditional "selfish" public choice model in which individuals care only about themselves; a "community preference" model in which an individual's preferred spending depends on the characteristics of his or her community; and a sorting process through which individuals choose communities according to their tastes for public spending.

To evaluate these models of spending, we examine how county and state spending in the United States is affected by the age and racial composition, and the total size, of a jurisdiction. The estimated effects of demographic characteristics in the state equations are strikingly different from the estimated effects in the county equations, apparently because a jurisdiction's spending is affected differently by its own demographic characteristics and by the characteristics of the surrounding area.

### **Medicaid and Medical Care for Children**

**Janet Currie and Duncan Thomas**

NBER Working Paper No. 4284

March 1993

Health Care, Health Economics, Public Economics

We use data from the National Longitudinal Surveys to compare the medical care received by children covered by Medicaid with that of other similar children. We are able to examine differences between siblings, and observations over time for the same child. We find that Medicaid coverage is associated with a higher probability of receiving routine checkups for both black and white children, but with increases in the number of doctors' visits for illness only for white children. This racial disparity may

be linked to the fact that black children with Medicaid coverage are less likely to see a private physician than other children are.

## **How Important Is the Credit Channel in the Transmission of Monetary Policy?**

**Valerie A. Ramey**

NBER Working Paper No. 4285

March 1993

JEL Nos. E44, E51

Economic Fluctuations, Monetary Economics

This paper tests the importance of the credit channel in the transmission of monetary policy by analyzing three credit variables: total bank loans; bank holdings of securities relative to loans; and the difference in the growth rates of short-term debt of small and large firms. To determine the marginal effect of the credit channel over the standard money channel, the model includes money (M2). In most cases, the credit variables do not play a significant role in the effect of monetary policy shocks on output.

## **Endogenous Growth and Cycles**

**Joseph E. Stiglitz**

NBER Working Paper No. 4286

March 1993

Economic Fluctuations

Schumpeter argued that economic downturns had positive effects, in the incentives they provided for firms to increase their efficiency. Part I of this paper provides a simple model confirming Schumpeter's insight. At the same time, the model shows that there are real costs to economic fluctuations that extend well beyond the temporary losses in output and the economic waste resulting from unused resources: the future productivity of the economy is adversely affected, for example, because of reduced expenditures on R and D. These long-run losses are likely to be far more significant than any temporary gains from induced cost cutting.

Traditional Schumpeterian analyses have focused on the relationships between market structure and innovation, but have paid less attention to the relationship between innovation and capital market imperfections (in many cases resulting from problems of costly and imperfect information that are particularly important in the context of innovation). It is these capital market imperfections that result in the deleterious effect of economic downturns on technological progress.

Part II of the paper shows that the nexus between fluctuations and innovation goes in both directions: not only do fluctuations in economic activity cause fluctuations in innovation, but also fluctuations in innovation may give rise to fluctuations in economic activity. The positive feedback relationship between innovation and economic activity may, under a variety of conditions, give rise to multiple equilibriums. There is no presumption that the free market, left to itself, will choose the best among them. Moreover, I show that, under certain circumstances, the *only*

market equilibrium entails economic fluctuations. It is the structure of the economy, not exogenous disturbances (as in real business cycle theory) that gives rise to cyclical behavior.

## **Accuracy in the Assessment of Damages**

**Louis Kaplow and Steven Shavell**

NBER Working Paper No. 4287

March 1993

JEL No. K41

Law and Economics

Since assessment of damages is a principal issue in litigation, we consider the social justification for, and the private benefits of, accurate measurement of harm. Greater accuracy induces parties to exercise levels of precaution that better reflect the magnitude of the harm they are likely to generate. Relatedly, it stimulates uninformed parties to learn about risks before acting. However, accurate assessment of harm cannot influence the behavior of parties—and therefore is of no social value—if parties do not know the harm they might cause when they decide on their actions. In addition, regardless of the social value of accuracy, litigants generally gain by devoting resources toward proof of damages, often leading to socially excessive private incentives to establish damages.

## **Internal Finance and Investment: Evidence from the Undistributed Profits Tax of 1936–7**

**Charles W. Calomiris and R. Glenn Hubbard**

NBER Working Paper No. 4288

March 1993

JEL Nos. G3, G14, G35, H2, H25, E44, E62

Corporate Finance

We use the experience with the Surtax on Undistributed Profits in the 1930s to identify firms' relative cost of internal and external funds; then we analyze its effect on firms' investment decisions. Responses to the surtax on retained earnings permit us to estimate shadow price differentials between internal and external finance, and to measure the link between access to capital markets and investment.

Almost one-fourth of the 273 publicly traded manufacturing firms in our sample retained more than 40 percent of their earnings in spite of the surtax, paying the highest marginal rates of surtax. These firms' investment spending was sensitive to shifts in cash flow, holding constant investment opportunities (measured by the ratio of market-to-book value). We detected no sensitivity of investment to internal funds for firms with higher dividend payout and lower surtax liability. In addition, many firms with high marginal rates of surtax were in the growth industries of the day. The sensitivity of investment spending to internal funds for firms with high marginal surtax rates appears mainly to reflect information-related capital market frictions rather than the waste of corporate cash flows by entrenched managers.

## **Policies to Encourage Inflows of Technology Through Foreign Multinationals**

**Magnus Blomström and Ari Kokko**

NBER Working Paper No. 4289

March 1993

JEL Nos. F23, O3

International Trade and Investment

Do host countries, aiming to maximize the inflows of technology through foreign multinationals, have any policy alternatives to formal requirements for technology transfer and performance? This paper examines some possible determinants of the technology imports of U.S. majority-owned foreign affiliates in 33 host countries. We show that the affiliates' imports of technology increase with the host countries' levels of domestic investment and education, but that various performance requirements are negatively related to technology transfer. This suggests that policies promoting local investment, competition, and education sometimes may be alternatives to direct controls and requirements.

## **Optimal Insurance Contracts When Establishing the Amount of Losses Is Costly**

**Louis Kaplow**

NBER Working Paper No. 4290

March 1993

JEL Nos. D82, K41

Law and Economics

The problem of establishing the amount of losses covered by public and private insurance often is characterized by asymmetric information: the claimant already knows the extent of a loss, but it can only be demonstrated to the insurer at a cost. I show that a simple arrangement, which provides greater coverage whenever individuals demonstrate unusually high losses, gives claimants an excessive incentive to establish the amount of their losses. I determine which insurance claims process, consistent with the form typically employed in existing insurance arrangements, is optimal.

## **The Determinants of Realignment Expectations Under the EMS: Some Empirical Regularities**

**Zhaohui Chen and Alberto Giovannini**

NBER Working Paper No. 4291

March 1993

JEL Nos. F31, F33, F41

International Finance and Macroeconomics

The stability of the EMS depends crucially on realignment expectations of the market participants. We discuss how to measure such expectations, and how to relate them to economic fundamentals, central bank reputation, and institutional arrangements of the EMS. We find that: 1) expected devaluations are related positively to the current exchange rate deviation from the central parity; 2)

expected devaluations are related negatively to the length of time since the last realignment in the short and medium run; 3) the Basle-Nyborg agreements seem to have a stabilizing effect for the French franc and the Italian lira, albeit through different channels; and 4) large revaluation expectations occur immediately after devaluations.

## **German and American Wage and Price Dynamics: Differences and Common Themes**

**Wolfgang Franz and Robert J. Gordon**

NBER Working Paper No. 4292

March 1993

JEL No. E30

Economic Fluctuations

The evolution of unemployment in West Germany and the United States stands in sharp contrast, with German unemployment much lower from 1960 to the early 1970s but substantially higher from 1984 to 1988. This paper provides a framework for examining the relationship between inflation and unemployment that sheds light on these developments. The theoretical section develops a new nonstructural model of wage and price adjustment that integrates several concepts that often have been treated separately, including Phillips curve "level effects," hysteresis "change effects," the error-correction mechanism, and the role of changes in labor's share that act as a supply shock.

The empirical analysis reaches two striking conclusions. First, during 1973-90, coefficients in our German wage equations are remarkably similar to those in the United States, with almost identical estimates of the Phillips curve slope, the hysteresis effect, and the NAIRU. The two countries also share similar inflation behavior, in that inflation depends more closely on the capacity utilization rate than on the unemployment rate. The big difference between the two countries is that there is no feedback from wages to prices in Germany, so high unemployment does not put downward pressure on the inflation rate. During the 1970s and 1980s in Germany, there emerged a growing mismatch between the labor market and industrial capacity, so that the unemployment rate consistent with the mean (constant-inflation) utilization rate ("MURU") increased sharply, while in the United States the MURU was relatively stable. The German utilization rate in late 1990 was about 90 percent, considerably higher than the estimated MURU of 85 percent. Accordingly, we conclude that the Bundesbank was appropriately concerned about the acceleration of inflation implied by the tight product market of that period.

## **Did Teachers' Race and Verbal Ability Matter in the 1960s? Coleman Revisited**

**Ronald G. Ehrenberg and Dominic J. Brewer**

NBER Working Paper No. 4293

March 1993

JEL No. I21

Labor Studies

We analyze data from the classic 1966 study, *Equality of Educational Opportunity*, or the *Coleman Report*. We

ask whether teacher characteristics, including race and verbal ability, influenced “synthetic gain scores” of students (that is, mean test scores of upper grade students in a school, minus mean test scores of lower grade students in a school).

We find that verbal aptitude scores of teachers influenced synthetic gain scores for both black and white students. Verbal aptitude mattered as much for black teachers as it did for white teachers. Holding constant teacher characteristics other than race, we find that black teachers were associated with higher gain scores for black high school students, but lower gain scores for white elementary and secondary school students. Because these findings are for U.S. schools in the mid-1960s, they do not apply directly to our contemporary experience. However, they do raise some important issues.

### **The Constrained Asset Share Estimation (CASE) Method: Testing Mean-Variance Efficiency of the U.S. Stock Market**

**Charles M. Engel, Jeffrey A. Frankel, Kenneth A. Froot, and Anthony P. Rodrigues**

NBER Working Paper No. 4294

March 1993

JEL Nos. G12, G11

Asset Pricing

We apply the method of constrained asset share estimation (CASE) to test the mean-variance efficiency (MVE) of the stock market. This method allows conditional expected returns to vary in relatively unrestricted ways. The data reasonably estimate the price of risk and, in some cases, the MVE model is valuable in explaining expected equity returns. We are able to interpret explicitly the alternative hypothesis—a general linear Tobin portfolio choice model—and we reject the restrictions implied by MVE.

### **The Role of Pensions in the Labor Market**

**Alan L. Gustman, Olivia S. Mitchell, and Thomas L. Steinmeier**

NBER Working Paper No. 4295

March 1993

JEL Nos. J14, J26, J32

Aging, Labor Studies

Employer-sponsored group pension plans offer an unusual window into long-term employment relationships, because the pension promise is documented in a set of explicit statements about future payment and employment agreements between workers and their employers. We show that recent research on pensions offers considerable insight into long-term labor market arrangements. Most importantly, we explore how pensions influence employee compensation, retirement, turnover, and other matters central to the determination of labor's price and quantity over time. We also outline a number of unanswered questions and empirical findings that are difficult to reconcile.

### **A Unified Model of Investment Under Uncertainty**

**Andrew B. Abel and Janice C. Eberly**

NBER Working Paper No. 4296

March 1993

JEL No. E22

Economic Fluctuations

This paper extends the theory of investment under uncertainty to incorporate fixed costs of investment, a wedge between the purchase and sale price of capital, and potential irreversibility of investment. In this framework, investment is a nondecreasing function of the shadow price of installed capital ( $q$ ). For values of  $q$  above the upper critical value, investment is positive and is an increasing function of  $q$ . For intermediate values of  $q$ , between two critical values, investment is zero. Finally, if  $q$  is below the lower critical value, gross investment is negative. In general, however, the shadow price  $q$  is not directly observable, so we present two examples relating  $q$  to observable variables.

### **A Comparison of Changes in the Structure of Wages in Four OECD Countries**

**Lawrence F. Katz, Gary W. Loveman, and David G. Blanchflower**

NBER Working Paper No. 4297

March 1993

JEL Nos. J31, J38

Labor Studies

This paper compares changes in the structure of wages in France, Great Britain, Japan, and the United States over the last 20 years. In the 1970s, wage differentials by education and occupation (that is, skill differentials) narrowed substantially in all four countries. During the 1980s, overall wage inequality and skill differentials expanded dramatically in Great Britain and the United States, and moderately in Japan. In contrast, wage inequality did not increase much in France through the mid-1980s. Industrial and occupational shifts favored more educated workers in all four countries throughout the last 20 years. Reductions in the rate of growth of the relative supply of college-educated workers in the face of persistent increases in the relative demand for more-skilled labor explain a substantial portion of the increase in educational wage differentials in the United States, Britain, and Japan in the 1980s. Sharp increases in the national minimum wage (the SMIC) and the ability of French unions to extend contracts even in the face of declining membership helped prevent wage differentials from expanding in France through the mid-1980s.

## **Does Foreign Exchange Intervention Signal Future Monetary Policy?**

**Graciela L. Kaminsky and Karen K. Lewis**

NBER Working Paper No. 4298

March 1993

JEL Nos. F4, E5

International Finance and Macroeconomics,  
Monetary Economics

Sterilized interventions may affect exchange rates because they signal the future monetary policy intentions of central banks. This explanation presumes that central banks back up interventions with subsequent changes in monetary policy. We examine this hypothesis using data on market observations of U.S. intervention and on monetary policy variables and exchange rates. We find that interventions do convey a signal. However, in some episodes, they signal changes in monetary policy in the opposite direction from what is conventionally expected. This can explain why exchange rates in some periods moved in the opposite direction from what was suggested by intervention.

## **Human Capital and the Income Tax**

**Louis Kaplow**

NBER Working Paper No. 4299

March 1993

JEL No. H24

Public Economics

This paper examines how to treat human capital—perhaps the vast majority of the capital stock—under an ideal, Haig–Simons income tax. I consider innate ability, investments in human capital, and uncertainty in future earnings. I demonstrate that conventional income tax treatment and proposed modifications are closer to implementing a consumption tax than an income tax. Approximating ideal income tax treatment may be feasible, but assessing its desirability would require further inquiry.

## **The Incidence of Adverse Medical Outcomes Under Prospective Payment**

**David M. Cutler**

NBER Working Paper No. 4300

March 1993

JEL Nos. H40, I18

Aging, Health Care, Public Economics

This paper examines the effect of prospective payment for hospital care on adverse medical outcomes. In 1983, the federal government replaced its previous cost-based reimbursement method with a prospective payment system, in which reimbursement depends only on the diagnosis of the patient. Hospitals thus lost the marginal reimbursement they formerly received for providing additional treatments. In addition, the average price each hospital received changed with fixed reimbursement.

This paper relates each of these changes to adverse outcomes. I conclude, first, that there is a change in the timing of deaths associated with changes in average prices. In hospitals with price declines, a greater share of deaths occur in the hospital or shortly after discharge. By one or two years after discharge, this difference in mortality rates disappears. Second, there is an increase in readmission rates caused by the elimination of marginal reimbursement. This appears to be caused by hospitals' accounting changes, though, rather than by true changes in morbidity.

## **Why Doesn't the Market Fully Insure Long-Term Care?**

**David M. Cutler**

NBER Working Paper No. 4301

March 1993

JEL No. I11

Aging, Health Care, Public Economics

I argue that the failure of the private market to fully insure long-term care is a result of large variability over time in the cost of long-term care. This variability affects everyone in a pool, and therefore cannot be diversified within a given group of people. Further, since costs are correlated, the cost risk cannot be diversified across different groups of people. I estimate that cost uncertainty varies between 4 to 14 percent for an average long-term care policy. In response to this cost risk, most policies do not insure *real* benefits. Generally, policies pay a fixed *nominal* amount for care, which is updated using predetermined nominal rules. Many policies also have lifetime maximum payments and other restrictions on aggregate risk-bearing by the insurer. The lack of complete long-term care insurance may be one explanation for the low rate of purchase of such policies.

## **Policy Options for Long-Term Care**

**David M. Cutler and Louise Sheiner**

NBER Working Paper No. 4302

March 1993

JEL Nos. H20, I11

Aging, Health Care, Public Economics

This paper examines the effect of government policies regarding nursing homes on institutionalization and community support for the elderly. We combine data from the National Long-Term Care Survey with information on state policies and then examine two state policies on nursing home care: whether high-income elderly can receive Medicaid support, and the price differential between Medicaid and the private market. Both policies strongly affect aggregate utilization of nursing homes and the composition of nursing home residents.

In states with more liberal Medicaid rules, the high-income elderly are more likely to use a nursing home. In states with larger underpayments (price differential between Medicaid and the private market), the poor suffer reduced access. The marginal source of community care



for the institutionalized elderly appears to be support from children or other helpers. Almost all of the elderly in nursing homes would have lived with children or others had they been out in the community. In addition, as the ease of acquiring Medicaid increases or Medicaid payments become more generous, fewer elderly receive substantial day-to-day help from their children.

## **Measuring Core Inflation**

**Michael F. Bryan and Stephen G. Cecchetti**

NBER Working Paper No. 4303

March 1993

JEL No. E21

Monetary Economics

We investigate the use of limited-information estimators as measures of core inflation. Our model suggests that such estimators as the median of the cross-sectional distribution of inflation provide superior short-run measures of core inflation.

Our estimates of inflation have a higher correlation with past money growth, and deliver improved forecasts of future inflation, than the Consumer Price Index (CPI). Moreover, unlike the CPI, the limited-influence estimators do not forecast future money growth.

Among the three limited-influence estimators we consider—the CPI excluding food and energy, the 15 percent trimmed mean, and the median—we find that the median has the strongest relationship with past money growth and provides the most accurate forecast of future inflation. Using the median and several other variables, including nominal interest rates and M2, our best forecast is that in the absence of monetary accommodation of any future aggregate supply shocks, inflation will average roughly 3 percent per year over the next five years.

Although there is uncertainty about this value, we estimate that the probability that the annual variance would be reduced over a ten-year period exceeds 85 percent.

A single equation linking M2 and GDP is almost as successful in reducing this annual GDP variance. Additional tests indicate that M2 is a useful predictor of nominal GDP. Moreover, the M2–GDP link is stable, while the M1–GDP and monetary base–GDP relationships are highly unstable.

## **The Equity of Social Services Provided to Children and Senior Citizens**

**Laurence J. Kotlikoff and Jagadeesh Gokhale**

NBER Working Paper No. 4305

March 1993

JEL No. H22

Aging, Public Economics

How does the government treat children vis-à-vis adults, particularly the current elderly? Over the past two decades, poverty rates of children have risen dramatically while those of the elderly have fallen. Over this same time frame, the levels of consumption and income of the elderly have risen relative to those of other Americans, including children. We consider the role of government policy in influencing these trends. We document the high level of transfer payments going to the elderly relative to those going to children, even after including educational expenditures on children as a transfer payment. But we argue that such point-in-time comparisons are invalid because they fail to account for the fact that children and the elderly are at different stages of their life cycles.

We present lifetime net tax rates for generations born from 1900 through the present, as well as for future generations. These tax rates indicate that the children of today and tomorrow could well end up paying as much as 50, 60, or even 70 percent of their lifetime incomes to the government, while generations that are now old will end up paying only about 25 percent of their lifetime incomes to the government.

## **The Use of a Monetary Aggregate to Target Nominal GDP**

**Martin Feldstein and James H. Stock**

NBER Working Paper No. 4304

March 1993

Economic Fluctuations, Monetary Economics

This paper studies the possibility of using the broad monetary aggregate, M2, to target the quarterly rate of growth of nominal GDP. We find that the Federal Reserve could probably guide M2 in a way that would reduce not only the long-term average rate of inflation but also the variance of the annual rate of growth of nominal GDP. An optimal M2 rule would reduce the mean ten-year standard deviation of annual GDP growth by over 20 percent.

## **What Determines the Sacrifice Ratio?**

**Laurence M. Ball**

NBER Working Paper No. 4306

March 1993

JEL Nos. E31, E32

Economic Fluctuations, Monetary Economics

This paper investigates the determinants of the “sacrifice ratio” for disinflation: the ratio of the loss in output to the fall in trend inflation. I develop a method for estimating the sacrifice ratio in individual episodes of disinflation, and apply it to 65 episodes in moderate-inflation OECD coun-

tries. In this sample, the sacrifice ratio decreases as the speed of disinflation increases: that is, cold turkey is less costly than gradualism. The ratio also decreases with increased flexibility in wage-setting institutions. The openness of the economy has no effect on the ratio, and the effects of income policies and the initial level of inflation are unclear.

### **Employer-Provided Health Insurance and Retirement Behavior**

**Alan L. Gustman and Thomas L. Steinmeier**

NBER Working Paper No. 4307

March 1993

JEL Nos. I1, J14, J26, J32

Aging, Labor Studies

Health benefits for retirees delay retirement until the age of eligibility, and then accelerate it. With a base case of no retiree health coverage, granting coverage to all those covered by their employer while working would accelerate the retirement age by less than one month. Valuing benefits at the cost of private health insurance to unaffiliated individuals, rather than at group rates, increases this effect. Changing health insurance policies has only a small effect on retirement. Ignoring retiree health benefits in models of retirement creates only a small bias.

### **Are Industrial-Country Consumption Risks Globally Diversified?**

**Maurice Obstfeld**

NBER Working Paper No. 4308

March 1993

JEL Nos. F36, G15

International Finance and Macroeconomics

What consumption risks can countries trade away on international asset markets? In an integrated world asset market with representative national agents, the difference between two countries' marginal rates of substitution in consumption over time is not correlated with any random variable on which contractual payoffs can be conditioned. I apply this result to annual time-series data for the seven largest industrial countries over 1950-88. Of these countries, Germany seems to have been most successful at internationally diversifying its consumption risks.

### **Production, Financial Structure, and Productivity Growth in U.S. Manufacturing**

**Jeffrey I. Bernstein and M. Ishaq Nadiri**

NBER Working Paper No. 4309

March 1993

JEL Nos. D24, G32

Productivity

This paper estimates a model that incorporates the effects of financial decisions on production, profitability, and productivity growth. Asymmetric information generates agency costs of debt and signaling benefits of dividends, which then influence production decisions. We apply the model to the U.S. manufacturing sector.

Agency costs and signaling benefits are measured by their effects on profitability. A one percent increase in debt reduces variable profit by 0.04 percent, while a 1 percent increase in dividends raises variable profit by 0.12 percent. Agency costs also limit the adjustment of U.S. manufacturing to long-run equilibrium. On average, for \$1.00 of funds raised through bond issues, debt adjustment cost is about five cents. The dynamic efficiency of the manufacturing sector is affected by financial considerations. Signaling benefits contribute 4.2 percent to total factor productivity growth, while agency costs reduce efficiency by 3.3 percent. Thus, the financial effects on dynamic efficiency approximately offset each other.

## **Historical Factors in Long-Run Growth**

### **Explaining Black-White Wage Convergence, 1940-50: The Role of the Great Compression**

**Robert A. Margo**

NBER Historical Paper No. 44

March 1993

JEL No. N32

This paper examines the role of the "Great Compression" of the 1940s, which produced a substantial narrowing in wage differentials in the United States, on black-white wage convergence. Using data from the 1940 and 1950 Census public use samples, I show that between one-half and two-thirds of black-white wage convergence at the sample means can be attributed to shifts in wage structure associated with the Great Compression. I also demonstrate that, by (temporarily) boosting the incomes of black parents, the Great Compression led to greater increases in schooling levels among black teens between 1940 and 1950 than would have occurred otherwise.

## **Technical Paper**

### **Long-Memory Inflation Uncertainty: Evidence from the Term Structure of Interest Rates**

**David K. Backus and Stanley E. Zin**

NBER Technical Paper No. 133

March 1993

Asset Pricing

We use a fractional difference model to reconcile two features of yields on U.S. government bonds with modern asset pricing theory: the persistence of the short rate, and variability of the long end of the yield curve. We suggest that this process might arise from the response of heterogeneous agents to changes in monetary policy.

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