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NBER Reporter

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

WINTER 1978

Program Report

Labor Economics

Richard B. Freeman

The labor market in the United States is undergoing significant institutional and structural changes and is facing major problems of slow productivity growth, wage inflation, and unemployment. The NBER Program in Labor Studies is designed to analyze the labor market behavior of individuals and enterprises; the major institutional and structural changes in the market; and the connections to productivity, wages, employment, and unemployment. It seeks to mesh large new data files that provide cross-sectional and longitudinal information on individuals with more detailed institutional information based on interviews or surveys of relevant decision-makers. In keeping with NBER tradition, the program is also designed to develop new bodies of data and to evaluate existing data sources. Combining modern quantitative analysis and theories with case studies and new data will provide information on the changing nature of the job market needed for public and private policy.

Trade Unionism

Trade unions are the principal institution of workers in modern industrial societies. Despite the importance of unionism to the economy and major structural changes in the organization of the work force, relatively little analysis has been devoted to the union movement in recent years, particularly the nonwage effects of unionization. The NBER program seeks to provide quantitative estimates of the effects of unions on diverse nonwage aspects of the work place such as turnover, job satisfaction, productivity, and compensation; to understand the recent decline in the fraction of workers organized in the private sector; and to examine differences in the effects of unionism in different labor market settings.

H. G. Lewis, who pioneered modern quantitative work

on the effect of unions on wages, is evaluating the evidence that has accumulated since his classic book, *Unionism and Relative Wages*. Gary Chamberlain is analyzing compensation using longitudinal data files that permit comparison of nonunion and union wages for the same worker. Kim Clark has investigated how unions affect productivity in the cement industry. Richard Freeman and James Medoff have analyzed the nonwage effects of unions, the effect of unionism on productivity in coal (with Margaret Connerton), the recent decline in private sector organization, and the impact of the percent of employees organized on wages. These analyses have involved detailed investigation of existing data sets and numerous case visits and discussions with union and management representatives. New estimates of the

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This issue inaugurates a new format for the **Reporter**. Each of the quarterly issues of the **Reporter** will feature an article describing one of the National Bureau's major research programs. This issue highlights the Bureau's program of labor studies. Next will come short summaries of research results in various areas. In this issue Martin Feldstein writes about results of Bureau research on the effects of taxation of capital gains and Richard Freeman reports on Bureau research on unions. Then Geoffrey Moore discusses the usefulness of NBER lagging indicators. Following a section of biographical sketches, news of NBER conferences and publications, and other NBER news and reports, the Quarterly Outlook Survey is presented. Short summaries of recent NBER Working Papers constitute the final section of the **Reporter**.

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fraction of workers organized by industry, SMSA, and occupation have been developed.

Some findings on unionism are: unionized workers have lower quit rates, higher job tenure, and higher temporary layoff rates than otherwise comparable nonunion workers; the union wage differential appears to be on the order of 10-15 percent, even after adjustment for the possibility that unionized firms select more able workers to counterbalance the higher cost of labor; the unionized sector pays a higher fraction of compensation in fringes and has a lower dispersion in wages. Productivity of unionized labor appears to be higher than that of non-union labor in some sectors, such as cement, wood furniture, and manufacturing as a whole, but lower in others, such as coal.

Youth Unemployment

As the rate of unemployment among young workers has increased, national attention has turned from the unemployed breadwinner to the unemployed youth, particularly minority youth. The NBER Program in Labor Studies has initiated a major research effort involving scholars from many institutions to analyze the nature of youth joblessness, its causes, and its consequences. The analysis is focused on the reasons for the high and rising rate of youth unemployment, especially among blacks; the low labor-force participation rate of young persons, again most marked for blacks; and the potential long-term economic costs of high unemployment. The project includes detailed investigation of data tapes, interviews with employers of youth, and a survey of unemployed youth.

Although research is still in progress, the youth unemployment project has already yielded some important findings. It has turned up major differences in the work activity of youths as reported in the Current Population Survey and in two longitudinal surveys that raise serious questions about the data base on which most policy and research rely. Analysis of "gross flows" data by Kim Clark and Larry Summers suggests that the traditional unemployment-labor force dichotomy may not be useful in depicting the activity of young workers, who move into and out of the labor force readily.

The determinants of youth unemployment are being investigated in terms of factors that differentiate individuals in the market and factors that determine the overall level of youth joblessness and changes over time. The study of what differentiates young persons in the market begins with their family background (investigated by Albert Rees); considers their high school experience (David Wise and Robert Meyer); and analyzes their early labor market experience (David Ellwood). The family background of the young has been found to affect wages but to be, at most, loosely related to joblessness. Work experience in high school appears to affect the individual's later success in the job market. In several different data sets, the wages of young blacks and whites turn out to be roughly similar while the frequency of employment differs greatly. Jacob Mincer's work on job turnover and

earnings follows the position of young workers over their lifetime, while Charlie Brown's work on dead-end jobs has traced the mobility of young persons from what are generally viewed as jobs with little on-the-job training to other jobs over a five-year period.

The analysis of determinants of the position of the young as a group has found that the number of young persons relative to older persons, cyclic factors, and the minimum wage are some factors influencing the level of joblessness.

Compensation and Mobility

Analysis of compensation and mobility patterns is being pursued along two distinct routes. Jacob Mincer is investigating the determinants of lifetime earnings and mobility in the market, with particular attention given to tenure with an employer. This work exploits longitudinal data tapes to cast light on the links among quits, layoffs, and wages in the context of the life-cycle model and acquisition of labor-force experience. Among the findings are: quits depend largely on the lure of better jobs at younger ages, but on dissatisfaction with current jobs or personal matters at older ages; the probability of quits and layoffs depends to a greater extent on job tenure than on age; wages increase with tenure, implying that persons who remain with a firm obtain especially high earnings; migration is highly dependent on family ties.

In contrast to Mincer's market analysis, James Medoff is examining compensation and turnover in specific companies, where compensation and personnel policy are important determinants of differences among persons. This analysis has compared the wages of managers with ratings of their productivity by supervisors and found that while wages rise as an individual ages, performance evaluations (by their supervisors) do not. The differential pattern of wages and performance evaluations raises important questions about the nature of internal labor markets.

Additional work on compensation and mobility by Sherwin Rosen and Robert Willis has examined the economic incentive for attending college by estimating: (1) the wages that college graduates would have made if they had chosen not to enroll and (2) the extra income that those who chose not to attend college would have made if they had gone. This research finds that enrollment decisions are sensitive to the income incentive for each individual.

Econometrics of Longitudinal Data Sets

The recent availability of data sets with information on the same person over time has opened up new opportunities in labor economics for the testing of hypotheses and analysis of the causes of change over time. The new data sets require new econometric tools. James Heckman and Gary Chamberlain have been pioneering the development and application of these tools. Heckman has developed valuable techniques for treating sample selection biases and differentiating between state dependence and heterogeneity as determinants of differences in the position of individuals over time. Chamberlain has

developed estimation procedures which control for omitted or unobserved factors in analysis of longitudinal (or other) data sets. Heckman's analysis has been applied to labor-force participation decisions while Chamberlain's has been used to estimate returns to schooling and the effect of unions on quits and wages.

The distinctive feature of the research program in labor studies is the effort to combine the analysis of large bodies of data, using newly developed econometric tools, with information obtained by discussion or survey of the relevant decision-makers. Each type of information complements the other, hopefully improving our understanding of the operation of the labor market beyond what would be possible from statistical work or case studies taken separately.

Research Summaries

The Taxation of Capital Gains

Martin Feldstein

Although the taxation of capital gains is important in itself, my recent studies of this subject developed from an interest in two more general problems in the economics of taxation. First, I have been concerned for some years about the way in which inflation changes the impact of taxation. The inappropriate taxation of nominal capital gains is a particularly important example of this. Second, I have been interested in the effect of taxation on individual behavior. This led me to study how our current tax rules affect the selling of corporate stock and the realization of capital gains.

Inflation and the Taxation of Capital Gains

When corporate stock or any other asset is sold, current law requires that a capital-gains tax be paid on the entire difference between the selling price and the original cost even though much of the nominal gain only offsets a general rise in the prices of consumer goods and services. Taxing *nominal* gains in this way very substantially increases the effective tax rate on *real* price-adjusted gains. Indeed, many individuals pay a substantial capital-gains tax even though, when adjustment is made for the change in the price level, they actually receive less from their sale than they had originally paid.

Joel Slemrod, an NBER Research Analyst, and I undertook a study to measure the extent of this excess taxation and its distribution among individuals.¹ For this study, we used the Treasury Department's sample of individual tax returns for 1973. The usual Treasury sample of returns is augmented in that year with extra detail on capital-gains transactions. Our sample consisted of over 30,000 individuals and more than 230,000 stock sales in

¹M. Feldstein and J. Slemrod, "Inflation and the Excess Taxation of Capital Gains," NBER Working Paper No. 234, February 1978. To be published in the National Tax Journal.

1973. Although the individuals are not identified, the sampling rates are known; the sample can therefore be used to construct accurate estimates of totals for all taxpayers.

We found that in 1973 individuals paid capital-gains tax on \$4.6 billion of nominal capital gains on corporate stock. *When the costs of these shares are adjusted for the increase in the consumer price level since they were purchased, this gain becomes a loss of nearly \$1 billion.*

The \$4.6 billion of nominal capital gains resulted in a tax liability of \$1.1 billion. The tax liability on the real capital gains would have been only \$661 million. *Inflation thus raised tax liabilities by nearly \$500 million, approximately doubling the overall effective tax rate on corporate-stock capital gains.*

Although adjusting for the price change reduces the gain at every income level, the effect of the price-level correction is far from uniform. For taxpayers with incomes over \$500,000, the original cost of the stock sold in 1973 was a very small fraction of the selling price; as a result, there was very little difference between the nominal gains on which they paid tax and the corresponding real gain. In contrast, taxpayers with incomes below \$100,000 suffered real capital losses on average, even though they were taxed on positive nominal gains. (This concentration of the real losses among taxpayers with incomes below \$100,000 and the limited extent to which losses can be offset against gains explains why the aggregate tax liability on real gains would remain positive even though there was an aggregate loss.)

Inflation not only raises the effective tax rate, but also makes the taxation of capital gains arbitrary and capricious. Individuals who face the same statutory rates have their real capital gains taxed at very different tax rates because of differences in holding periods. For example, among taxpayers with adjusted gross incomes of \$20,000 to \$50,000, we found that only half of the tax liability on capital gains was incurred by taxpayers whose liabilities on real gains would have been between 80 and 100 percent of their actual liabilities. The remaining half of tax liabilities were incurred by individuals whose liabilities on real gains would have been less than 80 percent of their actual statutory liabilities.

This study thus confirmed the empirical importance of an effect of inflation that I had explored in an earlier analytic study with Jerry Green and Eytan Sheshinski.² That study showed how inflation causes changes in the effective rate of tax on capital income and therefore on the real net returns that savers receive. The analysis recognized that firms finance investment by both debt and equity in a ratio that is likely to depend on both tax rates and the rate of inflation. We explored several different indexing options for depreciation and corporate debt as well as for capital gains.

More recently, I have studied how our current system of taxation results in an inverse relation between the rate

²M. Feldstein, J. Green, and E. Sheshinski, "Inflation and Taxes in a Growing Economy with Debt and Equity Finance." NBER Conference on Research and Taxation. *Journal of Political Economy*, April 1978.

of inflation and the level of share prices.³ The analysis emphasizes that the higher nominal interest rates that accompany inflation actually represent lower real net-of-tax yields on alternative assets for most investors which in itself tends to raise share prices. The net effect of the higher effective taxes on corporate source income (because of the taxation of nominal capital gains and the use of historic cost depreciation) and the lower real return on bonds is to reduce the demand price of stocks. This tendency is strengthened by the effect of inflation on the real asset yields available to tax-exempt institutions like pension funds. The market equilibrium model that I present reconciles the different effects of inflation on the relative attractiveness of stocks and bonds for different kinds of investors. I believe that the higher effective tax rates emphasized in this analysis explain why the nominal level of share prices has failed to rise during a decade of substantial inflation.

Tax Rates and Investor Behavior

Although there has long been speculation about the extent to which high tax rates on capital gains deter individuals from selling stock, there has been little hard evidence on this subject. My first study of this question, done jointly with Shlomo Yitzhaki, analyzed the experience of a random sample of high-income investors whose portfolio behavior was recorded in a special survey carried out by the Federal Research Board in 1963.⁴ An important finding in an analysis of that data was that two-thirds of the value of the proceeds of corporate-stock sales were reinvested in corporate stock and other financial assets within 1963. Since some of the remaining one-third of the proceeds were held in cash and reinvested in the following year, the data indicate that less than one-third of the proceeds of corporate-stock sales were used to finance current consumption.

The evidence in that study showed that the amount that individuals sell is quite sensitive to their tax rate. For example, on the basis of our statistical estimates of the tax rate sensitivity of individual selling, we calculated the effect of removing the 25 percent ceiling that was in effect in 1963 and taxing individuals at one-half of their ordinary income rates. We found that this change would have reduced the value of corporate-stock sales by 23 percent.

A second and more precise study of this issue was made possible by the availability of the special 1973 Treasury sample described above.⁵ The analysis found that individuals' selling of corporate stock is very sensitive to their tax rates. We used this estimated behavior to calculate the effects of hypothetical changes in the 1973 law. As an illustration of the estimated behavioral re-

³M. Feldstein, "Inflation and the Stock Market," NBER Working Paper No. 276, August 1978.

⁴M. Feldstein and S. Yitzhaki, "The Effects of the Capital-Gains Tax on the Selling and Switching of Common Stock." *Journal of Public Economics*, 1978.

⁵This study is reported in M. Feldstein, J. Slemrod, and S. Yitzhaki, "The Effects of Taxation on the Selling of Corporate Stock and the Realization of Capital Gains." NBER Working Paper No. 250, June 1978.

sponse, we found that limiting the rate of tax on long-term gains to 25 percent would have nearly doubled corporate-stock sales, from \$29.2 billion to \$49.5 billion.

The Treasury data also permitted us to evaluate the impact of differences in tax rates on the amount of capital gains that individuals realize. We found that the realization of gains is even more sensitive than the selling of stock. Using the statistically estimated tax sensitivity, we calculated that limiting the capital-gains rate to 25 percent would have caused an almost threefold increase in the total value of net gains realized in 1973. Because of this great increase in the realization of gains, the reduction in tax rates would have substantially increased capital-gains tax revenues. Our calculation indicates that the tax revenues on corporate-stock capital gains would have more than doubled if the tax rate had been limited to 25 percent.

As a further check on the tax sensitivity of individual decisions to realize capital gains, Joel Slemrod and I examined the aggregate annual data on realized capital gains at different income levels.⁶ When these Treasury data are disaggregated in this way, it becomes clear that, since the tax law changed in 1969, high-income taxpayers have sharply reduced their realization of gains while lower-income taxpayers have actually increased their realization of gains. The observed changes support the conclusion of our previous studies that the realization of gains is very sensitive to the capital-gains tax rate. Unlike the previous studies, the time-series analysis deals with all types of capital and not just gains on corporate stock.

These studies of the effects of capital-gains taxation show both the importance and the feasibility of studying how tax laws affect individual behavior. Extending this form of analysis to other types of household behavior can add to our understanding of the basic economics of taxation. Moreover, since government studies of proposed tax changes currently assume that the behavior of taxpayers would be unchanged, the behavioral studies of taxation will provide a new type of measurement that can improve the analysis of government policies.

⁶J. Slemrod and M. Feldstein, "The Lock-in Effect of the Capital-Gains Tax: Some Time-Series Evidence," *NBER Working Paper No. 257*, July 1978.

Research on Trade Unionism

Richard B. Freeman

Trade unions are the principal institution of workers in modern industrial societies. In the 1930s and 1940s unions were at the center of attention among researchers; many social scientists viewed unions as an important positive force in society. In recent years unionism has become a peripheral topic. Most economic studies treat unions solely as monopoly institutions whose function is to raise wages. Since monopolistic wage increases are socially deleterious, these studies often judge unions

implicitly or explicitly as having a negative impact on the economy.

The unidimensional monopoly view of trade unions and collective bargaining is seriously misleading, according to our recent research on unionism. While unions raise wages above competitive levels, they also have significant nonwage effects, which influence diverse aspects of modern industrial life. By providing workers with a voice in the economic system and the power to alter managerial authority at the work place, and by changing the nature of work rules, unionism can positively affect the functioning of modern economies. Although research on the nonwage effects of trade unions is by no means complete and some results will surely change as more evidence is available, sufficient work has been done to yield the broad outlines of a new view of unionism. In this essay I sketch out briefly the principal elements of this new view and present some representative findings from ongoing work.¹

The Collective Voice—Industrial Jurisprudence Model of Unions

The new work on trade unionism can best be understood in the context of Albert Hirschman's exit-voice model of the social system.² In the Hirschman analysis there are two basic mechanisms for dealing with divergencies between actual and desired social conditions. The first is the classic economic mechanism of exit and enter, which takes form in the labor market as quits, discharges, and other separations between workers and firms. By moving from less to more desirable situations, individuals penalize the bad employer or worker and reward the good, leading to an overall improvement in the efficiency of the social system. In the context of the exit-entry mechanism, institutions such as unions are impediments to the operation of the free market. Since individual mobility can, in principle, produce a social optimum, the only role for collective organizations like unions is that of monopolies that raise prices or wages to the detriment of society.

The second mode of adjustment stressed by Hirschman is *voice*. Voice refers to the process of discussion and communication among individuals designed to bring actual and desired conditions closer together. It means talking about problems: discussing with an employer conditions that ought to be changed, rather than quitting. In modern industrial economies, particularly in large enterprises, collective bargaining and trade unions serve as an institution of collective voice, providing workers as a group with a means of communicating with management.³ Collective, rather than individual, bargaining with

¹This summary of research is based on joint work with James L. Medoff. The final results of the research will be published in a book *What Do Unions Do?*

²A. O. Hirschman, *Exit, Voice, and Loyalty* (Cambridge, Mass.: Harvard University Press, 1970).

³For a detailed discussion of the model, with comments by Albert Hirschman, Richard Nelson, and Oliver Williamson, see R. Freeman, "Individual Mobility and Collective Voice in the Labor Market," *American Economic Review*, May 1976.

an employer is necessary for effective voice at the work place for two reasons. First, many important aspects of an industrial setting are "public goods," which affect the well-being (negatively or positively) of every employee, reducing the incentive for any single person to express his preferences and invest time and money in changing conditions that benefit all. This is, of course, the classic free rider or externality problem. Second, workers who are not prepared to exit may be unlikely to reveal their true preferences to employers, fearing that employers, knowing their true reservation wages, will reduce labor's share of output or will fire them for causing trouble.

The collective nature of trade unionism fundamentally alters the operation of the labor market and, hence, the nature of the labor contract generated. In a nonunion market, where exit and entry are the predominant forms of adjustment, the signals and incentives to firms depend on the preferences of the *marginal* worker, the one who will leave (or be attracted) by particular conditions or changes in conditions. The firm need only respond to the needs of this marginal, generally younger, mobile worker and, within some bounds, can ignore the preferences of older *infra-marginal* employees, who for reasons of specific training, age, and various exit costs are effectively permanent employees. Under unionization, in contrast, the preferences of all workers are aggregated in some way into an average that the firm must respond to at the bargaining table. This is likely to lead to quite different labor contracts. When particular work relations or modes of compensation have sizeable fixed or set-up costs, or are public goods, it can be shown that the average calculus will normally produce a socially more desirable outcome than will the marginal calculus.

The role of unions as a voice institution also fundamentally alters the social relations of the work place. Perhaps most important, a union constitutes a source of worker power in the firm, diluting managerial authority and offering members a measure of due process. The grievance and arbitration system in particular, which is ubiquitous under unionism, permits workers to protest particular managerial actions concerning nearly all aspects of the labor exchange. The importance of the so-called "industrial jurisprudence" system deserves considerable stress for it represents one of the main potentially highly desirable outcomes of collective bargaining and a major attraction to workers. In union firms workers are more willing and able to express discontent and object to managerial decisions than in firms lacking an industrial jurisprudence system. While the extent and form of change differs greatly among establishments and unions, there is no doubt that unionism alters the distribution of power at the work place by providing employees with at least some protection against managerial authority.

In sum, in the collective voice-industrial jurisprudence model, unions are much more than monopolies that raise wages and restrict the exit-entry adjustment mechanism. Unionism is viewed as an additional mechanism for social adjustment with important nonwage impacts

on the operation of the work place and on the socio-economic system as a whole. This is not to deny that unions also have monopolistic powers nor that they use these powers to raise wages for a select part of the work force. The point is that unionism has two faces: one, which is widely recognized in economic analysis, is that of monopoly; the other, on which our work focuses, is that of a voice institution. To understand what unions do in modern industrial economies, it is necessary to examine both of these.

Empirical Results

In order to analyze the two faces of unionism and quantify the nonwage effects that have been neglected in modern empirical work, we have studied a wide variety of data sets that distinguish between union and nonunion establishments and between union and nonunion workers. We have also held detailed discussion with management, labor officials, and industrial-relations experts. Although additional work will undoubtedly alter some of the specifics, our research has yielded several important results, which suggest that unionism has important nonwage as well as wage effects.

Attachment to Firms and Exit Behavior

The central tenet of the collective-voice model is that, all else the same, the voice of trade unions reduces quit rates and increases attachment of workers to firms. Empirical research using the Michigan Panel Survey of Income Dynamics, the National Longitudinal Surveys of older and younger men, and Current Population Surveys shows that with diverse factors (including wages) held constant, unionized workers have lower quit and permanent-separation rates than workers who are comparable in other respects. The principal reason for greater attachment appears to be the existence of formal grievance systems, which provide the opportunity to alter work relations through negotiation instead of exit.⁴ An alternative possibility—that union workers quit less frequently than other workers because unions organize more stable employees—has been analyzed with longitudinal data files that permit comparison of the quit behavior of the same person in union and nonunion settings. The results show that selectivity factors are not the cause of the union-exit relation.⁵

The magnitude of the reduction in exit appears to be quite large, with, for example, wage increases of 20–50 percent required to increase attachment (reduce exit) by as much as unionism. Since specific training will be greater, hiring costs lower, and the functioning of work groups less disrupted with a permanent work force, this effect of unionism contributes substantially toward increasing productivity. Thus, the data strongly support a

⁴R. Freeman, "The Exit-Voice Tradeoff in the Labor Market: Unionism, Job Tenure, Quits, and Separations," NBER Working Paper No. 242, April 1978.

⁵R. Freeman, "A Fixed Effect Logit Model of the Impact of Unionism on Exit Behavior," NBER Working Paper No. 280, September 1978.

view of the labor market in which union voice is seen by workers as an alternative to exit.

Layoffs and Cyclic Responses

Since quit rates are substantially lower in establishments covered by collective bargaining, during a period of decreased commodity demand management in unionized firms must choose among alternative employment-adjustment mechanisms such as temporary layoffs, discharges, early retirements, wage cuts, and work sharing. Collective contracts and statistical evidence analyzed by James L. Medoff show that the temporary-layoff mechanism is by far the most favored in unionized establishments.⁶ Since virtually all laid-off union members await recall and are recalled after a short spell of unemployment, the relatively permanent attachment between workers and firms is not broken. By "storing" excess labor outside of the firm when demand fails, union firms have greater productivity than nonunion firms during economic slumps. Temporary-layoff unemployment, which has received much recent attention, is in large measure a union-sector phenomenon. The choice of temporary layoffs according to inverse seniority as opposed to across-the-board wage or hour reduction is consistent with the claim that under unionism the average preference of workers (which reflects the preferences of senior workers) is more relevant than the marginal preference (the preference of a junior worker).

Fringes and Deferred Compensation

Evidence from surveys of compensation of individual workers, of the expenditures by firms for employees, and from union contracts all shows that the proportion of compensation allotted to fringe benefits is markedly higher for blue-collar workers than for similar nonunion workers.⁷ Within most industries such important fringes as pensions and life, accident, and health insurance are found in most unionized establishments but not in most nonunion firms. To analyze the possibility that unions appear to organize firms with many fringes, rather than increasing expenditures on fringes, the pattern of benefits among unionized blue-collar workers has been compared to the pattern among white-collar workers in the same establishment. The results show a sizeable union impact, correcting for any "firm effect" that shows up among white-collar employees. In general, unionism appears to raise expenditures on the deferred compensation preferred by older, more stable workers at the expense of the preference for straight-time pay.

Dispersion of Wages

Trade unionism alters the distribution of wages in two fundamental ways: (1) by raising the wages of

⁶J. L. Medoff, "Layoffs and Alternatives Under Trade Unionism in U.S. Manufacturing," *American Economic Review*, forthcoming.

⁷R. Freeman, "The Effect of Trade Unionism on Fringe Benefits," *NBER Working Paper No. 292*, October 1978.

organized workers relative to other workers, increasing inequality among comparable persons; and (2) by "standard rate" or equal-pay-for-equal-work pay policies that seek to equalize rates among workers and thus reduce dispersion among organized plants and employees. Empirical estimates of the dispersion of wages in the union sector suggest that standardization policies have had a sizeable impact on reducing dispersion of wages.⁸ Both establishment averages and individual wages are markedly less unequal among organized than otherwise comparable unorganized workers. Within establishments, moreover, trade union wage gains reduce white-collar-blue-collar differentials and, given the higher pay of the former, reduce earnings inequality. The standardization of rates among blue-collar workers and the reduced white-collar-blue-collar differential appear to dominate the more widely recognized monopoly effect of unionism in increasing inequality. As a result, unionism appears on net to reduce rather than increase wage dispersion or inequality in the United States.

Percentage Organized and Wages

Studies of the effect of unions on wages generally take two forms: either they relate average wages to the percentage of workers organized in an industry or, using data on individuals, they relate wages to union membership. Neither analysis provides a complete picture of the impact of increases on wages. The former faces problems: (1) spillovers of union wage gains to other workers in an industry and (2) the danger of misconstruing union wage effects as the possible tendency for unions to organize higher wage sectors. By treating all union workers the same, the latter fails to deal with potential differences in the power of unions, as reflected in the extent of organization, to raise wages. Our research on union wage effects combines these two methodologies by relating the wages of union and nonunion workers separately to the percentage organized by industry or geographic area. To do this, we developed new estimates of the industrial locus of unionism and of the percentage organized by area in major industries.⁹ The main result of the study is that the percentage organized in a sector is positively associated with union wages but is either not associated, or only weakly associated, with nonunion wages. This makes the union wage premium a positive function of the percentage organized.¹⁰

Job Satisfaction

The relationship between unionism and job satisfaction appears at first glance paradoxical, for in several national

⁸R. Freeman, "Unionism and the Dispersion of Wages," *NBER Working Paper No. 248*, June 1978.

⁹R. Freeman, "Job Satisfaction as an Economic Variable," *American Economic Review*, May 1978. For more detailed analysis, see G. Borjas, "Job Satisfaction and Unionism: A Reappraisal of the Union Wage Effect," *Journal of Human Resources*, forthcoming.

¹⁰R. Freeman and J. L. Medoff, "New Estimates of the Industrial Locus of Unionism in the U.S.," *NBER Working Paper No. 273*, August 1978.

job-satisfaction surveys workers covered by collective bargaining contracts report being less satisfied than comparable nonunion workers who are paid the same amount.¹¹ However, the union members are also more likely to state that they are “unwilling to change jobs under any circumstance” or “would never consider moving to a new job,” than are their “more satisfied” nonunion counterparts. The most direct interpretation of the puzzle is that collective organization provides the support that encourages voicing dissatisfaction. In contrast to most economic benefits that increase both utility and stated satisfaction, voice increases utility by increasing stated dissatisfaction. In addition, since information about problems in a work place can be viewed as a public benefit, a union will collect more information than will any individual, and then disseminate it all to each member. Hence, while union members know that their jobs are significantly better than the alternatives, they also know that their jobs are far from ideal. Finally, since voice is also a tool of conflict, good strategists, unlike Voltaire’s Pangloss, will not proclaim their work place as “the best of all possible worlds.”

Productivity

In a discussion at the Fifteenth Annual Meeting of the Industrial Relations Research Association in 1962, John T. Dunlop lamented the fact that “no effort has been made to measure the contribution of collective bargaining to output and productivity although economic literature for a hundred years has been full of discussions of the ways that labor organizations may increase the national dividend.” One of the major goals of our research is to quantify the relative importance of the positive and negative effects of unions on productivity. Using modern production function analysis of cross-state and industry production figures, Brown and Medoff have found that productivity tends to be higher, on average, in organized than in nonorganized establishments in manufacturing.¹² Clark has examined productivity in the cement industry, where output can be measured in pure quantity terms.¹³ His data contain figures on organized and nonorganized plants at a point in time and on plants before and after unionization. The results support the notion that unionism, at least in some situations, is associated with positive productivity effects. On the other side of the picture, analysis of productivity in organized and unorganized coal mines indicates that when industrial relations in the union sector deteriorated in the 1970s unionism was associated with negative productivity effects.¹⁴

¹¹R. Freeman and J. L. Medoff, “The Impact of Percentage Organized on Union and Nonunion Wages,” *NBER Working Paper*, forthcoming.

¹²C. Brown and J. L. Medoff, “Trade Unions in the Production Process,” *Journal of Political Economy*, June 1978.

¹³Kim B. Clark, “Unions and Productivity in the Cement Industry,” unpublished Ph.D. thesis, Harvard University, June 1978.

¹⁴R. Freeman, J. L. Medoff, and M. Connerion, “Industrial Relations and Productivity: A Study of the U.S. Bituminous Coal Industry,” forthcoming.

These results suggest that unionism can increase or decrease productivity depending on the nature of industrial relations in an area. What remains to be done is to quantify the *routes* by which productivity is increased or decreased and the reasons for differential effects in different industrial relations settings. We view our results on productivity as suggestive but by no means definitive at this stage.

Conclusion

We believe our analysis of unionism has opened up a host of issues regarding the key worker institutions in capitalism that have tended to be neglected in modern economic analysis. While there is no claim that the findings will necessarily generalize to other countries, because of the very different nature of unionism across the world, nor that they represent all sectors of the American economy, we do believe that they present a reasonably valid picture of modern unionism in the U.S.—one which stands in strong contrast to the monopoly model and much popular discussion of unionism.

When Lagging Indicators Lead: The History of an Idea

Geoffrey H. Moore

On Tuesday, February 14, 1978, the *Wall Street Journal* ran a front-page news story on the “lagging indicators.” It was a high-water mark in terms of public interest in these series after four decades of relative neglect. Attention is usually riveted on the leading indicators. Who cares about the followers? The leaders tell us where we’re going.

This view is understandable, and is fostered by the terms used to classify the indicators. Nevertheless it is unfortunate because it neglects the problem of who or what it is that tells the *leaders* where to go. We live in an interdependent world, and the business cycle is one of the manifestations of that interdependence. A downturn in a leading indicator—say an index of stock prices—is not the beginning. It is a resultant of something else. The something else is where the lagging indicators come in.

This idea has had a long history. My first acquaintance with it began when I read Mitchell and Burns’s “Statistical Indicators of Cyclical Revivals” in 1938. In that study some seventy economic series were arrayed according to the length of their average lead or lag at business-cycle troughs. Several series on bond yields were placed at both the top and the bottom of the list. The authors explained that bond yields, as well as some other series, could be considered either to conform positively to business cycles, in which case their upturns generally lagged

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behind the revival in business, or to conform inversely, in which case their downturns generally preceded the revival in business. After a while, a business revival tended to pull interest rates up as demand for loans expanded and pressure on reserves mounted. But the prior decline in interest rates facilitated revival by reducing costs of borrowing and indicating that credit was easier to get. From one point of view, bond yields were a lagging indicator of revival; from the other point of view, a leading indicator.

In my 1950 paper, "Statistical Indicators of Cyclical Revivals and Recessions," I pushed this idea a bit further by showing that it applied to both recessions and revivals, and that it applied to the entire group of indicators that I classified as lagging. Tracing the record back to 1885, I noted that the downturns in the laggings had consistently preceded the upturns in the leaders, while upturns in the laggings had consistently preceded downturns in the leaders. Considered on an inverted basis, the laggings were the longest of leaders. The lengths of their leads varied from one business cycle to another, but these variations were positively correlated with those in the leads of the leading indicators. Such consistency over a fifty-year period bespoke a causal connection.

Subsequent studies of the indicators revealed that this relationship had persisted. In 1969 I wrote "Generating Leading Indicators from Lagging Indicators" in an effort to put more meat on the bones of the argument. I noted that there were good economic reasons to expect that rapid increases in certain types of lagging indicators—interest rates, costs of production, inventories, and outstanding debt—would have deterrent effects on certain types of leading indicators—new commitments to invest, profit margins, inventory accumulation, new credit extensions, etc. One way to determine what was a "rapid increase" was to compare the increase in the laggings with that in the coincident indicators, since the latter represented the rate of growth in aggregate economic activity. The ratio of coincident to lagging indicators quantified this comparison. Several such ratios, notably the ratio of sales to inventories, already existed and behaved in the expected manner.¹

Phillip Cagan contributed a useful study on this theme in 1969, "The Influence of Interest Rates on the Duration of Business Cycles." He showed that the lengths of the lags in interest rates after business-cycle turns had a bearing upon the length of the business expansion or contraction in which they occurred. A delayed upturn in rates indicated a long expansion, and a delayed downturn indicated a long contraction. He also pointed out that this connection may operate through the relation between interest rates and the money supply, and through the effect of interest rate changes upon decisions to in-

vest. He developed evidence that supported this hypothesis by examining the behavior of such leading indicators as the rate of change in the money supply and contracts for residential, commercial, and industrial construction.

In 1971 my daughter, Kathleen Moore (with a little nudge from her father), took up the question, Do lagging indicators in other countries display the same properties vis-à-vis the leading indicators as they do in the United States? In "The Comparative Performance of Economic Indicators for the United States, Canada, and Japan," she found that they did. Philip Klein and I followed this with studies not only for Canada and Japan, but also the United Kingdom and West Germany. In *Monitoring Business Cycles at Home and Abroad* (forthcoming), we found the relationship substantially confirmed in all these countries. The British, in their own work on indicators at the Central Statistical Office, now published regularly in *Economic Trends*, also find that interest rates and unit labor costs, treated invertedly, behave as leading indicators.

Victor Zarnowitz and Charlotte Boschan, in their study of indicators for the Bureau of Economic Analysis, recommended that the ratio of the coincident to lagging indexes be regularly published in *Business Conditions Digest*. This has been done since November 1976. In the *Fifty-Seventh Annual Report* (September 1977) of the National Bureau of Economic Research, Zarnowitz and Boschan showed how the lagging index (treated invertedly) consistently led the leading index in an analysis of growth cycles during the period 1948–75. In a paper presented before the American Statistical Association in August 1977, Zarnowitz and Beatrice Vaccara demonstrated that the lagging indicators (treated invertedly) could be used to extend the forecast span of the leading indicators in quantitative forecasts of real GNP and other coincident indicators.

The new list of indicators that is now used in *Business Conditions Digest* enables us to update the historical record on the relationship between cyclical turns in the leading and lagging indicators. The table on the median leads and lags of seventy-five leading series and thirty lagging series in my 1950 paper that covered the period 1885–1938 can be extended from 1948 to 1975 by using the medians for the twelve leading series and six lagging series in the *BCD* list. The results (see table) show that the turns in the lagging group have persistently preceded the opposite turns in the leading group during the entire ninety-year period. Usually the turns are close enough to suggest a plausible relationship. The exceptions pertain to the unusually long business-cycle expansions ending in 1937, 1953, and 1969 and to the long contraction ending in 1933. Apart from these unrepresentative instances, the median upturn in the lagging group has preceded the median downturn in the leading group by ten months on the average, while the median downturn in the lagging group has preceded the median upturn in the leading group by an average of five months. The record since 1948 does not seem to differ greatly from that prior to 1938. Long leads in the inverted lagging

¹So far as I know, Edgar Fiedler, then at Bankers Trust Company, was the first to compute a ratio based upon composite indexes of coincident and lagging indicators. He did this in 1964 to test the view expressed by Leonard Lempert (1964) that cyclical imbalance should be measured by comparing the rates of increase in the laggings with those in the coincident. Another early (1968) experimenter with such ratios was John H. Merriam of Idaho University.

Cyclical Timing of Leading and Lagging Indicators, 1885-1975

Business Cycle Peak	Lead (-) or Lag (+), in Months at Business Cycle Peak			Interval in Months (Trough in Lagging to Peak in Leading)	Business Cycle Trough	Lead (-) or Lag (+), in Months at Business Cycle Trough		
	Median Trough, Lagging Group	Median Trough, Leading Group	Interval in Months (Peak in Lagging to Trough in Leading)			Median Peak, Lagging Group	Median Trough, Leading Group	Interval in Months (Peak in Lagging to Trough in Leading)
Mar. 1887	-20	-3	17	May 1885	n.a.	-6	n.a.	
July 1890	-14	-5	9	Apr. 1888	-7	-2	5	
Jan. 1893	-8	-5	3	May 1891	-5	-4	1	
Dec. 1895	-14	-5	9	June 1894	-11	-4	7	
June 1899	-6	-1	5	June 1897	-13	-9	4	
Sep. 1902	-15	-4	11	Dec. 1900	-8	-5	3	
May 1907	-27	-16	9	Aug. 1904	-9	-9	0	
Jan. 1910	-11	-4	7	June 1908	-6	-6	0	
Jan. 1913	-14	-3	11	Jan. 1912	-17	-13	4	
Aug. 1918	-34	-20	14	Dec. 1914	-14	-1	13	
Jan. 1920	-9	-2	7	Apr. 1919	-7	-3	4	
May 1923	-13	-4	9	July 1921	-12	-5	7	
Oct. 1926	-24	-11	13	July 1924	-10	-6	4	
June 1929	-15	-5	10	Nov. 1927	-14	-4	10	
May 1937	-50	-2	48	Mar. 1933	-43	-5	38	
Feb. 1945	n.a.	n.a.	n.a.	June 1938	-10	-4	6	
Nov. 1948	n.a.	-10	n.a.	Oct. 1945	n.a.	n.a.	n.a.	
July 1953	-39	-5	34	Oct. 1949	-11	-5	6	
Aug. 1957	-31	-21	10	May 1954	-6	-6	0	
Apr. 1960	-19	-12	7	Apr. 1958	-6	-2	4	
Dec. 1969	-99	-9	90	Feb. 1961	-5	-2	3	
Nov. 1973	-24	-8	16	Nov. 1970	-9	-2	7	
				Mar. 1975	-4	-1	3	
Averages:				Averages:				
All observations				All observations				
	-24	-7	17		-11	-5	6	
Excl. 1937, 1953, 1969				Excl. 1933				
	-18	-8	10		-9	-5	5	

SOURCES:
 1885-1938: Moore, 1950, Table 11. Based on 75 leading and 30 lagging series.
 1948-1975: *Business Conditions Digest*, October 1977, Appendix F. Based on 12 leading and 6 lagging series.
 NOTE: n.a., data not available.

group, relative to the business cycle, are associated with long leads in the leading group, and vice versa.²

All this is relevant in 1978 because of recent advances in the lagging indicators; and this was the reason for the *Wall Street Journal* story. BCD's lagging index began rising more rapidly than the coincident index after April 1977, and hence the coincident to lagging ratio declined.³ The leading index, meanwhile, continued to rise, but not so vigorously as the lagging index. The question in the summer of 1978, therefore, was how long the upward

²The correlation coefficients (*r*) between the leads of the inverted lagging group and those of the leading group in the table are as follows:

	1887-1938		1948-1975		1887-1975	
	N	r	N	r	N	r
All observations	30	+0.33	11	+0.38	41	+0.35
Omitting four long phases (ending 1933, 1937, 1953, 1969)	28	+0.76	9	+0.90	37	+0.81

³Edgar Fiedler recently observed that since two of the six lagging indicators included in the lagging index are expressed in current dollars, it is more affected by inflation than the coincident index, whose four components are all expressed in physical units or in constant dollars. To rectify this the two lagging indicators, unit labor cost and commercial and industrial bank loans, could be deflated by using manhours per unit of output (the reciprocal of the usual productivity measure) as the physical counterpart of unit labor cost, and deflating loans by the wholesale price index for industrial commodities.

trend in the leading index would persist in the face of factors that over many years have foreshadowed its decline.

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Economic Outlook Survey

Third Quarter 1978

According to the latest survey of professional economic forecasters in business, government, and academic organizations, inflation will exceed 7 percent in the year ahead when measured by the rate of change in the GNP implicit price index (IPD), but it will not accelerate. Growth in real GNP will decline substantially, but remain positive. In short, the prevailing view among the forecasters is that a slowdown, rather than a recession, is the most likely prospect for the economy, with inflation staying troublesome but significantly below the recent double-digit levels.

Upward Revisions of Inflation Forecasts

In the previous (May) survey, the median forecast of the rate of inflation in 1977-78 was 6.4 percent, up from the 5.9 percent predicted in February; in the present survey it is 7.3 percent. The mean probability distribution of expected price level (IPD) changes in 1977-78 is heavily concentrated in the range of +7 to +7.9 percent but also skewed in the direction of higher inflation rates. About 53 percent of the distributions fall in the above range, 28 percent in the ranges of +8 percent and higher, and 19 percent in those of less than +7 percent. The typical prediction still has prices rising rather steadily, i.e., IPD is to increase 7.2 percent during the year ending in Q3 1979.

Lower Growth in Real GNP, Little Change in the Unemployment Rate

Total output (GNP in 1972 dollars) will reach \$1,381 billion this year, gaining 3.6 percent relative to 1977. During the year ahead, however, the gains will be much smaller, adding up to only 2.1 percent between Q3 1978 and Q3 1979 (when real GNP will be \$1,420 billion, according to the median August forecast). More retardation yet is expected in the index of industrial production, which is projected to reach 144 (1967 = 100) in 1978, 5.1 percent up from 1977, and 150 in Q3 1979, 2.7 percent up from Q3 1978.

Despite the prospect of a rather sharp slowdown, most forecasters see the unemployment rate as more nearly flat than increasing strongly. The median predictions have unemployment varying narrowly in the 6 to 6.3 percent range during the year ahead (the latter figure refers to Q3 1979, the last predicted quarter). It may be interesting to note that recent periods of comparably stable unemployment rates (in 1971, mid-1972, and late 1976) coincided with growth rates in real GNP averaging considerably higher than 2 percent p.a. However, inspection of the individual forecasts of unemployment shows them to have diffuse distributions, skewed toward higher rates, particularly for the more distant 1979 quarters.

Consumer Capital Outlays Expected to Weaken

Housing starts are still seen as retreating but gradually from their peak levels of the fall of 1977 and the spring of 1978. The median forecast puts these numbers, in million units at annual rates, at approximately 1.9 in 1978 and 1.7 in Q3 1979. These figures imply declines of 4 percent in 1977-78 and of 12.3 percent between Q3 1978 and Q3 1979.

Consumer expenditures for durable goods are projected to rise by 9.5 percent in 1978 (to slightly more than \$195 billion) and by 5.4 percent in the year ending in Q3 1979 (to about \$210 billion at annual rate). These are increases in current dollars; in real terms they would probably represent a small gain and a sizeable decline, respectively.

Fair Prospects for Business Investment, Sluggish Profits

Business expenditures for new plant and equipment will rise by nearly 12 percent in 1978, to \$152 billion. In Q3 1979, they are expected to reach \$170 billion, up 10 percent from the current quarter's annual rate. Both of these percentage gains are somewhat larger than those that the total GNP in current dollars is anticipated to score in the same periods. However, the projected quarterly rates of increase in business fixed investment decline from 3.8 percent in Q3 1978 to 2 percent in Q3 1979.

Investment in business inventories will also decline in each quarter during the year ahead, but by small amounts. According to the median predictions, change in inventories currently runs at an annual rate of \$20.5 billion (almost equal to the present estimate for the spring quarter) and will be \$17.5 billion in Q3 1979.

Corporate profits after taxes will rebound strongly from the weak first quarter and rise 9 percent in 1978 relative to 1977, but they will show only a nominal gain of 2.6 percent between Q3 1978 and Q3 1979.

The Growing Risk of a Recession

The means of the forecasters' estimated probabilities of a decline in real GNP rise from 11 to 32 chances in 100 between Q4 1978 and Q3 1979. These assessments have had an upward trend in the last three ASA-NBER surveys. Probabilities of .3 or thereabout are the highest on record for spans of three to four quarters ahead: they appeared in the past only in the May-December 1973 surveys which preceded the last recession. Thus the present survey, like the previous one, indicates that the forecasters are increasingly concerned about the risk of a recession, even though most of them do not predict a downturn in the next four quarters.

Assumptions

Forecasters are about evenly divided between those who assume "some tightening" of monetary policy or that interest rates will rise, and those who assume "no change" or "more accommodation." On fiscal policy, a large majority expects a tax cut, estimated by most in

Projections of GNP and Other Economic Indicators, 1978-79

	Annual					Quarterly						Percent Change			
	1976 Actual	1977	1978 Fore- cast	Percent Change		Q2 Ac- tual	1978			1979			Q278 to Q279	Q378 to Q379	
				1977 Ac- tual	1978 Fore- cast		Q3	Q4	Q1	Q2	Q3				
															Q278
1. Gross national prod- uct (\$ bil.)	1700.1	1887.2	2097.0	11.0	11.1	2076.9	2132	2187	2238	2290	2339	10.3	9.7		
2. GNP implicit price deflator (1972 = 100)	133.8	141.6	151.9	5.8	7.3	150.7	153.4	156.3	158.6	161.6	164.4	7.2	7.2		
3. GNP in constant dol- lars (bil. 1972)	1271.0	1332.7	1381.0	4.8	3.6	1378.6	1391	1400	1405	1413	1420	2.5	2.1		
4. Unemployment rate (percent)	7.7	7.0	6.1	-0.7*	-0.9*	5.9	6.1	6.0	6.1	6.2	6.3	0.3*	0.2*		
5. Corporate profits after taxes (\$ bil.)	91.7	102.1	111.4	11.3	9.1	113.2†	114.5	115.8	117.6	118.7	117.5	4.8	2.6		
6. Plant and equipment expenditures (\$ bil.)	120.5	135.8	151.8	12.7	11.8	148.9‡	154.6	159.4	163.2	166.7	170.0	12.0	10.0		
7. New private housing started (ann. ratemil.)	1.54	1.99	1.91	29.2	-4.0	2.12	1.95	1.83	1.71	1.70	1.71-19.8	-12.3			
8. Change in bus. inven- tories GNP accts. (\$ bil.)	10.2	15.6	19.2	5.4§	3.6§	20.7	20.5	19.0	18.7	18.0	17.5	-2.7§	-3.0§		

SOURCE: American Statistical Association and National Bureau of Economic Research, Business Outlook Survey, Sept. 1978.

NOTE: The figures on each line are medians of 25 to 27 individual forecasts.

*Change in rate in percentage points.

†Actual not available. Based on average forecast.

‡Actual not available. Based on BEA survey of anticipations.

§Change in billions of dollars.

the \$15-25 billion range (only four survey participants assume no cut). No programs in incomes policy and no basic changes in the energy situation are anticipated.

The national defense purchases are, on the average, predicted to rise about 8 percent in the year ahead, to \$109 billion in Q3 1979.

This report summarizes a quarterly survey of predictions by about fifty business, academic, and government economists who are professionally engaged in forecasting and are members of the Business and Economics Statistics Section of the American Statistical Association. Victor Zarnowitz of the Graduate School of Business of the University of Chicago and NBER and Charlotte Boschan and Dennis Bushe of NBER are responsible for tabulating and evaluating these surveys.

NBER Profiles

Robert Fogel

Robert Fogel, director of the NBER Program in Development of the American Economy, is Harold Hitchings Burbank Professor of Political Economy and a professor of history at Harvard University. Before joining Harvard and the National Bureau, Fogel held positions at Johns Hopkins University, the University of Rochester, and the University of Chicago. He was also Pitt Professor of American History and Institutions at Cambridge University in 1975-76 and the Centennial Professor at Texas A & M during 1976.

Fogel's research for NBER (undertaken jointly with Stanley Engerman of the University of Rochester, James Trussell of Princeton University's Office of Population Research, and Clayne Pope and Larry Wimmer of Brigham Young University) is a major study of the economics of mortality in the United States during the period from 1650 to 1910. It is based on genealogical records maintained by the Mormon Church, probate and tax records,



military and maritime records, plantation records, bills of mortality, and manuscript census records. It is expected that this research will document and explain the secular decline in mortality and will include analyses of variations in mortality across regions and among segments of the population, across and within regions.

Among Fogel's books are: *The Union Pacific Railroad: A Case of Premature Enterprise*; *Railroads and American Economic Growth: Essays in Econometric History*; *Time on the Cross: The Economics of American Negro Slavery*; and *Ten Lectures on the New Economic History*. *Time on the Cross*, written with Engerman, was selected for distribution by several book clubs.

Since receiving his Ph.D. from Johns Hopkins University in 1963, Fogel has held fellowships and grants from the Social Science Research Council, the Mathematical Social Science Board, the Ford Foundation, and the Fulbright Commission. In addition he has received the Arthur H. Cole prize, the Schumpeter prize, and the Bancroft prize in American history.

Indicative of the esteem in which Fogel's colleagues hold him are his chairmanship of the history advisory committee of the Mathematical Social Science Board, his membership on the editorial boards of *Explorations in Economic History* and the *Journal of the Social Science History Association*, his tenure as a member of the board of trustees and president of the Economic History Association, and his election as a Fellow of the American Association for the Advancement of Science, a Fellow of the American Academy of Arts and Sciences and a member of the National Academy of Science.

Fogel is married to the former Enid Cassandra Morgan and has two sons. His avocations include photography and hi-fi.

Charles E. McLure, Jr.

Charles E. McLure, Jr., joined the National Bureau in 1977 as executive director for research and in September of this year was made vice president. He is currently on leave of absence from Rice University where he has taught since 1965 and has been the Allyn R. and Gladys M. Cline Professor of Economics and Finance since 1973.

McLure's research interests can be broadly defined as the economics of taxation. Within that broad area he has written extensively on the theory and measurement of tax incidence; state and local finance and fiscal federalism; international aspects of taxation; federal tax policy; and taxation in developing countries. He has written short monographs on the inflation of the late 1960s, the value-added tax, and tax reform in Colombia, and has recently completed a book on the integration of the corporate and personal income taxes.

McLure's professional research interests are closely reflected in his nonacademic professional experience. Besides serving for a year on the senior staff of the Council of Economic Advisers, he has been a consultant to the U.S. Treasury and Labor Departments; the United Nations; the World Bank; and the governments of Panama,



Malaysia, and Jamaica. He has also served on the professional staffs of the Musgrave commissions on tax reform in Bolivia and Colombia. The list of journals in which McLure has published reflects the scope of his research interests. In addition to the major journals of general interest, he has published in journals specializing in public finance, economic development, public policy, and legal aspects of taxation; and in conference volumes and journals published in particular developing countries.

Having recently left the Sun Belt, McLure is often asked about his tolerance for Massachusetts weather. Because he and his wife Patsy (and their brown standard poodle, Choco) enthusiastically enjoy cross-country skiing, the answer surprises almost everyone. Though the McLures have no children, they hosted a high school student from Belgium during the last academic year and currently have a student from Yugoslavia living with them. McLure's other interests include backpacking and canoeing.

Michael J. Boskin

Michael J. Boskin, the National Bureau's director of research in social insurance, has achieved distinction throughout his brief professional career in economics. In 1967 he was cited as the outstanding undergraduate at the University of California at Berkeley and in 1971 received the National Tax Association's award for the outstanding doctoral dissertation for the work he did to earn his Ph.D. at Berkeley. More recently Boskin, a professor of economics at Stanford, has been featured in several prestigious national magazines.



Bureau News

Bureau Holds Summer Institute in Taxation and Labor Economics

During the past summer two workshops were held at the Cambridge office of the National Bureau—one on Business Taxation and Finance and the other on Labor Economics. These workshops, which consisted of both formal and informal seminars and provided ample opportunity for discussion and interaction, were attended by a combination of established scholars, younger researchers, and graduate students working in the two areas. While some participants were in Cambridge for extended periods and formed a resident core group, others came for shorter periods ranging from one day to two weeks. It is anticipated that the Bureau will continue to hold an annual summer workshop, with the topics changing from year to year.

The workshop in Business Taxation and Finance was headed by David Bradford, the director of NBER's Program in Business Taxation and Finance. Topics discussed included effects of corporate taxation on corporate financial policy and on real decisions such as investment, techniques of production, and output. The probable impact of integration of the corporate and personal income taxes on corporate behavior and the economic efficiency and equity of a tax system were also discussed. Among the participants in this workshop were Alan Auerbach, Gregory Ballentine, Robin Boadway, Michael Boskin, Martin Feldstein, Benjamin Friedman, Harvey Galper, Roger Gordon, Jerry Green, David Hartman, Mervyn King, Charles McLure, Peter Mieszkowski, Mertin Miller, Stewart Myers, Daniel Newlon, Anthony Pellechio, Rudolph Penner, Myron Scholes, John Shoven, Joseph Stiglitz, George von Furstenburg, and John Whalley.

The workshop in Labor Economics, organized by Richard Freeman, the National Bureau's director of research in that area, brought together experts in unionism, unemployment, and econometrics. These included Charles Brown, Kim Clark, Mary Corcoran, Zvi Griliches, Alan Gustman, Giora Hanoch, Hendrik Houthakker, Harry Katz, Lawrence Lau, Richard Layard, H. Gregg Lewis, G. S. Maddala, Pascal Mazodier, Robert Plotnick, Albert Rees, Martin Segal, Christopher Sims, Michael Wachter, and Michael Wagner.

During the week of August 7-11 a four-day "conference within a workshop" on longitudinal data was held as part of the workshop on labor economics. Papers were given at this conference by James Heckman, Gary Chamberlain, Takeshi Amemiya, Yair Mundlak, Sherwin Rosen and Robert Willis, Jerry Hausman and David Wise, John Abowd and Henry Farber, Katharine Abraham and James Medoff, and Charles Manski.

Boskin describes his work as "analytical and empirical research into the economics of the public sector." He is best known for his work on the taxation of labor income, but more recently his estimates that private saving is more sensitive to the real rate of interest than has commonly been assumed have drawn considerable attention. Other current research interests include U.S. capital formation, tax reform (including indexing the tax system for inflation and expenditure taxation), and developing viable improvements in the social security system, which he believes is "in the midst of an extreme, long-term crisis."

Indicative of the breadth of Boskin's research is the list of other topics on which he has written. It includes analysis of negative income taxation, female labor supply, the analysis of human capital, the theory of public goods, econometric theory, the proper tax treatment of the family, and the taxation of charitable giving and estates. His work has appeared in such leading journals as the *American Economic Review*, the *International Economic Review*, the *Journal of Political Economy*, the *Journal of Public Economics*, and the *Quarterly Journal of Economics*. He has also edited four volumes of essays in public economics.

Boskin has worked as a consultant or adviser to several federal agencies (U.S. Departments of the Treasury, Labor, and Health, Education and Welfare), agencies of the state of California (Department of Education, Air Resources Board, and Department of Social Welfare), the Commission on Private Philanthropy and Public Need, and the Advisory Council of Social Security. And he has had the unusual opportunity to serve as a consultant to the Northern Cheyenne Indian Tribal Council and Research Project.

Though Boskin is thoroughly absorbed in his research in economics, he describes himself as an avid cross-country skier and tennis player. Boskin, who is a bachelor, also finds time to enjoy theatre, literature, and creative writing.

NBER Holds Conference on Rational Expectations

On October 13–14 the National Bureau held a conference on Rational Expectations and Economic Policy at Bald Peak Colony Club in Melvin Village, New Hampshire. The conference, organized by Professor Stanley Fischer, brought government economists involved in determining the nation's macroeconomic stabilization policies together with leading academic economists to discuss the theoretical substance and practical relevance of the burgeoning literature on rational expectations.

The following papers were presented at this conference:

Robert Barro and Mark Rush, "Unanticipated Money and Economic Activity—Results from Annual and Quarterly U.S. Data"

Discussants: Alan Blinder, Robert Gordon, and Robert Weintraub

Olivier Blanchard, "The Monetary Mechanism in the Light of Rational Expectations"

Discussants: David Lindsey, Bennett McCallum, and Michael Parkin

Stanley Fischer, "On Activist Monetary Policy with Rational Expectations"

Discussants: Robert Hall and Mark Willes

Robert E. Lucas, "Rules, Discretion, and the Role of the Economic Adviser"

Discussants: Robert Hall and Mark Willes

William Poole, "Monetary and Fiscal Policy, 1973–75: What Should Have Been Done?"

Discussants: James Pierce and Neil Wallace

Edward Prescott, "On the Possibility and Desirability of Stabilization Policy"

Discussants: Martin Feldstein, Robert Hall, and John Taylor

Robert Shiller, "Can the Fed Affect Real Interest Rates?"

Discussants: Phillip Cagan, Charles Nelson, and James Pierce

Robert Solow, "What to Do (Macroeconomically) When OPEC Comes"

Discussants: James Pierce and Neil Wallace

In addition Herschel Grossman wrote a background and summary paper for the conference entitled, "Rational Expectations, Business Cycles, and Government Behavior."

Besides the authors and discussants of papers mentioned above, the following academic and government economists participated in the conference: Costas Azariadis, Karl Brunner, Rudiger Dornbusch, Jacob Frenkel, Benjamin Friedman, Peter Howitt, John Kraft, Charles McLure, David Modest, Frank Morris, Dan Newlon, Edmund Phelps, Michael Rothschild, Robert Russell, Paul Samuelson, and Frank Schiff.

International Macroeconomic Seminar Inaugurated in Paris

The first in a series of international conferences on macroeconomic policy research was sponsored by the National Bureau in Paris, September 11–12. The purpose of the conferences is to strengthen existing networks of communication between NBER research associates and European economists. Two of the seven papers presented were by American economists, the rest by Europeans. All focused on international macroeconomic issues or on national issues with international implications.

Cochairmen for the conference were Georges de Menil of the Ecole des Hautes Etudes en Sciences Sociales, and Robert Gordon, NBER research associate and professor of economics at Northwestern University. Members of the Advisory Committee, in addition to Professors Gordon and de Menil, were: Giorgio Basevi (Istituto di Scienze Economiche, Bologna); John Flemming (Nuffield College, Oxford); Robert E. Hall (NBER and Stanford University); Heinz König (Universität Mannheim); and Jean Waelbroeck (Université Libre de Bruxelles).

Titles of the papers presented at the conference, their authors, and discussants were:

Giorgio Basevi and Renzo Orsi, "Exchange Rate Changes and Their Effect on Export Price in a Disequilibrium Model of Italy's Foreign Trade"

Discussants: Angus Deaton and Jacob Frenkel
Andre Dramais, "The Convoy or the Locomotives: Policies to Overcome the Recession"

Discussants: Rodney Dobell and Serge-Christophe Kolm

Robert E. Hall, "Some Evidence on the Sources of Economic Fluctuations"

Discussants: William Branson and Dennis Sargan
Mervyn King and Jacques Mairesse, "Profitability in Britain and France 1956–75: A Comparative Study"

Discussants: Martin Feldstein and Heinz König
Dennis Sargan, "A Model of Wage-Price Inflation"

Discussants: Christopher Sims and Jean Waelbroeck

Christopher Sims, "Small Econometric Models of the U.S. and West Germany Without Prior Restrictions"

Discussants: John Helliwell and Edmond Malinvaud

Jürgen Wolters, "Business-Cycle Stabilization Policies in a Small Econometric Model of the FRG"

Discussants: John S. Flemming and Robert E. Hall.

In addition there was a policy roundtable on the theme, "Counter-inflationary Policies—National Differences in Constraints and Priorities," in which John Flemming, Robert Gordon, Georges de Menil, and Norbert Walter participated.

New York Office Moves

The National Bureau's New York office moved in November to a new location at 15-19 West 4th Street, New York, New York 10012. The Bureau shares the building with the Economics Department of New York University and both parties expect to benefit from sharing facilities and from exchanging ideas.

Robert E. Lipsey, professor of economics at Queens College, City University of New York, will continue as director of the office and Christine Mortensen as business manager. Among the research associates at the New York office will be Geoffrey H. Moore, director of business-cycle research; Ann Bartel, Phillip Cagan, and Jacob Mincer of Columbia University; Charlotte Boschan and Linda Edwards of Queens College; Solomon Fabricant and Michael Grossman of the Graduate Center, City University of New York; M. Ishaq Nadiri of New York University; and Anna J. Schwartz.

Bureau Launches Study of Capital Formation

The National Bureau will make the study of capital formation a major focus of its research for at least the next five years. To launch the Bureau's research, the Andrew W. Mellon Foundation has made a three-year award of \$750,000. Additional funds are being sought from other sources.

Bureau economists from regular working groups in business taxation and finance; monetary economics and financial markets; international studies; economic fluctuations; and social insurance will participate in the capital formation study, providing a broad perspective on the problem. Martin Feldstein, president of the Bureau, will serve as the general director of the research program. This study will not contain policy recommendations, but will develop the objective, quantitative information that can be used by others in policy formation.

The Capital Formation Project will contain approximately eight major areas of research. One will focus on how taxes affect the supply of savings and the demand for different kinds of investments, with particular emphasis on the combined impact of inflation and tax policies. Another section of the study will be devoted to how social security and private pension funds have influenced the supply of savings over the past thirty years. The importance of pension obligations as corporate liabilities and the effect of these liabilities on other corporate financing and investment decisions will also be explored as part of this analysis. The effect of fiscal and monetary policy on capital formation will form the basis of the third major area of the study; NBER researchers will try to quantify the effects of government deficits and analyze how nominal interest rates influence investment and financing decisions. Another key area to be explored in

the study is the role of international capital flows, with a particular focus on: (1) the causes of both foreign investment in the U.S. and U.S. investment abroad and (2) the consequences of these two-way flows for employment, productivity, and the balance of trade.

Other major questions to be pursued in the study include: how expenditures on research and development affect corporate productivity; the changing role of debt and equity finance; and the impact of investment in residential housing on capital formation—specifically, how current tax rules and methods of financing home ownership influence total capital formation and its division between residential and nonresidential capital. New aspects of the study and new opportunities for research will undoubtedly be added to the agenda as the program develops.

Although the study can be divided into several specific research areas, the research is planned as a coordinated and interdependent program in which interaction between individual researchers will be a key element. A series of joint research projects, small working meetings, and occasional mini-conferences will assure a high degree of collaboration and interaction among the researchers. The National Bureau will also bring researchers together each summer while the study is in progress to enable participants to work together for an extended period of time.

Bureau Opens Cambridge Office

During the summer the National Bureau opened its new Cambridge office. Located at 1050 Massachusetts Avenue, near Harvard Square, the new office will house the research activities and administrative functions of the Bureau, including accounting, which transferred from New York to Cambridge in September. Conference facilities, computer equipment and data tapes, and comfortable offices contribute to the attractive research environment in Cambridge.

Chicago Press to Publish NBER Books

The National Bureau has signed a long-term agreement with the University of Chicago Press to publish monographs and conference volumes. The National Bureau will, however, continue to use special issues of journals and other publishers when circumstances warrant.

The first NBER-Chicago books, available in the winter of 1979-80, are: *Population and Economic Change in Developing Countries*, a Universities-National Bureau conference volume edited by Richard Easterlin; and two volumes from the conference on Income and Wealth: *New Developments in Productivity Measurement*, edited

by John Kendrick and Beatrice Vaccara, and *The Measurement of Capital*, edited by Dan Usher. In 1980 the University of Chicago Press is also expected to publish a third Income and Wealth conference volume, *Modeling the Distribution and International Transmission of Wealth*, edited by James Smith, and the proceedings of the October 1978 conference on rational expectations organized by Stanley Fischer (see separate story in this issue).

The University of Chicago Press will accept standing orders from any person or institution wishing to receive all National Bureau books it publishes and will notify any others of upcoming NBER-Chicago publications. The National Bureau is therefore discontinuing its program of special and standard subscriptions at the end of 1978. Future NBER books and conference volumes not published by the University of Chicago Press will be available directly from their respective publishers.

1978-79 Research Associates

The Board of Directors of the National Bureau has appointed the following research associates for 1978-79:

Auerbach, Alan J.
 Baily, Martin
 Barro, Robert
 Bartel, Ann P.
 Becker, Gary S.
 Bhagwati, Jagdish N.
 Blinder, Alan S.
 Boschan, Charlotte
 Boskin, Michael J.
 Bradford, David F.
 Branson, William
 Cagan, Phillip
 Carlton, Dennis
 Chamberlain, Gary
 Clark, Kim B.
 Coate, Douglas
 Cragg, John G.
 Darby, Michael R.
 Dhrymes, Phoebus
 Dornbusch, Rudiger
 Edwards, Linda N.
 Eisner, Robert
 Engerman, Stanley
 Feldstein, Martin
 Fischer, Stanley
 Fogel, Robert W.
 Freeman, Richard B.
 Frenkel, Jacob A.
 Friedman, Benjamin M.
 Fuchs, Victor R.
 Gallman, Robert
 Gandolfi, Arthur
 Goldin, Claudia
 Gordon, Robert
 Gordon, Roger
 Green, Jerry
 Griliches, Zvi
 Gronau, Reuben
 Grossman, Michael
 Hall, Robert E.
 Hartman, David

Heckman, James J.
 King, Mervyn
 Klein, Phillip
 Kotlikoff, Laurence
 Kravis, Irving B.
 Krueger, Anne O.
 Kurz, Mordecai
 Landes, William M.
 Layard, Richard
 Lazear, Edward P.
 Lewellen, Wilbur
 Lewis, Greg
 Lipsey, Robert E.
 Lothian, James
 Malkiel, Burton
 McLure, Charles E., Jr.
 Medoff, James L.
 Michael, Robert T.
 Mincer, Jacob
 Moore, Geoffrey H.
 Myers, Stewart
 Nadiri, M. Ishaq
 Pashigian, Peter B.
 Pellechio, Anthony J.
 Polinsky, A. Mitchell
 Popkin, Joel
 Posner, Richard A.
 Rees, Albert
 Rosen, Harvey
 Rosen, Sherwin
 Sargent, Thomas
 Schwartz, Anna J.
 Shoven, John
 Stiglitz, Joseph E.
 Taubman, Paul
 Viscusi, Kip
 Wachter, Michael
 Willis, Robert J.
 Wise, David A.
 Zarnowitz, Victor
 Zeckhauser, Richard

Recent Publications

The following NBER monographs and conference volumes have recently been published. Except as indicated, they are available from Ballinger Publishing Company, 17 Dunster Street, Cambridge, Massachusetts 02138.

Jagdish N. Bhagwati, *Anatomy and Consequences of Exchange Control Regimes*.

George Garvy, *Money, Financial Flows, and Credit in the Soviet Union*.

Gregory K. Ingram, ed., *Residential Location and Urban Housing Markets*.

Thomas F. Juster, ed., *The Distribution of Economic Well-Being*.

Anne O. Krueger, *Liberalization Attempts and Consequences*.

Harvey McMains and Lyle Wilcox, eds., *Alternatives for Growth: The Engineering and Economics of Natural Resources Development*.

"Research in Taxation," proceedings of a conference published as a special issue of the *Journal of Political Economy*, Vol. 86, No. 2, April 1978.

"The Economics of Physician and Patient Behavior," proceedings of a conference published as a special issue of the *Journal of Human Resources*, fall 1978.

The following are forthcoming from Ballinger Publishing Company:

Jere Behrman and James Hanson, eds., *Planning and Short-Term Macroeconomic Policy in Latin America*.

Phillip Cagan and Robert Lipsey, *The Financial Effects of Inflation*.

Robert Eisner, *Factors in Business Investment*.

Abramovitz to Head American Economic Association

Moses Abramovitz, long an affiliate of NBER, was nominated president-elect of the American Economic Association at the annual AEA meetings earlier this year.

A distinguished scholar, well known for his work on economic cycles and growth, Abramovitz served as a member of the National Bureau's research staff from 1938 to 1969 and as director of NBER's Program in Business-Cycle Research from 1946 to 1948. He has been a member of the Board of Directors of NBER since 1968.

Now Coe Professor Emeritus of American Economic History at Stanford University, Abramovitz began his academic career at Harvard in 1936 as an instructor in economics. He served as principal economist on the War Production Board and the OSS before his appointment as a professor of economics at Stanford in 1948.

Among his major works are: *Inventories and Business Cycles; Evidence of Long Swings in Aggregate Con-*

struction Since the Civil War; *The Growth of Public Employment in Great Britain* (with Vera Eliasberg); "Resource and Output Trends in the United States Since 1870"; "The Nature and Significance of Kuznets Cycles"; "Manpower, Capital, and Technology"; and "Rapid Growth Potential and Its Realization: The Experience of Capitalistic Economies in the Postwar Period," a paper presented earlier this year to the Fifth World Congress of the International Economic Association.

New Board Members

Four new members were recently named to the National Bureau's Board of Directors: **George Conklin**, **Stephan Kaliski**, **Richard Rosett**, and **Stephen Stamas**.

George Conklin is chairman of the board and chief executive officer of the Guardian Life Insurance Company, which he joined in 1939 upon leaving Wall Street. He was educated at Dartmouth College, Columbia University, New York University, and the New School for Social Research. He has A.B., M.C.S., and Ph.D. (economics) degrees and is a member of Phi Beta Kappa.

Among other activities, Conklin serves as trustee and member of the executive committee of Hubbard Real Estate Investments, trustee of Adelphi University, member of the board of overseers of the Amos Tuck School at Dartmouth, trustee of the Central Savings Bank, member of the advisory committee of the Wharton School of Finance, member of the Conference of Business Economists, and member of the Business Economists' Council. He is also a member of the research committee of the Institute of Life Insurance and a member of the finance committee of the Teachers Insurance and Annuity Association.

The Canadian Economics Association will be represented on the National Bureau's Board of Directors by Professor Stephan Kaliski of Queen's University. Kaliski, who holds a Ph.D. from Cambridge University, has been on the faculty of Carleton University, has served as a research supervisor for the Royal Commission on Taxation, and is currently managing editor of the *Canadian Journal of Economics*.

Kaliski's early research centered largely on Canadian trade, especially with the United States and the United Kingdom. More recently he has studied such aspects of unemployment as the tradeoff between unemployment and inflation in Canada, structural unemployment, and the effects of social insurance on unemployment.

Richard Rosett is dean and professor of business economics at the University of Chicago's Graduate School of Business. In addition to his academic duties, Rosett serves on numerous corporate boards, is a trustee of the Tax Foundation, is a consultant to the Department of Health, Education and Welfare, and is a member of HEW's National Committee on Vital and Health Statistics.

Prior to his appointment at the University of Chicago in 1974, Rosett was on the faculty of the University of

Rochester, where he served as chairman of the economics department and as a professor of preventive medicine and community health. In addition to being the author of numerous articles in academic journals, Rosett edited the 1976 Universities-National Bureau conference volume, *The Role of Health Insurance in the Health Services Sector*.

Stephen Stamas is vice president for public affairs of Exxon Corporation. He has previously held positions in the financial, supply, and corporate planning areas of Exxon and was formerly Exxon's chief economist.

Stamas did his undergraduate work at Harvard, earned a Bachelor of Philosophy degree from Oxford, where he was a Rhodes scholar, and has a Ph.D. in economics from Harvard. Before joining Exxon in 1960, Stamas was a budget examiner for the U.S. Bureau of the Budget and a loan officer for the Development Loan Fund. He also served as deputy assistant secretary for financial policy in the U.S. Department of Commerce during 1968-69.

Among the many organizations Stamas serves as a trustee are: the William H. Donner Foundation, Wells College, the World Peace Foundation, the Overseas Development Council, the Asia Society, and the Institute of International Education. He is also a member of the Council on Foreign Relations.

New Palo Alto Office Director

Robert Michael, associate professor of economics at Stanford University and codirector of NBER's research project on economics of the family, has been named the new director of the Palo Alto office of the National Bureau. He replaces Victor Fuchs, who resigned as director of the Palo Alto office after more than a decade as a corporate officer of the Bureau. Fuchs, a professor of economics at Stanford University, will continue his affiliation with NBER as a research associate.

NBER Names Emeritus Research Associates

Six distinguished economists have been designated as NBER's first Emeritus Research Associates: **Arthur Burns**, **Solomon Fabricant**, **Milton Friedman**, **Raymond Goldsmith**, **Simon Kuznets**, and **George Stigler**. The position was recently created by the National Bureau's Board of Directors to provide a continuing formal affiliation with selected research associates who have had long and distinguished NBER careers.

Burns, who recently retired as chairman of the Board of Governors of the Federal Reserve System, has been affiliated with the Bureau since 1930, when he was named a research associate. He served as a member of the research staff until 1969 and was director of research from

1945–53. Burns served as president of NBER from 1957–67, and subsequently as chairman of the Board of Directors. He is now honorary chairman of the Board of Directors. Among Burns's NBER books are: *Production Trends in the United States Since 1870*, Wesley Clair Mitchell; *The Economic Scientist*, *The Frontiers of Economic Knowledge*, *Measuring Business Cycles* (with Wesley C. Mitchell), and *The Business Cycle in a Changing World*.

Fabricant's affiliation with NBER also began in 1930 with his appointment as a member of the research staff, a position he held until 1972. He became director of research in 1953 and served in that capacity until 1965. Bureau books authored by Fabricant include: *Capital Consumption and Adjustment*, *The Output of Manufacturing Industries, 1899–1937*, and *The Trend of Government Activity in the United States Since 1900*. Fabricant is now a professor emeritus and lecturer in economics at New York University, where he has taught since 1945.

Friedman has been affiliated with the National Bureau since 1937, when he became a member of the research staff. As an NBER associate he completed work which received wide recognition, including the Nobel Prize in 1976. *Income from Independent Professional Practice*, which he coauthored with Simon Kuznets, was his first Bureau book. Following *A Theory of the Consumption Function*, he wrote *A Monetary History of the United States: 1867–1960* with Anna Schwartz. He is now engaged in further research on the monetary history of the U.S. and the United Kingdom with Schwartz.

Goldsmith was born in Brussels, Belgium, and received his doctorate from Berlin University. Besides being affiliated with the National Bureau since 1950, Goldsmith was a professor of economics at Yale University from 1960–74, served on the senior staff of the Council of Economic Advisers, and was vice president of the development center of the Organization for Economic Cooperation and Development from 1963–65. Goldsmith is best known for his NBER research on the capital stock of the nation published in *The National Wealth of the United States in the Postwar Period* and his two-volume *Studies in the National Balance Sheet of the United States* (coauthored with Robert Lipsey and Morris Mendelson). Goldsmith's Bureau research on financial markets resulted in *Financial Intermediaries in the American Economy Since 1900*, *The Flow of Capital Funds in the Postwar Economy*, and *Institutional Investors and Corporate Stock—A Background Study*.

A native of Russia, Dr. Kuznets served as a member of the NBER research staff from 1927–61. His studies of national income accounting, capital formation, and economic growth, carried out under NBER sponsorship, were among those cited when he received the 1971 Nobel Prize in Economics. Prominent among Kuznets's Bureau publications are: *Seasonal Variations in Industry and Trade*, *Commodity Flow and Capital Formation*, *National Income and Capital Formation, 1919–1935*, *National Income and Its Composition, 1919–1938*, *National Product in Wartime*, *National Product Since 1869*, *Shares of*

Upper Income Groups in Income and Savings, *Capital in the American Economy: Its Formation and Financing*, and *National Income: A Summary of Findings*.

During his tenure as a member of the National Bureau's research staff Stigler wrote: *Trends in Employment in the Service Industries*, *The Demand and Supply of Scientific Personnel* (with David Blank), *Capital and Rates of Return in Manufacturing Industries*, and *The Behavior of Industrial Prices* (with James Kindahl). Stigler held academic appointments at Iowa State College, the University of Minnesota, Brown University, and Columbia University before being appointed Walgreen Professor of American Institutions at the University of Chicago in 1958.

Current Working Papers

Individual copies of NBER Working Papers are available free of charge to corporate associates and corporate supporters of the National Bureau. Others can receive copies of the Working Papers by sending \$1.00 per copy to the appropriate issuing office: (N) New York—15–19 West Fourth Street, New York, NY 10012; (C) Cambridge—Working Papers, NBER, 1050 Massachusetts Avenue, Cambridge, MA 02138; (W) NBER West—204 Junipero Serra Boulevard, Stanford, CA 94305. Please make checks payable to the National Bureau of Economic Research, Inc.

Abstracts of all Working Papers issued since May 1978 are presented below. For earlier Working Papers, see previous issues of the **NBER Reporter**. The Working Papers abstracted here have not been reviewed by the Board of Directors of NBER.

Forecasting with the Index of Leading Indicators

Beatrice N. Vaccara and Victor Zarnowitz

Working Paper No. 244 (C)

May 1978

The composite index of leading indicators is found to be a valuable tool for predicting not only the direction but also the size of near-term changes in aggregate economic activity. This conclusion is based on assessments of the leading index as a predictor of: (1) business cycle turning points as dated by the National Bureau of Economic Research and (2) quantitative changes in real GNP and the composite index of coincident indicators. Specific smoothing rules are identified which reduce the frequency of false signals but still provide adequate early warning of cyclical turning points. Simple regression models based on first differences in the logarithms produce a comparatively good record of forecasts one and two quarters ahead. The best results are obtained by

using predictive chains whereby, e.g., quarterly changes in the lagging index (inverted) for Q_t are used to forecast changes in the leading index in quarter Q_{t+1} which in turn are used to forecast changes in real GNP (or the coincident index) in Q_{t+2} .

The Propagation of Prices in the Oil Industry 1958-74

Avram Kisselgoff

Working Paper No. 245 (C)

May 1978

The main thrust of this report is the development of a price record that would provide a basis for the identification of the areas of activity in the oil industry in which significant price changes have occurred, with expectation that this type of information could serve as a useful ingredient in the policy-making process.

The study presents estimates of the selling price of a barrel of oil at three stages of operations of the industry—the wellhead, the refinery, and the end-use levels. Prices of individual classes of petroleum products at refineries and at the end-use level were also estimated. The price data are provided for benchmark years 1958, 1963, 1967, and 1972, as well as for 1973 and 1974, when crude oil prices rose considerably. The estimating procedure is briefly described in the study.

The examination of the transmission of prices from market to market within the oil industry shows that the steep rise in 1973-74 prices paid by end-users of petroleum products was due not only to the large increases in crude oil prices but also to the sizeable increases in gross operating margins—labor costs, transportation, profits, etc.—at the refinery and distribution levels. Another finding is that during 1973-74 there was a considerable narrowing in the price differentials among the various refined products; in particular the price of residual fuel oil, which averaged 20 percent of the price of gasoline in the decade of the 1960s, rose to 52 percent of the price of gasoline by 1974.

The study includes a short discussion of the effects of rising oil prices in 1973-74 on the profitability of the petroleum industry and the general price level.

Causation Among Socioeconomic Time Series

Robert T. Michael

Working Paper No. 246 (W)

May 1978

Using annual U.S. time-series data from 1950-74, formal tests of causation are performed among three socioeconomic phenomena: women's labor force participation rates, fertility rates, and divorce rates. Box-Jenkins and other techniques are employed with Granger-Sims type definition of causation based on leads and lags.

Women's labor force participation appears to be caus-

ally prior to both fertility and divorce; the direction of effect on fertility is negative and on divorce, positive. Additional tests with alternative definitions of variables and a longer (1924-74) time span also exhibit causal influence from fertility to divorce (with no feedback). When per capita income is also tested for causal influence, it too appears causally prior to fertility and divorce.

Bank Capital Adequacy: A Time-Series Analysis

Laurie Goodman and William F. Sharpe

Working Paper No. 247 (W)

May 1978

The first part of this paper provides a historical perspective on bank risks. Five-year moving average measures of total risk, market risk, and nonmarket risk are computed for an index of New York banks from 1929-76 and for an index of outside New York banks from 1950-76. We use a carefully constructed series of bank balance sheet data to compute correlations among various components of New York banks' portfolios and observe trends over time. The time-series relationship between book values and market values is investigated, and classical measures of capital adequacy are calculated using surrogates for market values rather than book values. Finally, data are presented on the movement of interest rates and the term structure over time. Serial correlations and cross correlations are computed.

The second part of the paper uses the technique proposed in Sharpe ("Bank Capital Adequacy, Deposit Insurance, and Security Values," June 1978) to gain information about capital adequacy. He has shown that for a bank with deposit liabilities that do not extend beyond the review period a "value preserving spread" in asset risk is likely to increase the value of capital. Moreover, the less adequate the capital, the larger this effect should be. We outline the method used to develop an econometric model to test for this effect. The model is then applied to time-series data from 1938 to 1975.

Unionism and the Dispersion of Wages

Richard B. Freeman

Working Paper No. 248 (C)

June 1978

This paper examines the effect of trade unionism on the dispersion of wages in the U.S. It finds that union wage policies designed to "standardize" rates within and across establishments significantly lower inequality in the union sector and that trade union wage gains reduce white-collar-blue-collar differentials within establishments, which also reduces inequality. These effects dominate the more widely studied impact of unionism on blue-collar earnings differentials so that on net unionism appears to reduce rather than increase wage dispersion or inequality in the U.S.

Education and Self Selection

Robert J. Willis and Sherwin Rosen

Working Paper No. 249 (W)

June 1978

A structural model of the demand for college attendance is derived as a selection problem in the theory of comparative advantage, in which individuals are endowed with different kinds of talents. Some talents and abilities are more valuable in the types of work associated with college education and others are more valuable for work associated with high school education. For example, mechanical abilities are less important for lawyers than for plumbers, whereas verbal abilities are much more valuable for lawyers. The market tends to sort people into work activities for which they have a comparative advantage, as indexed by expected earnings in each activity. The structural model also allows for the influence of parental background in the selection process.

Estimates are based on NBER-Thorndike data and support the theory. There is marked heterogeneity in the population and expected financial gains from college attendance are distributed with substantial variance. Nevertheless, those with greater expected gains have a much larger probability of attending college. The elasticity of demand for college attendance with respect to the permanent college-high school earnings differential is 2.0. Parental background factors also influence demand. The data support the comparative advantage theory: those who did not attend college would have earned less as college graduates than those who actually chose to attend. More surprisingly, those who attended college would have earned less as high school graduates than did those who actually chose high school. There is no "ability bias" in these data.

The Effects of Taxation on the Selling of Corporate Stock and the Realization of Capital Gains

Martin Feldstein, Joel Slemrod, and Shlomo Yitzhaki

Working Paper No. 250 (C)

June 1978

This study provides the first econometric analysis of the effect of taxation on the realization of capital gains. The analysis thus extends and complements the earlier study by Feldstein and Yitzhaki (1978) of the effect of taxation on the selling of corporate stock. The present analysis, using a large, new body of data obtained from individual tax returns, supports the earlier finding that corporate stock sales are quite sensitive to tax rates and then shows that the effect on the realization of capital gains is even stronger.

More specifically, the estimated tax sensitivity implies that limiting the capital-gains tax rate to 25 percent would have caused an almost threefold increase in the total value of the net gains realized in the 1973 sample year.

As a result, the reduction in tax rates would have substantially increased the revenue produced by the capital-gains tax rate.

A Theory of the Natural Unemployment Rate and the Duration of Employment

Robert E. Hall

Working Paper No. 251 (W)

July 1978

In this paper, a theory of the natural or equilibrium rate of unemployment is built around a theory of the duration of employment. Evidence is presented that most unemployed workers became unemployed because their previous jobs came to an end; only a minority are on temporary layoff or have just entered the labor force. Thus, high-unemployment labor markets are generally ones where jobs are brief and there is a large flow of newly jobless workers. The model of the duration of employment posits that employment arrangements are the efficient outcome of the balancing of workers' and employers' interests about the length of jobs. Full equilibrium in the labor market also requires that the rate at which unemployed workers find new jobs be efficient. The factors influencing the resulting natural unemployment rate are discussed. Under plausible assumptions, the natural rate is *independent* of the supply or demand for labor. Only the costs of recruiting, the costs of turnover to employers, the efficiency of matching jobs and workers, and the cost of unemployment to workers are likely to influence the natural rate of unemployment strongly. Since these are probably stable over time, the paper concludes that fluctuations in the natural unemployment rate are unlikely to contribute much to fluctuations in the observed employment rate.

The Nature and Measurement of Unemployment

Robert E. Hall

Working Paper No. 252 (W)

July 1978

Problems of defining and measuring unemployment in the contemporary American economy are examined here using data from the official employment survey. The paper finds that only a minority of the unemployed conform to the conventional picture of a worker who has lost one job and is looking for another job. Other important categories are those who have jobs but are not at work because the jobs have not yet started or because of layoff, workers who are in normal spells between temporary jobs, people who are looking into the possibility of work as an alternative to household duties, school, or retirement, and people who have come back into the labor force. None of these categories is dominant. One of the most significant findings is the large number of the unemployed (close to a million in 1977) who are looking

for temporary work. Another important finding is that only a minority of the unemployed are looking for work as their major activity during the week of the survey. The majority of those classified officially as unemployed are identified by the household as keeping house, going to school, or retired.

Inflation and the Choice of Asset Life

Alan J. Auerbach

Working Paper No. 253 (C)

July 1978

Given the current corporate tax structure in the U.S., inflation may have an important impact on the production decisions of firms, notably the choice of capital durability.

This paper presents a model of competitive behavior in which firms may choose the durability of their capital goods. We find that in the presence of inflation, the taxation of corporate profits may influence both the choice of asset life and the market value of equity. In particular, the failure to index depreciation allowances depresses share values and biases the choice of asset life toward greater durability.

Integrating this analysis with the traditional one-sector monetary growth model, we study the general equilibrium impact of inflation on such long-run characteristics of the economy as output per capita and the real rate of return received by investors.

Wealth Maximization and the Cost of Capital

Alan J. Auerbach

Working Paper No. 254 (C)

July 1978

Traditional results about corporate financial policy have suggested that firms acting in the best interests of their stockholders should seek to maximize the value of their corporate securities. Toward this objective, firms should use a composite "cost of capital," a weighted average of the rates of return required by holders of debt and equity, in their discounting decisions, and should choose the debt-equity ratio to minimize this cost.

This paper explores the issue of present value maximization and the implied behavior of the firm, paying particular attention to the results discussed above and how they are affected by the existence of capital income taxes. Our results indicate that a tax structure similar to that in existence in the U.S. influences the cost of capital in a very different way than has been assumed previously and that the relative advantages of debt over equity as a method of finance, and capital gains over dividends as a vehicle for personal realization of corporate profits, may have been greatly overstated.

Share Valuation and Corporate Equity Policy

Alan J. Auerbach

Working Paper No. 255 (C)

July 1978

Many writers have extended the work of Modigliani and Miller to consider the effects on financial policy of corporate and personal taxation. However, there has yet to appear an adequate explanation of why corporations continue to distribute dividends despite their disadvantageous tax treatment. We study this problem anew, in the context of an overlapping generations growth model with corporations financed by equity. Among our findings are:

1. Capital owned by corporations may well be undervalued, even in the long run.
2. As a result of such undervaluation, firms may find it in the best interest of their stockholders to distribute dividends.
3. An increase in the tax on distributions, while depressing the return to personal saving, may lead to an increase in the capital intensity of the economy.

We also consider the criteria firms will use in evaluating new investment projects.

Children's Health and the Family

Linda N. Edwards and Michael Grossman

Working Paper No. 256 (C)

July 1978

This paper examines the relationship between family characteristics and the health of white children aged 6 to 11 years residing in those families. The partial effects of family income on health are small and seldom statistically significant. Indeed, some health problems—high blood pressure, allergies, and tension—are *more* likely to occur among children from high-income families. That differences in health related solely to income are smaller than commonly believed implies that policies to improve the well-being of children via income transfers would have limited effects on health. In most instances children of well-educated parents are in better health than those of less well-educated parents. The mother's labor force status and family size are strongly related only to the health variables representing the child's nutritional status (height, weight, and the periodontal index). Children whose mothers are in the labor force or who come from larger families are likely to score more poorly with respect to these nutritional measures. These results are important in the light of the upward trend in the labor force participation rate of married women with children and the downward trend in family size in the United States.

The Lock-in Effect of the Capital-Gains Tax: Some Time-Series Evidence

Joel Slemrod and Martin Feldstein

Working Paper No. 257 (C)

July 1978

This short note examines the annual data on realized capital gains by taxpayers at different income levels. When the Treasury data are disaggregated in this way, it becomes clear that since 1969 high-income taxpayers have sharply reduced their realization of gains while lower-income taxpayers have actually increased their realization of gains. This supports the conclusion of our recent study with individual tax return data that the realization of gains is very sensitive to the capital-gains tax rate. Unlike the previous study, the current analysis deals with all types of capital gain and not just gains on corporate stock.

Imported Inflation 1973-74 and the Accommodation Issue

Phillip Cagan

Working Paper No. 258 (C)

July 1978

The escalation of worldwide inflation in 1973-74 posed questions about the extent of the foreign contribution to domestic U.S. inflation and about the proper conduct of monetary policy in the face of foreign-induced price increases. One proposal was that monetary policy accommodate foreign-induced price increases on the grounds that their reversal would require a prolonged period of slack demand and reduced output. The proposal assumes that price increases of input materials are passed through to output prices fairly quickly, whereas the downward pressure on prices from monetary restraint and slack demand works slowly. To clarify the implications of monetary accommodation, this study estimates the direct effect on prices via input costs of foreign price increases in 1973-74.

The estimate is based on input and output price indexes of fifty-four industries, covering three-fourths of manufacturing. Input materials prices determined abroad were selected by the fraction of total domestic supply imported or exported. If the fraction was 20 percent or higher, the input price was assumed to be determined entirely abroad and exogenously to the domestic economy; if less than 20 percent, the price was assumed to be determined entirely domestically. Feedback of foreign-induced price increases on other domestic prices was calculated by means of the input-output matrix. Although the selection of foreign-induced price increases is only approximate, the results were reasonable and comparable with other estimates based on different methods.

The foreign contribution was estimated to be four-

tenths of the rise in manufacturing prices in 1973-74. The corresponding contribution to the consumer price index would be somewhat lower.

Inventory Fluctuations, Temporary Layoffs, and the Business Cycle

Martin Feldstein and Alan J. Auerbach

Working Paper No. 259 (C)

July 1978

Firms respond to fluctuations in demand by changing their inventories and their levels of production. The relative magnitudes of the inventory and production responses have important implications for the overall cyclical behavior of the economy. Government policies that affect the costs of holding inventories and the costs of the temporary layoffs that accompany reductions in the level of output can therefore have significant effects on the magnitude of aggregate fluctuations. The current paper presents new econometric evidence on the nature of inventory adjustments and then examines how changes in inventory behavior affect the overall business cycle.

The analysis in this paper was motivated by our discovery that the parameter estimates of the traditional productional adjustment model are not consistent with the observed magnitudes of inventory change and the production. We have shown here that this production adjustment model is a special case of a more general two-speed adjustment process in which both production and inventory targets adjust slowly. Our estimates of the two-speed model clearly reject the production adjustment model in favor of the target adjustment model in which the inventory target adjusts slowly to changes in sales but production adjusts rapidly to changes in the desired inventory.

Our analysis of the spectral properties of a simple macroeconomic model show that the production adjustment model and the target adjustment model can imply quite different cyclical behavior of the economy as a whole. Depending on the autocorrelation of the disturbance, government policies that reduce the speed with which production responds to changes in desired inventories and that place greater reliance on inventory adjustment may stabilize national income. Further analysis of these questions with more realistic models would clearly be desirable.

The Effect of Social Security on Retirement

Anthony J. Pellechio

Working Paper No. 260 (C)

July 1978

This study examines the impact of social security on the retirement of married men aged 60-70 years. The empirical results are based on a rich file of data from the

Social Security Administration (1973 CPS-IRS-SSA Exact Match File). The data permit precise calculation of social security wealth (the actuarial present value of benefits that a person would receive by retiring) denoted SSW. This variable measures social security's effect on retirement. The estimated effects are significant and considerable. When SSW increases from \$35,000 to \$55,000 the probability of retirement rises by .15 for 62-64-year-olds relative to a .41 retirement rate. For 65-70-year-olds this increase is .22 relative to .78. For 60-61-year-olds who are entitled to SSW but not old enough to receive benefits the estimated effect was small and insignificant. This supports the conclusion that the observed effect on men eligible for benefits is a causal relationship.

The traditional method of comparing market and reservation wages for analyzing the decision to work provides the basic econometric model. SSW is added to construct a retirement model. A two-step probit analysis is developed to identify structural parameters in the retirement model.

Survey Evidence on the "Rationality" of Interest Rate Expectations

Benjamin M. Friedman

Working Paper No. 261 (C)

July 1978

An analysis of market participants' predictions of six interest rates over 3-month-ahead and 6-month-ahead horizons, surveyed regularly over eight years by the *Goldsmith-Nagan Bond and Money Market Letter*, shows that the survey respondents did not make unbiased predictions, that (especially for the 6-month-ahead predictions) they did not efficiently exploit the information contained in past interest rate movements, that their respective 3-month-ahead and 6-month-ahead predictions failed to be consistent in the sense required for rationality, and that (for long-term but not short-term interest rates) their predictions failed to exploit efficiently the information contained in common macroeconomic and macro-policy variables.

A tentative conclusion warranted on the basis of these tests is that market participants can indeed improve their expectations formation process. The results on the exploitation of common macro series are especially instructive in this regard. For long-term interest rates (in contrast to short-term interest rates), market participants could have exploited more fully the information contained in each of the series tested—other than one. The single exception is the growth rate of the money stock, which even predictions of long-term rates exploited efficiently—perhaps because of the strong "monetarist" emphasis of the financial press during the last decade. Apart from the money stock, however, these results suggest that a better understanding of the role of familiar macroeconomic variables in the determination of long-

term interest rates would enable market participants to achieve significant improvements in their interest rate forecasting performance.

Changes in Household Living Arrangements 1950-76

Robert T. Michael, Victor R. Fuchs, and Sharon R. Scott

Working Paper No. 262 (W)

July 1978

This paper estimates the age-sex-marital status distribution of persons living alone in the U.S. in 1950 and analyzes the change in the size and composition of this population from 1950 to 1976. The per annum growth rate over this period (5.1 percent) is disaggregated into the proportion attributable to population change (1.4 percent), to change the age-sex-marital status composition (0.1 percent) and to change in the propensity to live alone given age, sex, and marital status (3.6 percent). A similar decomposition is performed for families headed by women.

We find the growth in single-person households to be a pervasive behavioral phenomenon in the U.S. in the postwar period. By 1976 more than 1 out of 10 adults lived alone, and among elderly widows over two-thirds lived alone; by contrast, in 1950 1 in 25 adults and only 1 in 4 elderly widows lived alone.

Finding a dramatic rise in the propensity to live alone, cross-state regression analyses are performed to identify determinants of this propensity for single men and women age 25-34 and for elderly widows. We find growth in income to be the principal explanation for the growing tendency to live alone. Other variables found to affect (positively) the choice to live alone include mobility, schooling level, and for the young a measure of the social climate, and for the elderly widows a measure of the availability of the alternative of living with one's children; nonwhites appear to have a somewhat lower propensity to live alone. The estimated cross-state structural equation captures over 75 percent of the growth in living alone between 1950 and 1976.

Adjudication as a Private Good

William M. Landes and Richard A. Posner

Working Paper No. 263 (W)

July 1978

This paper examines the question whether adjudication can be viewed as a private good, i.e., one whose optimal level will be generated in a free market. Part I focuses on private courts, noting their limitations as institutions for dispute resolution and rule creation but also stressing the important role that the private court, in its various manifestations, has played both historically and today. Part II discusses a recent literature which has argued that the rules generated in the public court system, in

areas of the law where the parties to litigation are private individuals or firms and the rules of law are judge-made, are the efficient products of purely private inputs. Our analysis suggests that this literature has overstated the tendency of a common law system to produce efficient rules, although areas can be identified where such a tendency can indeed be predicted on economic grounds. Viewed as a contribution to the emergent literature on the positive economic theory of law, our finding that the public courts do not automatically generate efficient rules is disappointing, since it leaves unexplained the mechanisms by which such rules emerge as they seem to have done in a number of the areas of Anglo-American judge-made law. However, our other major finding, that the practices and law governing private adjudication appear to be strongly influenced by economic considerations and explicable in economic terms, is evidence that economic theory has a major role to play in explaining fundamental features of the legal system.

The Pricing of Short-Lived Options When Price Uncertainty Is Log-Symmetric Stable

J. Huston McCulloch
Working Paper No. 264 (W)
July 1978

The well-known option pricing formula of Black and Scholes depends upon the assumption that price fluctuations are log-normal. However, this formula greatly underestimates the value of options with a low probability of being exercised if, as appears to be more nearly the case in most markets, price fluctuations are in fact symmetric stable or log-symmetric stable. This paper derives a general formula for the value of a put or call option in a general equilibrium, expected utility maximization context. This general formula is found to yield the Black-Scholes formula for a wide variety of underlying processes generating log-normal price uncertainty. It is then used to derive the value of a short-lived option for certain processes that generate log-symmetric stable price uncertainty. Our analysis is restricted to short-lived options for reasons of mathematical tractability. Nevertheless, the formula is useful for evaluating many types of risk.

The Fundamental Determinants of Risk in Banking

Barr Rosenberg and Philip R. Perry
Working Paper No. 265 (W)
July 1978

This study is concerned with establishing the determinants of banks' exposure to risk and with predicting risk

in banking. Using the COMPUSTAT data base, prediction rules have been developed for two aspects of risk: systematic risk (risk that is related to covariance with the market portfolio) and residual risk (the aggregate of specific risk and extra-market covariance). For each type of risk, several models have been estimated: one model employs only measures of the asset and liability characteristics of the bank; a second employs these characteristics and other data taken from annual reports; a third model adds the history of the behavior of the price of the bank's common stock. The central conclusion of the study is that systematic and residual risk in banks can be predicted from predetermined data. Prediction rules estimated in this way can serve a useful function in monitoring bank risk. Further, the predictive significance of each variable serves as a measure of the appropriateness of that variable as an indicator of risk, and hence as a target for regulation.

Interest Rate Risk and the Regulation of Financial Institutions

Jay B. Morrison and David H. Pyle
Working Paper No. 266 (W)
July 1978

A bank or other financial institution is potentially subject to at least four types of risk: (1) Credit risk—defaults or delays in repayments; (2) Fraud—embezzlement or insider abuse; (3) Liquidity risk—high cost of obtaining needed cash; (4) Interest rate risk—differential changes in the value of assets and liabilities as interest rates shift. This paper reports a study of the interest-rate elasticity of the net worth of a commercial bank. Most of the study is devoted to the development of the necessary methodology to measure the interest-rate elasticity (IRE) of a bank's asset/liability mix.

The report is organized into four major sections. The first summarizes the history of interest-rate elasticity models and points out the problems in applying them to bank assets and liabilities. An analytical framework is then developed to calculate the IRE of a portfolio of assets and liabilities.

The next three sections apply the framework to a simulated bank. For simplicity, the bank is assumed to have only two classes of assets (commercial loans and cash) and three classes of liabilities (demand deposits, large denomination CDs, and capital). The second section develops models of the cash flows associated with each of the assets and liabilities. The third section quantifies the parameters necessary to calculate the net worth and IRE measures, and the fourth section details the design of a simulation and some simulation results for the 1973-75 period.

The report concludes with a discussion of the regulatory implications of the study.

Interest Rate Changes and Commercial Bank Revenues and Costs

Sherman J. Maisel and Robert Jacobson
Working Paper No. 267 (W)
July 1978

This paper estimates statistical cost and revenue curves for a cross-section of banks in the years 1962-75. The primary data cover reported accounting or book rates of return. Approximations are also made to estimate economic or total returns. These approximations take into account changes in capital values during the year as a result of movements in interest rates measured by market yields of government securities of proper duration.

Book rates of return and costs adjust toward each other so that marginal rates received or paid for different activities tend to equalize. On the other hand, the rates of adjustment are slow. While movements in the cost of demand and time deposits correlate well with changes in market rates, not all of the advantages of interest rate ceilings are given up to depositors.

Movements in interest rates cause sharp fluctuations in total returns. These movements are sharp enough so that in several years economic losses occurred rather than reported book profits. Furthermore, over this period the net economic returns of classes of assets were poorly coordinated with their risks (their variance of returns).

Calculating the Present Value of an Asset's Uncertain Future Cash Flows

Stephen D. Nadauld
Working Paper No. 268 (W)
July 1978

This paper describes both the theory and a computer program designed to calculate the present value of an asset's uncertain future cash flows. In this model expected flows may vary in each of "t" future periods. Flows are adjusted to a certainty equivalent by a correction factor derived from a covariance matrix of the flows and market returns. The flows are discounted by a full specification of the term structure of the risk-free interest rate. The specific model illustrated in the paper is that of expected cash flows from a mortgage portfolio.

The computer program calculates the expected cash flow, the uncertainty correction, and the term structure of interest rates. Algorithms to solve for each of these factors are included. Alternatively, options are included to input the factors from exogenous forecasts or projections. In addition to calculating the present values under each specification for the factors, the program compares the present values derived from each particular specification.

Tax Neutrality and the Investment Tax Credit

David F. Bradford
Working Paper No. 269 (C)
August 1978

Under U.S. federal income tax law, a credit against tax is allowed equal to a fraction of the cost of qualifying investments. The fraction depends upon the durability of the asset, as measured by its "useful life." For assets with useful lives less than three years, no credit is allowed; assets with lives between three and five years qualify for 3-1/3 percent credit; those with lives between five and seven years, a credit of 6-2/3 percent; assets with lives of seven or more years, a credit of 10 percent. This credit against tax is ignored in the calculation of tax allowances for depreciation, which are based on the historical cost of the asset.

Both of these features of the tax rules have a bearing on the choice by an investor between long- and short-lived assets. The increasing rate of tax subsidy under the investment credit favors long-lived assets by comparison with a flat rate credit, while the neglect of the credit in calculating depreciation allowances favors short-lived assets (for which the depreciation allowance is a more important element in the cash flow). There is considerable confusion about which of these two biases in the rules is the right one.

This paper considers this issue by examining the requirement for efficient use of investment resources under different assumptions about the shape of the time profile of returns. The conclusion is reached that the present law treatment is qualitatively correct, but that no rule for calculating the credit will be exactly appropriate for different sorts of investments. For this purpose a system of partial write-off of investment expense, rather than the present credit, would be required.

Explaining Movements in Completed Fertility Across Cohorts

Lawrence W. Kenny
Working Paper No. 270 (W)
August 1978

A life-cycle model of fertility based on the quantity-quality model of fertility successfully explains changes in completed fertility in a period in which completed fertility first fell and then rose. This model furthermore accurately predicts the timing and level of the subsequent peak in completed fertility. Regressions based on Easterlin's relative economic status theory of fertility are less successful in predicting fertility over a fifteen-year period than regressions based on the quantity-quality model. Upon investigation, much of the increase in completed fertility associated with the baby boom appears to be primarily attributable to sporadic wage growth.

Male Wage Rates and Marital Status

Lawrence W. Kenny

Working Paper No. 271 (W)

August 1978

Numerous studies have found that married men earn considerably more than single men of the same education, experience, etc. There are several possible explanations of this phenomenon. Recent theoretical developments in the economics of marriage predict that males with higher wages have a greater gain from marriage and are therefore more likely to marry. Alternatively, one of the benefits of marriage is specialization in the labor force; married men spend more hours in the labor force than single males and thus have a greater incentive to invest in human capital.

The empirical work in this paper suggests that a large fraction of the unexplained wage differential between married males and unmarried males may be attributable to the former explanation.

The Social Security Earnings Test, Labor Supply Distortions, and Foregone Payroll Tax Revenue

Anthony J. Pellechio

Working Paper No. 272 (C)

August 1978

In this study the social security earnings test is shown to have a significant effect empirically on the labor supply of retirement-aged men. A rich data file from the Social Security Administration containing accurate benefit information provides a cross-section sample of 65-70-year-old married men who worked some amount for empirical investigation. The data pertain to 1972. The results indicate that eliminating the earnings test would increase labor supply by 151 annual hours and payroll tax revenue by \$31 per individual in the sample. The way in which the earnings test is relaxed is also important. Raising the exempt amount increased labor supply while lowering the tax rate did not. This follows from analyzing labor supply decisions over a nonlinear earnings-tested budget constraint. An econometric technique was developed for consistently estimating labor supply over nonlinear budget constraints. This technique conveniently summarized the budget constraint in an expected value calculation.

New Estimates of the Industrial Locus of Unionism in the U.S.

Richard B. Freeman and James L. Medoff

Working Paper No. 273 (C)

August 1978

This study presents new estimates of collective bargaining coverage and union membership for detailed

U.S. industries. It compares the new coverage and membership figures with each other and with figures derived by researchers for the early 1960s and analyzes the divergences. This analysis leads to three primary conclusions: (1) estimated coverage percentages are on average higher than estimated membership percentages; (2) this relationship is primarily the result of the absence of union security clauses (under which covered employees must at some point become union members); (3) even among production workers within detailed industries, private sector unionism has been dwindling during the past two decades.

The Dynamics of Youth Employment

Kim B. Clark and Lawrence H. Summers

Working Paper No. 274 (C)

August 1978

This paper analyzes the dynamics of youth unemployment. Three broad conclusions emerge. First, the problem of youth joblessness extends beyond the unemployed. We find that over one-half of youth unemployment spells end in labor force withdrawal. Much of youth nonemployment is not picked up in the official unemployment statistics, because many young people give up the search for work and leave the labor force. Second, a large part of youth unemployment is accounted for by a relatively small, hard-core group of young people who experience long spells of unemployment. While most unemployment spells are short, this is due to the high rates of labor force withdrawal, rather than to job finding. Among male teenagers out of school, for example, we find that over half of unemployment was due to those with more than six months of unemployment in the year. Third, a shortage of attractive jobs is the principal source of long-term nonemployment. While instability and frequent turnover are major factors in determining the overall pattern of teenage unemployment, we find that the lack of desirable employment opportunities is the crux of the problem for those most seriously affected by youth unemployment.

Fiscal Policies, Inflation, and Capital Formation

Martin Feldstein

Working Paper No. 275 (C)

August 1978

This paper studies the long-run impact of fiscal policies on inflation and capital formation. The analysis uses an expanded monetary growth model in which the government finances its deficit by issuing both money and interest-bearing debt.

One major focus of the paper is the effect of a permanent increase in the government's real deficit in a fully employed economy. The analysis shows that a greater

deficit must increase inflation, reduce capital formation, or both. With U.S. tax rules and the prevailing monetary and debt-management policies, a greater deficit is likely to cause *both* more inflation and lower capital intensity.

The second purpose of the paper is to analyze the effect of an exogenous increase in the saving rate and the possibility of "excessive saving" that arises when the yield on capital becomes so low that individuals prefer to hold government bonds rather than the more risky claims to real capital. Under some such conditions, an increase in saving could cause unemployment. The analysis shows that this problem can be avoided, however, by reducing the tax on capital income (or, in some cases, by an increased deficit that absorbs some but not all of the higher savings rate). In short, by using fiscal incentives as well as monetary accommodation, an increased saving rate can be converted to greater capital intensity.

Inflation and the Stock Market

Martin Feldstein

Working Paper No. 276 (C)

August 1978

This paper explains why the nominal level of share prices has failed to rise during a decade of substantial inflation. The key to the explanation is the features of the current U.S. tax laws, especially historic cost depreciation and the taxation of nominal capital gains, that cause the effective rate of tax on corporate source income to rise when there is a higher rate of inflation.

The current analysis shows that to understand the structural relation between inflation and share prices it is crucial to note that a *high* constant rate of inflation leaves the price-earnings ratio unchanged while an *increase* in the rate of inflation depresses the price-earnings ratio.

The higher nominal interest rates that accompany inflation actually represent lower real net-of-tax yields on alternative assets for most investors. The current analysis takes this into account in determining the share price.

The main focus of the paper uses a stock valuation model to derive the share demands of investors in different tax situations and then calculates the share value that achieves a market equilibrium. Numerical calculations illustrate the analysis with a representative individual and a representative tax-exempt institutional investor.

Labor Force Transitions and Unemployment

Kim B. Clark and Lawrence H. Summers

Working Paper No. 277 (C)

August 1978

This paper challenges conventional views of unemployment. Its results suggest that failure to examine closely labor force transitions has led to a misleading

picture of unemployment and the way the labor market functions in general. There are four main conclusions. First, labor force transitions are the principal determinant of fluctuations in employment and unemployment. We find that the vast majority of those newly employed come not from unemployment but from outside the labor force. Likewise, most spells of employment end with labor force withdrawal rather than unemployment. Second, traditional estimates of the duration of unemployment and the ease of job finding are seriously flawed by failure to take account of the 45 percent of all unemployment spells which end in labor force withdrawal. Third, reentrant unemployment is to a large extent the result of job-ending followed by a brief spell outside the labor force. Many reentrants would almost certainly be better classified as job losers and leavers completing long spells of unemployment rather than as entrants starting a new spell of unemployment. Fourth, it appears that many of those counted as out of the labor force are functionally indistinguishable from the unemployed.

Experience, Performance, and Earnings

James L. Medoff and Katharine G. Abraham

Working Paper No. 278 (C)

August 1978

This study provides direct evidence concerning the relationship between experience and performance among managerial and professional employees doing similar work in two major U.S. corporations. The facts presented indicate that while, within grade levels, there is a strong positive association between experience and relative earnings, there is either no association or a negative association between experience and relative performance. Since the fraction of the experience-earnings relationship that occurs within grades is substantial, the results imply that at a minimum a substantial fraction of the additional earnings associated with additional years in the labor market cannot be explained by the human capital model of productivity-augmenting on-the-job training.

The 1971-74 Controls Program and the Price Level: An Econometric Post-Mortem

Alan S. Blinder and William J. Newton

Working Paper No. 279 (C)

September 1978

This paper provides new empirical evidence on the effects of the Nixon wage-price controls on the price level. The main new features are: (1) that the controls are treated as a quantitative (rather than just a qualitative) phenomenon through the use of a specially constructed series indicating the fraction of the economy that was controlled, and (2) that the fine structure of the various

phases is examined by estimating the model on monthly data.

According to the best estimates, by February 1974 controls had lowered the price level by about 1.7 percent. After that point, and especially after controls ended in April 1974, a period of rapid "catch-up" inflation eroded the gains that had been achieved and, according to the estimates, even carried the price level slightly above what it would have been in the absence of controls. Thus the ending of controls can account for almost all of the burst of "double-digit" inflation in nonfood and non-energy prices during 1974.

A Fixed Effect Logit Model of the Impact of Unionism on Quits

Richard B. Freeman

Working Paper No. 280 (C)

September 1978

There are two possible reasons for unionized workers to have lower quit rates than otherwise comparable non-union workers: unions could organize employees with innately lower propensities to quit or they could reduce propensities by offering disgruntled workers alternatives to quitting in the form of grievance arbitration and related industrial jurisprudence systems. This paper uses a fixed effect logit model based on the conditional likelihood function to disentangle these two effects.

The paper finds that the observed union-quit tradeoff is due largely to the impact of unionism on worker behavior rather than to the propensity of stable workers to be organized, supporting the notion that unions have important nonwage effects along the lines suggested by the "exit-voice" model of union activity.

Disequilibrium Growth Theory: The Kaldor Model

Takatoshi Ito

Working Paper No. 281 (C)

September 1978

Disequilibrium macroeconomic theory [e.g., Clower, and Barro and Grossman] is extended to deal with capital accumulation in the long run. A growth model a la Kaldor is chosen for a framework. The real wage is supposed to be adjusted slowly; therefore there may be excess demand or supply in the labor market. The transaction takes place at the minimum of supply and demand. Since income shares of workers and capitalists depend on which regime the labor market is in, different equations are associated with different regimes. Local stability of the steady state by the disequilibrium dynamics is demonstrated.

Black Economic Progress After 1963: Who Has Gained and Why

Richard B. Freeman

Working Paper No. 282 (C)

October 1978

This paper examines the incidence and causality of black economic gains in the decade of the 1960s and 1970s. It finds that the relative economic position of blacks, measured by ratios of black to white earnings or ratios of measures of occupational position, rose sharply post-1964. The greatest gains accrued to black women relative to white women; to highly educated and skilled young black men; and to those from more advantaged homes. The traditional lack of a strong relation between family background and education or economic position found among blacks was altered in the period, as background factors came to play a more important role in the socioeconomic success of young blacks and in explaining differences between young blacks and whites. The continued advance of blacks in the worsened job market of the mid-1970s makes it clear that cyclic factors do not explain the post-1964 gains. Regression analysis of time-series data and surveys of corporate personnel policy suggest that equal opportunity activity, initiated in response to antibias laws and regulations, is the main cause for the improved economic position of black Americans.

Temporary Taxes and Consumer Spending

Alan S. Blinder

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October 1978

Both economic theory and causal empirical observation of the U.S. economy suggest that spending propensities from temporary tax changes are smaller than those from permanent ones, but neither provides much guidance about the magnitude of this difference. This paper offers new empirical estimates of this difference, and finds it to be quite substantial.

The analysis is based on an amendment of the standard distributed lag version of the permanent income hypothesis that distinguishes temporary taxes from other income on the grounds that the former is "more transitory." This amendment, which is broadly consistent with rational expectations, makes the consumption function quite complicated and nonlinear.

Three models are estimated; they differ in how finely disposable income is disaggregated. Though the standard errors are large, the point estimates suggest that temporary taxes are roughly either a 25-75 or a 50-50 blend of normal income changes and pure windfalls. Over a one-year planning horizon, temporary taxes are estimated to have only about 20-60 percent of the impact of permanent taxes of equal magnitude, and rebates are estimated to have only about 10-50 percent of the

impact. The model tracks both the extraordinarily high savings rate of 1975:2 and the extraordinarily low savings rates of late 1976 and early 1977 very well, and attributes both phenomena to the temporary tax measures of 1975–76. Finally, it is estimated that a permanent tax of from \$2½ to \$10 billion (in 1972 dollars) would have had the same impact on aggregate demand over the first four quarters as the 1975–76 tax cuts (which averaged \$16 billion).

Crowding Out or Crowding In? The Economic Consequences of Financing Government Deficits

Benjamin M. Friedman
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October 1978

The prevailing view of the economic consequences of financing government deficits, as reflected in the recent economics literature and in recent public policy debates, reflects serious misunderstandings. Debt-financed deficits need not “crowd out” any private investment, and may even “crowd in” some. Using a model including three assets—money, government bonds, and real capital—the analysis in this paper shows that the direction of the portfolio effect of bond issuing on private investment depends on the relative substitutabilities among these three assets in the public’s aggregate portfolio. Since the all-important substitutabilities that make the difference between “crowding out” and “crowding in” are determined in part by the government’s choice of debt instrument for financing the deficit, this analysis points to the potential importance of a policy tool that public policy discussion has largely neglected for over a decade—debt management policy. When monetary policy is non-accommodative, within limits debt management policy can take its place in augmenting the potency of fiscal policy, or in improving the trade-off between short-run stimulation and investment for long-run growth.

Wage Growth and Job Turnover: An Empirical Analysis

Ann P. Bartel and George J. Borjas
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October 1978

This paper demonstrates that labor turnover is a significant factor in understanding wage growth since it affects both wage growth *across* jobs and wage growth *within* the job. Our analysis shows that young men who quit experience significant wage gains compared to stayers and compared to their own wage growth prior to the job change. Among older men, a quit increases wage growth only if the individual said he changed jobs because he found a better job. Yet in both age groups, individuals who expect to remain on the current job experience steeper wage growth per time period on that

job. Thus labor turnover has offsetting effects on wage growth, leading to wage gains across jobs but flatter growth in shorter jobs. Our empirical analysis shows, however, that total life-cycle wage growth is positively related to current tenure. While early mobility may pay, individuals who are still changing jobs later in life experience lower overall wage growth.

On the Choice Between Property Rules and Liability Rules

A. Mitchell Polinsky
Working Paper No. 286 (C)
October 1978

When parties can bargain with each other in an externality situation, it is frequently argued that liability rules are preferable to property rules. The case for liability rules is thought to be strongest when the parties behave strategically, when the collective authority for maximizing social welfare has perfect information, and when lump-sum transfers are not available. It is shown here that liability rules are not generally preferable to property rules in these circumstances because of their limited ability to redistribute income between the parties.

International Reserves Under Alternative Exchange Rate Regimes and Aspects of the Economics of Managed Float

Jacob A. Frenkel
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October 1978

This paper contains an analysis of the role of international reserves under a regime of pegged exchange rates and under a regime of managed floating. It presents evidence on the stability of the demand for reserves during the periods 1963–72 and 1973–75. It is shown that the demand for reserves by developed countries differs from that of less-developed countries and that the system underwent a structural change by the end of 1972. In view of the drastic change in the international monetary system, the extent of the structural change has not been as large as might have been expected, thus leading to the observation that economic behavior seems to be more stable than legal arrangements. From the policy perspective it follows that the problems concerning the role of the International Monetary Fund in this context are as relevant at the present as they were in the past.

The paper concludes with a sketch of a stochastic framework for the analysis of the optimal degree of managed floating. Its purpose is to suggest an additional set of variables which might be incorporated into the specification of the demand for international reserves. It is shown that the optimal degree of exchange rate flexibili-

ty depends on the stochastic nature of the shocks that the economy faces. The stochastic characteristics of the shocks include a distinction between real and monetary shocks, domestic and foreign shocks, and depend on the covariances among the various shocks.

On Transactions and Precautionary Demand for Money

Jacob A. Frenkel and Boyan Jovanovic

Working Paper No. 288 (C)

October 1978

This paper develops a stochastic framework for the analysis of transactions and precautionary demand for money. The analysis is based on the principles of inventory managements and the key feature of the model is its stochastic characteristics which lead to the need for precautionary reserves. The formal solution for optimal money holdings is derived and is shown to depend on the rate of interest, the mean rate of net disbursements, the cost of portfolio adjustment, and the variance of the stochastic process governing net disbursements. One solution is obtained by minimizing the present value of financial management. This solution is compared with an alternative that is derived from the more conventional methodology of minimizing the steady-state cost function. The comparison shows that the two approaches may yield solutions that differ significantly from each other. The paper concludes with an application of the model to an empirical examination of countries' holdings of international reserves. The empirical results are shown to be consistent with the predictions of the model.

Further Evidence on Expectations and the Demand for Money During the German Hyperinflation

Jacob A. Frenkel

Working Paper No. 289 (C)

October 1978

Probably no event in monetary history has been more studied than the German hyperinflation of the early 1920s. Economists have been attracted to study this episode since it provides an environment that is close to a controlled experiment, which is so rare in the study of social sciences.

This paper provides further evidence on the role of expectations in effecting the demand for money during the German hyperinflation. One of the difficulties in studying empirically the role of expectations is the lack of an observable variable measuring expectations. This paper examines three measures of expectations that are derived from observed data from the market for foreign exchange.

The first measure is based on the hypothesis that the forward exchange rate measures the expected future spot exchange rate and thereby provides an observable measure of the market's expectations concerning the depreciation of the currency. The other two measures distinguish between the forward exchange rate and the expected exchange rate and are based on the supplementary hypothesis that rational behavior requires expectations to be unbiased. Accordingly, the measures of expectations are constructed by using the forward exchange rate along with the information on the systematic relationship between forward and spot exchange rates. The various measures are then used in estimating the demand for money.

The emphasis on measures of expectations that are based on data from the foreign exchange markets reflects the belief that in an inflationary economy with flexible exchange rates one of the relevant substitutes for holding domestic money is foreign exchange.

Exchange Rates in the 1920s: A Monetary Approach

Jacob A. Frenkel and Kenneth W. Clements

Working Paper No. 290 (C)

October 1978

Current views about flexible exchange rate systems are based, to a large extent, on the lessons from the period of the 1920s during which many exchange rates were flexible. This paper reexamines the evidence from the perspective of the recently revived monetary approach (or, more generally, asset-market approach) to the exchange rate. The analysis starts by developing a simple monetary model of exchange rate determination. The key characteristic of the model lies in the notion that, being a relative price of two monies, the equilibrium exchange rate is attained when the existing stocks of the two monies are willingly held. The equilibrium exchange rate is shown to depend on both real and monetary factors which operate through their influence on the relative demands and supplies of monies. The analysis then proceeds to examine the relationship between spot and forward rates for the Franc/Pound, Dollar/Pound, and Franc/Dollar exchange rates and the results are shown to be consistent with the efficient market hypothesis.

The monetary model is then estimated using monthly data and using the forward premium on foreign exchange as a measure of expectations. In addition to the single-equation ordinary-least-squares estimates, the various exchange rates are also estimated as a system using the mixed-estimation procedure which combines the sample information with prior information which derives from the homogeneity postulate and from known properties of the demand for money. The various results are shown to be consistent with the predictions of the monetary model.

Economic Effects of the Firefighters Union

Casey Ichniowski

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This is a study of the effects of unionism in the public sector occupation of firefighting. A large and detailed set of data permits the examination of submarkets of this occupation. A before/after methodology is introduced to obtain more precise estimates of union wage differentials. The study's findings are: (1) that there is a greater union effect on fringes than on salaries, which indicates a significant alteration in the composition of the compensation package; (2) that the estimates from the before/after methodology confirm the cross-section results which show modest union wage differentials; and, most significantly, (3) that the union effect varies along different dimensions—most notably the length of the contractual arrangement between municipality and union.

The Effect of Trade Unionism on Fringe Benefits

Richard B. Freeman

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October 1978

This paper analyzes the impact of unionism on the fringes paid blue-collar workers using data on individual establishments. The main substantive finding is that trade unionism raises the fringe share of compensation, particularly pension and life, accident, and health insurance. The magnitude of the effect is sufficiently large as to suggest that estimates which neglect fringes understate the union effect on compensation. The paper uses the data on the compensation of blue-collar and white-collar workers within an establishment to control for within-establishment pay policies and estimate the potential effect of blue-collar unionism on the fringes of white-collar workers.

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