

Editors' Introduction and Summary

WITH THIS ISSUE, *Brookings Papers on Economic Activity* enters its second year. This publication appears three times a year, and contains the articles, reports, and highlights of the discussion from conferences of the Brookings Panel on Economic Activity. Financed by grants from the Alfred P. Sloan Foundation and the Alex C. Walker Foundation, the panel was formed to promote professional research and analysis of key developments in U.S. economic activity. Prosperity and price stability are its basic subjects.

The expertise of the panel is concentrated on the “live” issues of economic performance that confront the maker of public policy and the executive in the private sector. Particular attention is devoted to recent and current economic developments that are directly relevant to the contemporary scene or especially challenging because they stretch our understanding of economic theory or previous empirical findings. Such issues are typically quantitative in character, and the research findings are often of a statistical nature. Nonetheless, in all the articles and reports, the reasoning and the conclusions are developed in a form both intelligible to the interested, informed nonspecialist and useful to the macroeconomic expert. In short, the papers aim at several objectives—meticulous and incisive professional analysis, timeliness and relevance to current issues, and lucid presentation.

The four principal articles and three shorter reports presented in this issue were prepared for the fourth conference of the Brookings panel, held in Washington on April 22–23, 1971. These papers generated spirited dis-

cussions at the conference. Many of the participants offered new insights and helpful comments; many had reservations or criticisms about various aspects of the papers. Some of these comments are reflected in the summaries of discussion contained in this issue, some in the final versions of the papers themselves. But in all cases the papers are finally the product of the authors' thinking and do not imply any agreement by those attending the conference. Nor do the papers or any of the other materials in this issue necessarily represent the views of the staff members, officers, or trustees of the Brookings Institution.

Summary of This Issue

In the first article in this issue, Charles Bischoff analyzes the forecasting and policy implications of five alternative views of the forces motivating spending on business investment. The identification of the determinants of plant and equipment outlays has been a major area of professional exploration and controversy in the past generation. For the purposes of short-term forecasting, most economists lean heavily on surveys of businessmen's plans for capital spending, data on orders and contracts for investment projects, and capital appropriations reports. But these barometric indicators of investment are helpful over only a limited time horizon of perhaps a year. For an accurate longer-term forecast, it becomes essential to understand the causal process underlying investment decisions. Moreover, such an understanding is also critical for the formulation and evaluation of specific public policy measures affecting investment.

The first simplified view, or model, of the investment process that Bischoff discusses is the "accelerator" model. It attributes variations in investment spending to variations in product demand, and implies no sensitivity at all to changes in interest rates, credit conditions, or corporate tax laws. In sharp contrast, the "cash flow" model identifies after-tax profits and depreciation allowances as the driving force behind investment demand. Another view, the "securities value" model, focuses on the prices of stocks and bonds as the critical guides to managers attempting to maximize the welfare of stockholders. In the cash flow and securities value models, output, interest rates, and corporate taxation affect investment only indirectly through their influence on after-tax profits and on prices of securities, respectively. The "standard neoclassical" model introduces into an accelerator model a new determinant, the relationship between the prices busi-

nessmen obtain for output and the cost, or so-called "rental price," of capital. The cost of capital reflects not only the prices paid for equipment and structures, but also the rate of depreciation, interest rates, and tax provisions. Finally, a variant of this approach, which Bischoff developed in previous research and which is used in the Federal Reserve-MIT-Penn (FMP) econometric model, implies that investment responds more rapidly to output than to relative prices, and it defines the cost of capital to include both bond yields and dividend yields.

When the five models are statistically estimated using aggregate quarterly data for 1953 through 1968, they perform quite similarly and quite well. When they are applied to 1969-70, most of the models tend to underestimate investment. In particular, the cash flow view is far too bearish; in view of the depressed corporate profits of the 1969-70 period, it simply cannot explain why investment has been quite strong. The accelerator, standard neoclassical, and FMP views get similar and fairly good grades, underpredicting only modestly. The securities value equation overpredicts substantially for 1969-70, reflecting the influence of the rising stock market of 1967-68.

Bischoff uses these models to predict investment for 1971-73, assuming illustratively that real output will grow by nearly 3 percent in 1971 and by 5 percent in 1972. Bischoff also assumes that the accelerated depreciation proposals now under consideration will take effect retroactively.

For 1971, all of the models point to a decline in the real volume of business fixed investment. The FMP prediction is the highest, agreeing with recent plant and equipment surveys that indicate a 4 percent increase in *current* dollars for 1971. Business fixed investment does not help the recovery get started, according to these predictions. But it climbs on the bandwagon once the economy starts moving briskly (by assumption, fueled by strength elsewhere). Real investment rises during 1972 in all but one of the models. According to the FMP model, investment will grow at a 9 to 10 percent annual rate in constant prices (13 to 14 percent in current prices) during 1972 and 1973. In these projections, the proposed depreciation reform adds \$1.4 billion to the rate of equipment spending by the end of 1971, and \$2.7 billion by the end of 1972, by which time the increased spending matches the rate of revenue loss of the proposal. All in all, while Bischoff sees investment as a lagging sector in 1971, his findings reveal its potential responsiveness to a good recovery and its ability to reinforce and ultimately to outpace a general economic expansion.

The second article, by Richard Davis, analyzes quantitative credit controls, an issue that was heatedly debated during the period of tight money in 1969–70. While public discussion has waned recently, Davis finds this an opportune time to review the arguments and analysis and to offer some guidance to planning for the contingency of renewed financial stringency.

First, Davis considers the potential workings of quantitative controls on total bank credit, assuming, as he does throughout the paper, that the central bank intends to apply monetary restraint, and that it keeps the money supply (demand deposits plus currency) on a given target path whether or not controls are adopted. If banks are restricted in the amount of total credit they can extend, but not in the composition of that credit, they would have incentives to cut back on such interest-bearing liabilities as time deposits and borrowings in the Eurodollar market.

Some of the borrowers who could no longer obtain added credit from banks as a result of the limitation on total bank credit would probably find alternative sources of funds inadequate or too costly. This would be especially likely for smaller and lesser-known firms, which are typically unable to sell commercial paper or issue bonds. While many potential substitutes for bank borrowings are available, none of them is a perfect substitute. As a result, Davis would expect some cuts in total credit flows and in spending on output by businesses and consumers. Meanwhile, the mortgage market would receive some of the funds released by banks. Thus, increased restraint on businesses and consumers would be accompanied by some relaxation of the intense squeeze normally experienced by homebuilding in a period of tight money.

However, Davis argues that the same differential effects could be achieved through the judicious use of existing devices such as Regulation Q. By placing ceilings on the interest rates that banks offer on time deposits, Regulation Q leads to a reduction in time deposits and indirectly controls the volume of bank credit in a period of tight money. Following the same reasoning that he applied in analyzing the restriction on total bank credit, Davis concludes that the operation of Regulation Q during periods of tight money held down some interest rates and shifted some of the pressure from the mortgage market to bank borrowers.

Davis then considers the proposal to apply controls over particular components (rather than the total) of bank credit, such as loans to non-financial businesses, sales finance companies, and consumers. The intended redistribution of the pressures of monetary restraint would probably be

accomplished, at least to some extent. Again, because borrowers from banks do not have perfect substitute alternatives, they are likely to be induced, and perhaps even forced, to cut back their spending on output. With the exception of the controlled components, most market interest rates are likely to be lower as a result of the controls. And some extra elbow room is apt to develop in exempted sectors such as the mortgage and the municipal bond markets, which would be likely to get increased funds from banks.

Nonetheless, Davis points to important adverse implications of these controls for other aspects of allocation. Most seriously, the bank borrowers most vulnerable to these controls would be small businessmen. Their loans are more likely to be cut back by the banks and, even more important, they are far more dependent on bank lending than are large businesses, which can find reasonably good alternatives to bank borrowing. If aid to prospective homeowners is obtained at the expense of small businesses, the net social benefits would be at best dubious.

Another type of control, designed particularly to make large businesses share the burden of monetary restraint, would restrict the volume of corporate bond sales. Davis finds every analytical reason to expect that such a restraint, administered by a capital issues committee, would achieve some reduction in the capital spending of corporations, and would thus reduce the squeeze of tight money on housing and other sectors. Davis emphasizes, however, that small businesses would still feel the pinch: Their opportunities for bank credit would be curtailed because large businesses restricted in selling bonds would obtain more bank loans; and their ability to obtain trade credit from larger firms would be uncomfortably squeezed.

While Davis does not make specific recommendations, his analysis does not lead to an enthusiastic verdict for direct financial controls, especially when administrative problems and the possibility of adverse anticipatory effects are taken into account.

In the third article, Robert J. Gordon develops a model of wage and price determination that extends his study published last year in *Brookings Papers*. He focuses attention on three issues: the role of price expectations in explaining the wage and price experience of the past; the reasons for the stubborn persistence of inflation during 1970; and the prospects for inflation in the medium-run and long-run future under alternative rates of overall economic expansion.

He explains changes in average wage rates using variables designed to measure labor market tightness and variables constructed to measure expected increases in prices. In this model, wages rise faster the tighter the current condition of labor markets; but in addition, for any current state of labor markets, they rise faster the greater the expected increase in prices. Price expectations are estimated from a separate model of interest rate behavior that links current interest rates to a long history of price changes, given the current level of real income and the real stock of money. This technique attempts to isolate the "inflation premium" in interest rates, and the same pattern of lagged responses to past price changes is attributed to the inflationary expectations of workers. Although price changes going back six years are included in the lag structure, the average lag between actual and expected price movements is a little over one year in Gordon's preferred equation. According to Gordon's estimates, an increase of 1.0 percentage point in price expectations will add 0.6 percentage point to the rate of wage increase. The elasticity estimate of 0.6 is higher than that found in many other studies. But it is still significantly smaller than the value of unity implied by the "accelerationist" view that, at a given excess demand, inflation will ultimately accelerate without limit.

Gordon's estimates of the labor market factors affecting wages support George Perry's findings, reported in the last issue of *Brookings Papers*, that the inflation-unemployment tradeoff has worsened as a result of the widening gap between unemployment rates for prime-age males and those for other workers. In contrast to Perry, however, Gordon stresses "disguised" unemployment as one factor influencing wages, and gets negative results on the Kennedy-Johnson guideposts.

In the long run, Gordon expects prices to change at the same rate as standard unit labor costs, that is, the difference between the rate of wage increase and the trend growth in productivity. But in the short run, he identifies three factors that cause prices to depart from this path: (1) Prices will outpace standard unit labor costs in the event of strong excess demand for commodities, measured by the ratio of order backlogs to capacity. By the same token, excess supply of goods will hold down prices relative to wage costs. (2) Because prices respond to wage changes with a lag, price changes will fall behind a sudden acceleration of wages and then catch up for a time after wage changes slow down. (3) Variations in actual productivity around its trend will cause a small corresponding variation in prices

relative to standard unit labor cost. Thus, for example, an unusually good gain in productivity yields some anti-inflationary benefit.

The stubborn persistence of inflation during 1970 is adequately explained by these wage and price equations. Labor markets became very tight by 1968, leading to rapid wage increases. These were translated into faster rates of price increase in Gordon's measure. By the time the tightness of labor markets disappeared in 1970, rising price expectations replaced it as the key factor maintaining rapid wage increases. Meanwhile, the poor productivity performance of 1969–70 kept prices rising even faster than standard unit labor costs.

Examining the longer-run outlook, Gordon estimates that, with a 4 percent unemployment rate and today's relative unemployment dispersion, inflation would persist at a 5 percent rate. Thus, because of long lags, inflation is currently at about the rate that would be expected at full employment in the long run. Therefore, Gordon argues, a quick return to full employment would not worsen the current inflation.

Of course, to lower the current inflation rate, the unemployment target must exceed 4 percent. For example, a 3 percent inflation rate accompanies a 5 percent unemployment target in the long run. But he still argues that, whatever the target—3.8, 4.5, or 5.0—the optimum strategy is to promote as rapid a recovery as possible to that target. Any delay does not alter the eventual rate of inflation associated with a given unemployment target. Since the price slowdown that could be achieved by a more modest and prolonged recovery is only gradual and temporary, Gordon argues, the lost output and employment it entails are not worth the delay.

In the fourth and final article, Arthur Okun estimates the extent to which consumption was directly curbed by the personal income tax surcharge of 1968–70. In terms of the impact on consumer spending, economists expect a \$1 increase in taxes, other things being equal, to offset a \$1 increase in before-tax income. But other things never remain equal; in the specific case of the tax surcharge, some observers found reasons to suspect that the tax might curb spending less effectively than would an equal reduction in before-tax income.

The most significant of these analytical reservations is based on the "permanent income hypothesis." It argues that standards of living (measured essentially by purchases of nondurable goods and services) are

geared to long-run income expectations; hence they are not altered much by temporary changes in income, such as the surcharge imposed. Little is known about how people really respond to windfalls; the few tests that have been made on household survey data seem to confirm the permanent income view only with respect to large windfalls, suggesting that people typically lump small temporary gains or losses (like the surcharge) with regular income.

The effects of the surcharge cannot be assessed by a controlled experiment. It is clear how much before-tax income was absorbed by the personal tax surcharge; how much after-tax income consumers had; and how they allocated it between consumption and saving. But it is impossible to know how incomes would have been allocated in the absence of the surcharge. Okun turns to statistical relationships calculated from past experience that indicate how much consumers should have been expected to spend and to save, given their incomes and other relevant factors. He “hindcasts” consumption during the surcharge period on two opposing assumptions: (1) that the surcharge was treated in consumption decisions precisely like any other drain on income—full effectiveness; and (2) that the surcharge’s drain on income was totally ignored in consumption decisions—zero effectiveness.

He then compares the accuracy of the estimates based on these two opposing views, using the consumption relationships of four well-known econometric models—Data Resources, Inc., Office of Business Economics, University of Michigan, and Wharton School. According to all of these models, any change in income generates a gradual and lagged response of consumer demand. Therefore, even if the surcharge had as large and as prompt an impact per dollar as any other drain of income, the reduction of consumer outlays should have amounted to slightly less than half of the surcharge in late 1968 and to only a little more than half during 1969.

In the case of nondurable goods and services, actual behavior was essentially consistent with full effectiveness of the surcharge. Okun thus finds no reason for questioning the restraint of the surcharge on these major components of consumption, where the basic challenge of the permanent income hypothesis was focused. A similar verdict emerged for expenditures on household durable goods.

In the case of automobile expenditures, on the other hand, there was no evidence that the surcharge had any restraining effect. Okun cannot explain the unusual and puzzling strength of automobile demand in late 1968

and 1969, but he suspects that financial factors not fully captured in the equations played a role. The contrasting results on nonauto and auto consumption complicate the overall assessment. On the summary measure Okun prefers, the estimated degree of effectiveness for the surcharge inferred from the four models ranges between 59 and 88 percent with an average of approximately 75 percent.

Okun concludes qualitatively that the surcharge curbed consumption nearly as much as was to be statistically expected and that any shortcomings in its effectiveness had no evident connection with the permanent income hypothesis. For reasons quite separate from the personal tax surcharge, Okun emphasizes, the economy remained more overheated than the policy makers expected in late 1968 and early 1969. Still, the personal tax surcharge reduced that overheating. In Okun's view, the evidence of the surcharge period confirms the general efficacy of flexible changes in personal tax rates—upward or downward, permanent or temporary.

In three shorter reports in this issue, panel members briefly analyze some special problem areas of current interest. Robert Hall looks at the recent unemployment experience of professional and technical workers; William Branson analyzes the 1970 balance-of-payments deficit; and Nancy Teeters offers her view of the current budget outlook.

According to Robert Hall, the recent sharp rise in unemployment rates of highly trained professional and technical workers reflects a number of factors: (1) the rising overall unemployment rate that has accompanied the slowdown in economic activity; (2) specific additional reductions in the demand for these kinds of workers; and (3) a substantial increase in their supply. Looking ahead, he notes that a reduction in the overall unemployment rate to 4 percent would be expected to reduce the rate for these workers from the current 3-plus percent to about 2 percent, even if their relative unemployment position did not recover. But he expects their relative unemployment position will improve as a result of two types of changes on the supply side: (1) The flow of newly trained specialists will be reduced in future years as young people head toward careers offering better employment opportunities. Hall notes that college engineering enrollments have already declined. (2) Workers already trained in these specialties will find employment in other fields. In this connection he notes that the recent increase in unemployment of these workers was only half as great as the shortfall in demand for their specialties.

William Branson analyzes by components the \$10 billion official settlements deficit in the U.S. balance of payments for 1970. Taking account of the inflation, monetary conditions, and changes in production both here and abroad in 1970, Branson concludes that changes in most components were consistent with past experience. Trade exports grew in line with production increases abroad. Apart from trade, the balance on current account was unchanged between 1969 and 1970. Outflows due to net direct investment increased by \$900 million in 1970, returning to about the 1967-68 level of \$3.0 billion. One surprising development, however, was the rise in trade imports of about 10 percent—an unusually large advance for the 5 percent increase in U.S. gross national product in current dollars, perhaps reflecting the fact that all of that increase was accounted for by inflation. Private financial capital flows registered a large deficit of \$7.1 billion; but in view of the unusually sharp change in monetary conditions that occurred in 1970, Branson does not regard that outflow as inconsistent with historical experience.

Nancy Teeters analyzes the fiscal impact of the budget program submitted by the administration and some of the changes that have already occurred or are likely to occur in the budget. She notes that Congress has passed a more generous increase in social security benefits than had been proposed and has delayed the proposed enlargement of the social security tax base. As a result, the unified budget for fiscal 1972 is now estimated to be in deficit at full employment; and, on the national income accounts basis, the budget surplus at full employment is now estimated at \$4 billion.

She examines recent and prospective changes in tax rates. If further fiscal stimulus is desired currently, she notes, speeding up reductions in personal income taxes already scheduled for 1972-73 would increase consumer purchasing power substantially. In addition, she discusses recent and prospective program changes in the areas of unemployment compensation, public employment, and welfare. In connection with the proposal for enlarged public works spending as a fiscal stimulus, she reviews the long delays that occurred in spending funds from the emergency public works appropriations made in 1962.

Participants in the Conference

Participating in the conference and discussing these papers were the members of the Brookings panel, the senior advisers to the panel, and a few

guests with special expertise in the material covered. The members of the panel for 1971 are:

Charles W. Bischoff *Yale University*
Barry Bosworth *Harvard University*
William H. Branson *Princeton University*
Richard G. Davis *Federal Reserve Bank of New York*
Robert J. Gordon *University of Chicago*
Robert E. Hall *Massachusetts Institute of Technology*
Arthur M. Okun *Brookings Institution*
George L. Perry *Brookings Institution*
William Poole *Federal Reserve Board*
Craig Swan *University of Minnesota*
Lester D. Taylor *University of Michigan*
Nancy H. Teeters *Brookings Institution*

Senior advisers attending the fourth conference were:

William C. Brainard *Yale University*
Daniel H. Brill *Commercial Credit Corporation*
James Duesenberry *Harvard University*
David I. Fand *Wayne State University*
William J. Fellner *Yale University*
R. A. Gordon *University of California (Berkeley)*
Alan Greenspan *Townsend-Greenspan Company, Inc.*
Walter W. Heller *University of Minnesota*
Saul H. Hymans *University of Michigan*
F. Thomas Juster *National Bureau of Economic Research, Inc.*
John H. Kareken *University of Minnesota*
Franco Modigliani *Massachusetts Institute of Technology*
Paul A. Samuelson *Massachusetts Institute of Technology*
Warren L. Smith *University of Michigan*

Those guests whose comments are incorporated into this volume were:

Robert Eisner *Northwestern University*
Joseph A. Pechman *Brookings Institution*
Charles L. Schultze *Brookings Institution*

Several others at Brookings contributed to the quality and style of this volume. Mendelle Berenson edited the manuscript; Evelyn Fisher reviewed the accuracy of the facts and figures; Richard H. Mullins and Nancy Hwang assisted in the research; and Mary Green and Elizabeth Keyser prepared the manuscript.