

Editors' *Introduction*

THIS IS THE SECOND ISSUE OF *Brookings Papers on Economic Activity*, a publication that 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 to the expert 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 lucidity of presentation.

The four principal articles and three shorter reports presented in this issue were prepared for the second conference of the Brookings panel, held in Washington on September 17–18, 1970. These papers generated spirited

discussions 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.

In the first article of this issue, Saul Hymans studies the problems of explaining and predicting consumer demand for automobiles and other durable goods. In particular, the study appraises the contribution of the Survey Research Center's Index of Consumer Sentiment to forecasts of automobile demand. This index is intended to reflect the attitudes of consumers toward their own financial situation and the general economic environment. Hymans confirms that changes in the index, as recorded in quarterly surveys, are useful as a supplement to changes in consumer income in predicting movements of expenditures on automobiles over the next quarter. However, in a more sophisticated explanation of automobile demand, which takes account of the size of the existing automobile stock, unemployment rates for men, and relative prices, as well as income, the quarterly time series of the sentiment index no longer offers any significant assistance. Hymans then explores the possibilities of using a "filtered" version of the index, building on results developed by F. Thomas Juster and Paul Wachtel in a forthcoming paper of the National Bureau of Economic Research. The process of filtering discards small or erratic changes in consumer sentiment, which may reflect merely "noise" or survey response error; the index is viewed as signifying meaningful changes in consumer psychology only when it moves in the same direction for three consecutive quarters or moves by a large amount in two consecutive quarters.

The filtered index turns out to be highly significant in explaining automobile demand even in Hymans' more sophisticated version. The forecast value of the filtered index is limited: It offers no aid in tracking expenditures on household durables or in predicting automobile demand beyond the horizon of a couple of quarters. But it can assist the forecaster in obtaining more reliable near-term estimates of the important automobile sector. Furthermore, these results offer encouraging evidence that consumer sur-

veys may aid the economic forecaster even more significantly in the future, as questions and survey techniques are increasingly refined.

Hymans puts his explanatory equations to work in forecasting consumer demand for automobiles and other durables during 1971–72, using two alternative assumptions about the growth of consumer incomes. His results point to buoyant demand for household durables but strikingly sluggish demand for automobiles.

The bearish verdict on automobile demand evoked much discussion at the conference. It emerges from the stock-adjustment formulation of automobile demand in Hymans' analysis. Apart from changes in relative prices between automobiles and other consumer goods, in rates of unemployment, or in consumer sentiment, the "desired" stock of automobiles moves up in parallel with household incomes. Thus, in the long run, automobile spending has no particular tendency to rise or fall as a share of disposable income. In the short run, however, demand is much more volatile. If consumer incomes accelerate, the desired stock of automobiles grows rapidly and the gap between that desired stock and the actual stock widens. In an effort to narrow that gap, consumers increase expenditures on automobiles much more than in proportion to the gains in their income. But these rates of automobile expenditure may turn out to be abnormally and unsustainably high; once the stock is built up and resumes its normal relationship to income, the share of income devoted to automobile expenditures may fall back.

Consumer expenditures on automobiles in the 1966–69 period were unsustainably high, according to Hymans, because they were stimulated by such a catch-up adjustment of the stock to rapid income gains. Since that adjustment has been essentially accomplished, automobile demand is likely to absorb a smaller share of consumer income in 1971–72 than it did in the late sixties. Hymans qualifies his results, noting that historical patterns of consumer behavior have not always been a reliable guide to future expenditure patterns and, indeed, that 1969 demand was stronger than his equation implies.

Barry Bosworth's article deals with the elusive and highly volatile area of inventory investment. As a framework for the analysis of the current inventory situation and outlook, Bosworth presents statistical findings on the historical patterns of inventory investment. He finds it useful to divide total inventories into components: stocks of nondurable goods in manu-

facturing and trade combined, stocks of durable goods in trade, and stocks of durable goods in manufacturing, with special treatment of the business equipment and defense sector of durable goods manufacturing. Bosworth investigates in detail the problems of explaining inventories in industries, such as business equipment and defense, that have long lags in the production process and that gear production to the inflow of orders.

Of particular interest is his finding that a measure of "buying policy" is valuable in explaining inventory investment. Buying policy is measured by the responses in the monthly survey of the National Association of Purchasing Management, which reports the proportion of companies whose commitments or orders for production materials extend sixty days or longer. This series is intended to reflect lags in deliveries that activate precautionary motives for holding inventories. In addition, Bosworth finds that shifts in the composition of output can have significant effects on total inventories since ratios of inventories to sales differ markedly among sectors. The ratio is particularly high for defense and business equipment; hence shifts of demand toward or away from these sectors may have an especially important impact on inventories.

In 1966, such an impact occurred as a result of the Vietnam defense buildup and the capital goods boom. But the unusually high rate of inventory investment in 1966 and its peak of \$20 billion in the fourth quarter cannot be fully explained by the factors Bosworth identifies in his statistical equations. Apparently, special forces operating in all sectors swelled inventory investment above levels that would have been expected. The excessive stock building of 1966 was followed by a steep downswing in inventory investment in the first half of 1967.

Rates of inventory investment have been considerably less volatile in 1969-70 than they were in 1966-67. The peak rate was only about half as large—\$11 billion in the third quarter of 1969. Several factors worked to prevent excesses. Final sales slowed gradually. Even though prices were rising rapidly, there were no special material shortages or bottlenecks to stimulate precautionary inventory building. Moreover, the composition of output did not change in ways that enlarged total demand for inventories. And since the excesses did not materialize, they did not have to be worked off in the first half of 1970. Although inventory investment fell significantly and accounted for most of the decline in real GNP, no inventory liquidation took place in the aggregate.

The absence of inventory liquidation reduces the likelihood of a major

upward swing in inventory investment accompanying renewed growth of real final sales during the coming year. In returning to normal rates during previous periods of recovery, inventory investment started from a sizable negative rate. In contrast, a return to normal from current rates of inventory accumulation would represent only a modest upward movement.

The fairly high level of current stocks in relation to final sales and the continuing decline expected in real defense purchases will both restrain inventory demand in the year ahead, Bosworth suggests. For these reasons, he judges that inventories may grow by some \$2 billion less than would be proportionate to real final sales over the coming year. This would suggest that, if real final sales should grow at a normal trend rate of 4 percent, inventory investment might average roughly \$5 billion (1958 prices). If the recovery should proceed more slowly, with a growth of real final sales of 2 percent, inventory investment could be as low as \$1½ billion, essentially unchanged from the rate of the first half of 1970. To put it another way, real final sales would have to grow at a rate of more than 5 percent to bring inventory investment back up to its 1969 rate of \$7 billion.

Bosworth concludes that inventories are not a drag on prospective recovery, but neither are they likely to act as a spur to recovery.

In the third article in this issue, William Branson distinguishes between the "new" and "old" views of international capital movements and develops the implications of the new view for monetary policy. The old view, as Branson describes it, relates the *flow* of U.S. capital to the *level* of interest differentials between the United States and other industrial countries. When interest rates are higher in Europe than in the United States by a given margin, capital is expected to flow at a fairly steady rate from the United States to foreign countries, thus creating an essentially permanent deficit item in our balance of payments.

According to the new view, in contrast, the level of interest rate differentials primarily accounts for the *stock* of capital held in foreign assets; and hence the *flow* of capital is governed largely by *changes* in interest rate differentials. If foreign interest rates rise relative to those in the United States, there will be an outflow of capital, as the old view suggests. But that outflow will serve largely to reallocate portfolios—U.S. investors will now wish to hold a larger fraction of foreign assets. Once that adjustment of the portfolio stock is accomplished, the continuing flow of capital will reflect

merely the growth of total portfolios over time, and will be very small despite the sustained differential in interest rates.

Thus according to the new view, the drain on the balance of payments is essentially a one-shot matter. Branson argues the theoretical case for the new stock-adjustment view, and supports it with illustrative empirical estimates of the magnitudes and lags involved. His statistical findings suggest that most of the outflow occurs within two or three quarters after the relative shifts in interest rates and monetary conditions.

Branson calculates that, under current circumstances, a difference in the degree of monetary ease that would make a difference of approximately 1 percentage point in the Treasury bill rate (and an estimated accompanying difference of 0.14 in the income velocity of money) could be accompanied by an outflow of U.S. capital on the asset side of \$1 billion. But in less than a year that outflow would wane to minor proportions—under \$200 million a year. While Branson has not yet explored in detail the effects on the liability side, he judges that they may be similar in size to those on the asset side; the total outflow would then be roughly double that estimated for assets. The seriousness of such an outflow would have to be judged in terms of the nation's ability to tolerate some combination of increased liabilities and reduced reserves that totaled \$2 billion. It should not be misinterpreted as a continuing additional deficit of \$2 billion a year. Obviously, sufficiently large reserve losses can seriously impair the international financial position of any nation, but they represent a different phenomenon from the steady and continuous drain on reserves implied by the old flow view.

The stock-adjustment view thus suggests that, if an easing of monetary policy is desirable for domestic purposes, its costs and consequences for the balance of payments would be less serious than those implied by the flow view. This becomes an argument for greater emphasis on the domestic consequences of monetary policy and for relatively less stress on its international aspects. On the other hand, for the very same reasons, the new view implies that monetary policy cannot offset a continuing deficit in the balance of payments that stems from drains outside the private capital account. Such an offset would not be achieved even by maintaining a permanently large differential of interest rates above those of foreign countries. Only if the central bank were willing to keep raising interest rates indefinitely so as to widen persistently the differential between domestic and foreign rates could it hope to fill a basic gap in the international payments balance.

In the fourth and final article, William Poole explores the “gradualist” strategy of recent stabilization policy. He stresses the distinction between two concepts of gradualism: one with respect to economic goals, and one with respect to the use of fiscal-monetary instruments. With respect to goals, the gradualist objective is to avoid any major sacrifice of jobs and production in achieving ultimate restoration of price stability. With respect to instruments, gradualism reflects a desire to avoid major or abrupt shifts in policy whose consequences would be uncertain and could be disruptive. After reviewing recent fiscal-monetary policy, Poole concludes that it has not been gradualist in its use of instruments; the shifts toward restraint in both monetary and fiscal policy in 1969 were large by historical standards. Yet since the economy was far from a balanced position in 1968–69, Poole argues that modest, gradual changes in the policy instruments might not have had the desired anti-inflationary effects. To Poole, recent experience illustrates the point that large and fairly abrupt shifts in policy—departures from instrument-gradualism—may be required at times in order to achieve gradual changes in the economic environment, that is, to maintain goal-gradualism.

Poole appraises the prospects for the goal-gradualist strategy during the early 1970s through experiments conducted on the large FRB-MIT-Penn econometric model. The target is taken to be the growth path of real GNP for 1970–75 set forth in the Annual Report of the Council of Economic Advisers for 1970. According to the estimates of the model, this path would be accompanied by slow but persistent tapering off of inflation—with the rate of price increase down to $2\frac{3}{4}$ percent in 1974–75. Allowing for the estimated price increases and assuming that fiscal policy remains fairly restrictive, Poole then uses the model to estimate the growth of the money supply necessary to achieve the target path of real output.

The estimated required growth rate of money for 1970–73 averages approximately 7 percent a year. Even more rapid monetary growth is required in 1974 and 1975. As Poole notes, the estimated required growth rates for money are higher than any that have been proposed in recent discussions of the desirable course for monetary policy. In a test of alternative guides, Poole explores the implications of a 4 percent growth rate of the money supply for 1969–75. According to the model, such a rate would mean a very weak economy, operating far below full employment and yielding a growth rate of real GNP of little more than 2 percent.

The specific quantitative results generated by the model must be in-

terpreted with extreme caution in light of the experimental, tentative, and still largely untested nature of the econometric structure. But it is possible to identify the main elements underlying the large estimates for required monetary growth. First, unlike some views of the demand for money, the model does not build in any normal tendency for the turnover of money—its income velocity—to speed up over time. While GNP can grow more rapidly than demand deposits and currency, such a circumstance will generally mean higher interest rates, which provide particular incentives to economize on cash balances. In the absence of such incentives, the demand for money rises in pace with the dollar value of national product, according to the model.

Second, because inflation is so stubborn for so long in the projections, the rise of GNP in current dollars continues to be substantially greater than the growth of real GNP during the early seventies. And it is the increase in nominal GNP that has to be financed by additional liquidity.

Third, the protracted response of the interest rate on corporate bonds to disinflation tends to depress investment demand. According to the model, long-term bond rates eventually carry a smaller inflation premium as the rate of price increases diminishes. But this decline in long-term interest rates takes place only after a substantial lag. On the other hand, investors in capital goods adjust their price expectations more promptly and thus view the real cost of capital as rising. The resulting temporary sluggishness of investment demand has to be overcome by especially rapid growth of money if aggregate demand is to stay on the target path.

Three shorter reports in this issue deal with fiscal policy, residential construction activity, and plant and equipment expenditures. Nancy Teeters reports on the budgetary outlook for fiscal 1971, surveying the key outstanding legislative issues. The outcome of these issues will determine whether the full employment budget for fiscal 1971 has a small or sizable surplus. In any event, the actual budget seems likely to involve a substantial deficit, reflecting the downward impact on federal revenues of the gap between potential and actual output.

Craig Swan summarizes the recent performance of homebuilding. He assembles the evidence indicating that a recovery of substantial proportions is well under way, and documents the contribution to it of improved inflows into thrift institutions and of altered policies of government-sponsored lending institutions. Swan also calls attention to the puzzling weakness of demand for mobile homes experienced in the first half of 1970.

Charles Bischoff reviews the predictive record of the government survey of anticipated spending for plant and equipment. The successive revisions of the survey, between the first report of anticipated spending and the final report of actual spending, have a striking tendency to proceed in "runs": Long intervals of upward revisions are followed by relatively long intervals when downward revisions predominate. Bischoff attempts to devise some corrections for the plant and equipment anticipations to reflect this historical experience. The indicated corrections would mark down by nearly 2 percent the investment anticipations for the fourth quarter 1970 that were reported in July and August to the Department of Commerce and the Securities and Exchange Commission.

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 1970 are:

Charles W. Bischoff *Yale University*
Barry Bosworth *Harvard University*
William H. Branson *Princeton University*
Robert J. Gordon *University of Chicago*
Robert E. Hall *Massachusetts Institute of Technology*
Saul H. Hymans *University of Michigan*
John H. Kareken *University of Minnesota*
Lawrence B. Krause *Brookings Institution*
Arthur M. Okun *Brookings Institution*
George L. Perry *Brookings Institution*
William Poole *Federal Reserve Board*
Craig Swan *University of Minnesota*
Nancy H. Teeters *Brookings Institution*

Senior advisers attending the second conference were:

Gardner Ackley *University of Michigan*
William C. Brainard *Yale University*
James Duesenberry *Harvard University*
Otto Eckstein *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*

F. Thomas Juster *National Bureau of Economic Research, Inc.*

Lawrence R. Klein *University of Pennsylvania*

Paul A. Samuelson *Massachusetts Institute of Technology*

Warren L. Smith *University of Michigan*

Those guests whose comments are incorporated into this volume were:

George Jaszi *U.S. Department of Commerce*

Walter S. Salant *Brookings Institution*

Several others at Brookings contributed to the quality and style of this volume. Mendelle Berenson provided editorial assistance; Evelyn Fisher and Genevieve Wimsatt reviewed the accuracy of the facts and figures; Jeffrey E. Frank and Richard H. Mullins assisted in the research; and Joan Gmitter and Mary Green prepared the manuscript.

Acknowledgment: Craig Swan wishes to acknowledge the contribution, with respect to the specification of equations for housing starts, of Ray C. Fair and Dwight M. Jaffee, "Methods of Estimation for Markets in Disequilibrium," forthcoming in *Econometrica*. Reference to that unpublished manuscript was inadvertently omitted from Swan's article in the last issue of *Brookings Papers on Economic Activity*.