

Editors' Summary

THE PROBLEMS OF INFLATION and recession continued to occupy the Brookings Panel on Economic Activity in its seventeenth conference, held in Washington on September 11–12, 1975. One or another aspect of these problems is investigated in each of the four articles and two reports in this issue of *Brookings Papers on Economic Activity*.

The stock-market decline of 1973–74 imposed more than \$500 billion of paper losses on stockholders. In the first article of this issue, Barry Bosworth investigates what contribution such a decline in the stock market might have made to the severity of the 1973–74 recession. He points out that the correlation between stock-market movements and business fluctuations does not reveal the direction of causation. Nor does it even establish that causality exists between stock prices and economic activity since it could reflect their common response to some other set of basic forces. Even the fact that the stock market tends to lead the economy at cyclical turning points could in principle mean merely that investors forecast profits with some degree of accuracy.

Bosworth focuses on the ways in which the stock market might have direct effects on consumer and investment demands. Using U.S. time-series data for the period since the Korean War, Bosworth estimates that a dollar loss in household wealth in the form of common stock lowers aggregate consumer demand by 3 to 5 cents. No alternative variables appear to be capable of replacing the stock market as an independent explanatory element in tracking total consumption. While the estimated effect may seem

small, it would imply that the 1973–74 decline in stockholder wealth directly reduced consumption by between \$15 billion and \$25 billion, for a given level of disposable income.

When Bosworth separates consumer expenditures into purchases of durable goods and other forms of consumption, he obtains surprising results. The influence of the stock market shows up significantly in the equation for nondurables and services, but not at all clearly in the equation for durables. The 1973–74 experience seems to accord with these results: a statistical model that does not include a stock-market variable has no trouble tracking the decline in expenditures on durables, while it takes an equation with a stock-market variable to avoid a major overestimate of demand for nondurables and services. Bosworth regards the divergent findings on durables and nondurables as an unsolved puzzle; at the conference, however, Franco Modigliani argued that they should be regarded as plausible rather than paradoxical—since stockholding and durables purchasing may be concentrated in different age and income groups.

Bosworth also searches for evidence of a stock-market effect on consumption in surveys of a panel of families who supplied data on income, balance sheets, and expenditures for the years between 1967 and 1970. While Bosworth finds the empirical evidence somewhat “disappointing” in failing to deliver a clear verdict, he concludes that “the weight of the evidence supports a positive impact of the stock market on consumption.”

In Bosworth’s judgment, some of the difficulties of establishing the empirical link and analyzing its importance may stem from the two different sources of variation in stock prices: (1) changing expectations of corporate profits and dividends; (2) changing interest rates or, generally, changing rates of return on other assets. If stock prices decline for the first reason, the stockholder loses both currently marketable wealth and expected future income from dividends and reinvested earnings. But when stock prices decline for the second reason, although the current resale value of his assets drops, the stockholder has no cause to lower his expectation of the future income stream from his holdings, and may not feel the same incentive to tighten his belt. Any coefficient on stock-market wealth in a time-series consumption equation measures an average effect of changes in earnings expectations and changes in interest rates. Bosworth stresses that the impact of changes in interest rates brought about by monetary policy is not likely to be equal to that average effect, and perhaps cannot be inferred at all from the statistical analysis.

Bosworth also examines the evidence of the effect of stock prices on business investment in plant and equipment. He discusses two analytical approaches to that issue; one works through the cost of raising equity capital, while the other attributes to management a desire to maximize the market value of assets. The former implies smaller estimates of the impact of the stock market, and Bosworth regards them as more plausible. But even these estimated effects are substantial, implying that the 1973–74 “bear market,” at its peak effect, may have cut business capital outlays by as much as \$15 billion (annual rate).

In conclusion, Bosworth performs an aggregate statistical simulation that estimates that “approximately one-fourth of the depressive effects on the economy over the 1973–74 period operated through the stock market.” Since stock prices both influenced economic activity and were influenced by it, the effects that operate through the stock market cannot be said to be entirely *caused by* the market. While Bosworth regards his quantitative estimates as suggestive rather than conclusive, he concludes that they underline the need to integrate the stock market more fully into macroeconomic analysis.

In the second article in this issue, Robert Hall tackles the difficult problem of explaining the insensitivity of wages to labor-market conditions and the relation of this wage “rigidity” to cyclical unemployment. Hall examines, and rejects as inadequate, many existing models of the inflation-unemployment process. “Rational expectations” theories, which have received a good deal of attention from economists in recent years, assume a considerable degree of sophistication among workers and employers about ongoing inflation rates. These theories offer a logically appealing explanation of inflation, but only at the cost of attributing unemployment almost entirely to surprises in economic developments. As a result, these models cannot account for the very high correlation of unemployment from one period to the next. In Hall’s words, “only a trivial fraction” of the variation of unemployment is explained in the rational-expectations model.

By assuming wage rigidity, Keynesian models of effective demand convincingly explain the observed variations of unemployment. But Hall finds these models deficient in offering no consistent explanation of why wages are in fact rigid in the face of unemployment. He argues that the customary discussions of wage rigidity as a product of institutions in some sectors of the labor market, such as collective bargaining or bilateral monopoly under-

standings between workers and employers, inadequately explain economy-wide wage rigidity. What is needed is an explanation both of where rigidities originate and, more important, of how they cause overall wage rigidity in a world where a good deal of competition and rational calculation still exist.

The model that Hall develops to square the persistence of unemployment with a rational, market-clearing world centers around his distinction between the “entrepreneurial” and “nonentrepreneurial” sectors of the economy. The latter comprises government, nonprofit institutions, and regulated industries, and is the part of the economy in which Hall finds wages most rigid and unresponsive to labor-market conditions. In the balance of the economy, the pursuit of profits and the pressure of competition produce more wage flexibility; but Hall presents a model indicating that even here the responsiveness of wages to labor-market conditions is diminished by the presence of the rigid-wage sector.

Hall’s model, accounting for this spillover of rigidity from the nonentrepreneurial sector to the rest of the economy, is directly related to search theories of unemployment. He specifies that the amount of unemployment at any moment reflects the balance of conscious decisions by job seekers between accepting a job now and waiting for a better one to come along. A drop in demand and a rise in unemployment tend to lower wage offers by the entrepreneurial sector but do not alter those of the rigid-wage nonentrepreneurial sector, thus widening the wage differential between the two. This widening, in turn, is perceived by the unemployed and encourages them to wait for nonentrepreneurial jobs rather than accept jobs offered by the entrepreneurial sector. At the same time, because of this behavior by the unemployed, firms in the entrepreneurial sector are discouraged from offering lower wages than they do for fear of not attracting and keeping the workers they need, even in periods of considerable unemployment.

In Hall’s model, the unemployed make the best of the situation available to them, given the opportunities in the two sectors. Thus, there is no reliance on ignorance on the part of workers or employers about conditions in the labor market. Nor is cyclical unemployment a temporary, disequilibrium process. If the differential between the wages of the two sectors persists, high unemployment will persist as well.

Hall emphasizes that the existence of high unemployment in his model is true to the Keynesian spirit, in that it arises from a lack of effective demand. His contribution is to integrate this view with an explanation of why wages do not fall so as to eliminate any deficiency in demand. Taking a

position that some Keynesians would question, Hall argues that downward wage flexibility would accomplish the same increase in effective demand, and therefore the same reduction of unemployment, as a more expansionary monetary policy, and would do so with a reduction of inflation. On the other hand, in the face of the wage rigidity that he models, a policy restricting aggregate demand would have very little effect on slowing inflation and would result almost entirely in a reduction of real output. He regards the scope for federal action to make wages and prices less rigid as very limited, and concludes that federal policymakers are doomed to having only little ability to affect wages and prices even while they possess considerable power to affect real output.

In the third article of this issue, Arthur Okun analyzes the mechanics and welfare costs of inflation in a way that contrasts with most previous studies (except for a recent essay by Sir John Hicks). According to him, "customer" product markets and "career" labor markets, in which prices and wages do not equate supply and demand, help to explain why inflation starts slowly in response to excess demand but then keeps churning after excess demand is eliminated.

Most firms offer their products with price lists or price tags, rather than through an auctioneer or organized market-clearing exchange. Because shopping is a costly process, buyers prefer to keep doing business with customary suppliers unless and until they have good reason to shift their patronage. Recognizing that attitude on the part of his customers, the supplier has an incentive to avoid actions that would send them shopping. In particular, in response to a rise in demand, the supplier firm is likely to forgo increases in price, expanding its output instead. However, if its costs rise substantially, it will have to raise prices. Cost-based, markup pricing becomes a convention, or a rule of fair play, that helps suppliers and customers to maintain the joint benefits of their interdependent relationship. It can account for the general empirical finding that most industrial prices respond fully, with a lag, to changes in standard unit costs but little, if at all, to short-run shifts in demand.

The customer-supplier relationships in product markets are paralleled by long-term employer-employee attachments in labor markets, which Okun analyzed in *BPEA*, 1:1973. The employer has a stake in keeping his experienced workers, and experienced workers have a stake in their jobs. The wage of a career employee therefore includes a share of the joint bonus

from the established relationship; it is subject to a zone of indeterminacy; and it is fairly insensitive to short-run changes in the tightness of labor markets. The long-run relationship encourages reliance on standards of fairness in wage determination, whereby the firm's wage structure may be geared to other wages, or to the prices of the firm's products, or to the prices that enter into the worker's cost of living—three avenues that are explored in George Perry's article in this issue.

When overall excess demand develops, prices will be directly and promptly pulled up for "auction" items, such as major farm products and other raw materials. But the inflation will spread into customer and career markets only with a delay and with a diminished impact. An emerging inflation will thus raise prices of auction items like cotton relative to those of customer items like dacron, thereby distorting the allocation of resources and creating incentives for commodity speculation. Although inflation starts slowly, it builds up a head of steam. Even after excess demand is removed, recent cost increases and wage increases elsewhere will keep pushing up customer prices and career wages. As a result, "holding down output and employment is an extremely slow and excruciatingly painful cure for inflation."

Customer and career institutions rely heavily on the dollar as a yardstick for calculating fair standards on markups and wage differentials. But, if the world becomes and remains inflationary, these institutions have to adapt: Customer firms shorten the intervals at which they pass through their cost increases; they try to anticipate future cost increases. In labor markets, wage and pension escalators spread and the periods of some labor contracts are shortened. Okun sees these adaptations as a speedup of the inflationary process in response to past inflationary experience; that increased intensity of inflation accords with the prediction of "accelerationist" theory, but the mechanism of acceleration is basically different.

In Okun's view, inflation has serious welfare costs because it disturbs a valuable set of institutions that economize on information, prediction, and transactions costs through continuing employer-worker and buyer-seller relationships. Against this background of analysis, Okun is skeptical of proposals to live with inflation by introducing more widespread indexing or escalation, and also of proposals to aim at a steady rate of inflation rather than a low one. Moreover, in his judgment, the flexibility of wages that Robert Hall, in his paper in this issue, finds attractive, would impose a large social cost in disrupting career relationships. He supports the endeavor to dislodge an entrenched inflation and thus to save the dollar yard-

stick. But he argues that any effective policy program to pursue that objective must extend beyond fiscal and monetary restraint. First, he urges that the special macroeconomic role of the auction sector should be recognized in U.S. agricultural policies, and in policies affecting the exchange rate of the dollar. Second, he pleads the case for novel fiscal measures that would operate directly to hold down prices, pointing to value-added subsidies and reductions in broad-based excise, sales, and payroll taxes as the "only prescriptions that deal directly and efficiently with the disease of stagflation." Finally, he suggests that an incomes policy that promotes noninflationary guideposts for fairness can help to the extent that it makes prices and wages more likely to be set at the lower end of their zones of indeterminacy.

In the last major paper of this issue, George Perry takes a wide-angle view of the inflation problem by exploring the determinants of wage inflation in ten industrialized countries, including the United States. He notes that while the price inflation stemming from soaring food and fuel costs has captured the spotlight in discussions of inflation since 1973, rates of wage increase had accelerated years before that. It is this underlying acceleration of inflation that Perry addresses.

Perry reviews various hypotheses that seek to explain wage changes. Most explanations continue to emphasize the importance of labor-market conditions and the existence of a Phillips curve as one element in wage determination. Another element that has been stressed increasingly in recent research is the effect of past changes in prices or wages. Several alternative hypotheses fall in this category: First, past changes in the cost of living could influence wages if the labor supply depends on the actual or expected real wage or if the real wage is the object of bargaining situations. Second, value-added prices of employers may influence wages because they reflect the ability and willingness of employers to pay wage increases. Third, wages may be influenced simply by past wages, a view formalized recently by Robert Hall in an article in *BPEA*, 2:1974.

For relatively open economies—that is, those in which exports and imports are a large fraction of total GNP—some economists have also emphasized the possible importance of world market prices as determinants of domestic wage increases. On this hypothesis, world markets set export and import prices which in turn have important effects on wages in the export or import-competing industries. Wages elsewhere in the economy then follow through imitative effects.

Perry pays special attention to the sharp accelerations in wages that

occurred in 1968 or 1970 in Japan and most European countries. In those years, rates of wage increase exploded to new plateaus, a development that cannot be explained by the conventional hypotheses just discussed, which presume continuous and unchanging responses of wages to their specified determinants. Perry offers evidence that, in many cases, these wage explosions can be characterized as a battle over income shares that erupted as organized labor perceived that it could obtain a larger portion of output gains than it had been getting. He integrates this view into his main analysis by estimating wage equations that allow for discontinuities in the years of wage explosion.

Perry allows all of the various hypotheses about wage determination a chance to prove themselves in wage equations estimated for each of the ten industrialized countries for the years through 1972, leaving 1973 and 1974 for post-sample predictions. Although for some individual countries, most notably Italy and France, the equations Perry estimates are not well determined, taken as a group their results for the ten countries and their record in predicting wage developments in 1973 and 1974 point to several general findings with some persistence: First, the cost of living has not been an important determinant of wage changes. This result, which surprised many panel participants and was questioned by some, showed up consistently both in the equations estimated through 1972 and in the predictions for 1973 and 1974, when consumer prices started accelerating. Second, foreign prices or wages are important wage determinants in open economies. While they have been a significant avenue through which inflation has been transmitted across national boundaries in the past, the more flexible system of exchange rates now operating should insulate individual economies to a greater extent from both worsening and improving inflations abroad. Third, Phillips curves exist but are quite flat in most countries. As a result, wage inflation is quite unresponsive in the short run to changes in unemployment rates. In general, there is a great deal of inertia to wage inflation so that, whatever the rate, it will respond only gradually to changes in economic conditions. Fourth, conflict over income shares has been a source of wage inflation in some countries; and in general, institutions such as unions and political forces can lead to wage behavior that would be unpredictable from equations one could normally estimate.

Perry urges some caution with respect to his striking finding that, up till now, the cost of living has not been a significant factor in determining wages. Given strong enough union and political power and his own evi-

dence that such factors have been important in the past, particularly in Europe and Japan, the recent surge in living costs could still feed into faster wage increases in the future. Perry notes that the worst of the consumer price explosion came in 1974; allowing for some lag and the present high rates of unemployment throughout the world, the feared problem of fuel prices feeding into wages therefore may still lie ahead. Although only a change in the structure of wage determination, as he has estimated it, would trigger this problem, in view of the wage histories analyzed here such a change would not be unprecedented, and therefore policymakers should not be complacent:

In the first of two reports in this issue, Charles Schultze documents and analyzes the recent rise in business margins reflected in the rise of prices over cyclically corrected costs. After adjusting to eliminate the extra inflationary effect of fossil fuel, Schultze finds that the ratio of domestic non-farm prices to standard unit labor costs rose by 5.2 percent from 1973:2 to 1975:2. The concept of "standard unit labor costs" is widely used in pricing models; they reflect actual wage rates, but incorporate an estimate of normal (rather than actual) productivity to eliminate the temporary cyclical fluctuations of output per manhour.

Schultze attributes between 2 and 2½ points of that 5.2 percent increase in margins to the removal of price and wage controls, thus confirming earlier findings, such as that of Robert J. Gordon in *BPEA*, 3:1973, that controls squeezed margins. He attributes the remainder to sharply declining levels of economic activity working through two channels. First, some of the cost increases arising from the recessionary sag in productivity have apparently been passed through into prices, thus widening cyclically corrected margins. Second, lower actual rates of capacity utilization have led to widening cyclically corrected margins as businessmen reduced the utilization rate at which they hoped to achieve their target rate of return. In effect, firms have despaired of earning satisfactory profits on high volume and have increasingly pursued their goal by pushing up prices. Thus, he concludes, "However successful it may be in moderating wage inflation, depression of aggregate demand . . . appears to be counterproductive in its effects on price-wage margins."

In a brief report that concludes this issue, Michael Lovell shows statistically that the 1973-75 collapse of the "index of consumer sentiment" can

be explained by the rise in inflation and unemployment without invoking adverse noneconomic factors. Inflation is the more important reason why the consumer has been “feeling so sad” recently, largely because the upsurge in the inflation rate exceeded that of the unemployment rate. Lovell’s statistical findings show that an extra point of unemployment depresses consumer sentiment nearly as much as does an extra point of inflation. The near-equality of the two effects corresponds with the crude message of the so-called “economic discomfort index”: the sum of the inflation rate and the unemployment rate gauges how bad the consumer feels about the economy.