Editors' Summary

THIS ISSUE of *Brookings Papers on Economic Activity* contains papers and discussions presented at the forty-third conference of the Brookings Panel on Economic Activity, which was held in Washington, D.C., on April 2 and 3, 1987. The first major article seeks to explain the persistence of the massive U.S. trade deficit despite the dramatic fall in the dollar since the first quarter of 1985. The second explores the speed with which wages and prices respond to each other and to real shocks to the economy. The third attempts to sort out the contributions of Keynesian and classical forces to unemployment in both the United States and Europe. A shorter report analyzes the help-wanted index as a measure of job vacancies and investigates the relation between vacancies and unemployment. A special symposium of four short papers examines the merits of trade protection as a response to the U.S. trade deficit.

LONG AFTER most economists had predicted its fall, the exchange value of the dollar finally peaked in early 1985 and declined steadily for the next two years. By the spring of 1987, it had fallen more than 40 percent below its peak against the Japanese yen and most currencies of Western Europe. Yet the U.S. trade deficit has seemed almost immune to the decline in the dollar and, in current prices, continued to worsen through early 1987. In the first article of this issue, Paul R. Krugman and Richard E. Baldwin ask whether such a response is a surprise given prior experience and whether greater improvement can now be expected. They also analyze the longer-run prospects for U.S. trade.

As Krugman and Baldwin observe, the continued growth of the U.S. trade deficit has become a major political issue in the United States. Economists have argued that an overvalued dollar, rather than restrictive trade practices or industrial policies of other countries, has been the main reason for the growth of the trade deficit. Now an apparent failure of dollar depreciation to correct the trade imbalance threatens to change

the political balance and buttress protectionist pressures in Congress. Understanding the determinants of the trade account and, in particular, the reasons for continued deficits is thus essential to the intelligent formation of policy.

Krugman and Baldwin construct an index of real exchange rates that weights both the major industrial and Asian developing countries according to their importance in U.S trade. The index shows that the dollar's real depreciation by the end of 1986 had essentially reversed its 1980-85 rise. Using their real exchange rate index, they estimate equations explaining the volume of imports and exports and their prices relative to the average price of U.S. manufactures. They find the real expenditure elasticities for export volumes are near 2.5 and for import volumes near 2.8, indicating that changes in real expenditures here and abroad have substantially more than proportional effects on U.S. import and export volumes. The exchange rate elasticities are around -1.4 for exports and 0.9 for imports, with a lag of several quarters before most of the exchange rate effect is completed. Hence, devaluation will eventually have a significant effect on both sides of the trade balance. When the equations are fitted through 1985:1 and are used to forecast subsequent experience, they overpredict export volumes in 1986:4 by 5 percent and underpredict import volumes by 7 percent. Thus they underpredict the real trade deficit in that quarter by \$43 billion, suggesting either that recent experience is atypical or that some trends in the performance of exports or imports have gone undetected in the estimated equations.

The estimated price equations show modest long-run elasticities of prices with respect to exchange rates, around -0.4 for exports and -1.0 for imports. Again, there are lags of several quarters before most of the price response is completed. A decline in the dollar is reflected only gradually in a rise in dollar import prices and thus in the price of U.S. goods relative to foreign goods. Eventually, import prices move proportionally with the real exchange rate change. A decline in the dollar at first appears to have no effect on export prices, so it results in an immediate fall in the relative price of U.S. goods. That is, the price change is about equal to the change in the exchange rate itself. Eventually, export prices rise, but by less than half as much as the exchange rate declines. As with the volume equations, the out-of-sample forecasts in the price equations develop errors, with export prices overestimated

by 9 percent and import prices overestimated by nearly 10 percent in 1986:4, again suggesting that something unusual has happened in this period. While these errors in the price equations may account for the errors in forecasting import volumes, the low level of exports remains a puzzle.

There is thus some surprise in recent experience, but there is also evidence that conventional explanations of trade performance work. The coefficient estimates themselves show well-defined effects of demand growth and the exchange rate on trade, and, through those two effects, the equations account for much of the trade deficit that developed between 1980:1 and 1986:4. First, during this period, real domestic demand rose 21 percent in the United States and by only 11 percent in an export-weighted average of major U.S. trading partners. The authors calculate that if demand both here and abroad had instead grown by 15 percent, by 1986:4 U.S. real imports would have been less by \$27 billion and real exports greater by \$21 billion. The real trade deficit, which was \$138 billion in that quarter, would thus have been smaller by \$49 billion. Second, even though the dollar exchange rate has returned to its 1980 level, recent deficits in part reflect the higher average value of the dollar from earlier quarters because the exchange rate acts with substantial lags. If over the period 1980-86 the real exchange rate had been unchanged instead of first rising and then falling as it did, real exports would have been higher by \$27 billion and real imports lower by \$36 billion, for a total real trade balance effect of \$63 billion.

Together, the disparities in the growth of demand and the movement in the real exchange rate thus account for \$111 billion of the \$138 billion real trade deficit of 1986:4. When the effect of the exchange rate on prices is taken into account, the two developments explain \$103 billion of the \$150 billion nominal trade deficit in that quarter.

Although most of the rise in the trade deficit can thus be accounted for by growth rates and the exchange rate, a sizable part of the deficit remains unexplained, and Krugman and Baldwin suggest three plausible hypotheses to explain this residual. First, lags in the response of trade to the exchange rate may be longer than they have estimated, so that the rise in the trade deficit through 1986 reflects the continuing effects of the dollar's rise through early 1985. Second, the strong dollar may have done permanent damage to the trade position, damage that will not be reversed by the dollar merely returning to its 1980 level—the hysteresis hypothesis. Third, lagging productivity growth and a diminished technological edge in the United States may account for a gradual loss in competitiveness that is not captured in aggregate measures of the real exchange rate. If so, the exchange rate may have to decline secularly to maintain a given trade balance. The authors consider each of these hypotheses in turn.

They show that long lags in the response of trade volumes to the exchange rate do not arise simply from inelastic short-run supply. If supply curves were steeper in the short run than in the long run, the effect of changes in demand on imports would grow gradually. But although the exchange rate acts with a lag—and perhaps a longer lag than the authors estimate—they can find no lags in the effect of real domestic demand on volumes. Furthermore, if short-run supply were inelastic, increases in domestic demand in the importing country would increase the price of its imports. Again, the authors can find no such effects.

Krugman and Baldwin propose a model of implicit contracts—their Book-of-the-Month Club model—to reconcile the immediate effects of demand on import volumes with the long lags in the effect of exchange rate movements. In their view, importers make long-term commitments about whom to buy from, but not about how much they will buy. As a consequence, the volume of their imports will vary promptly with changes in domestic sales. But in response to variations in the exchange rate, import volumes will change only slowly as long-term commitments are revised. Although this model helps explain the kinds of lags found in their equations, the authors doubt it can explain why the lags should be even longer than they have estimated—that is, why importers had not shifted suppliers even by late 1986, when the exchange rate had already declined for nearly two years.

Krugman and Baldwin find little support for the hysteresis hypothesis apart from the prediction errors from the equations for 1986. If it were true that U.S. and foreign firms had made new long-term commitments once the dollar had appreciated for an extended period—with foreign firms committing to marketing and distribution channels here and U.S producers abandoning foreign markets and relocating domestic plants abroad—the trade equations should display some discontinuities after the extended period of dollar appreciation. But the authors find no evidence of such breaks with the past when they add dummy variables for 1984 or 1985 to their trade equations. As discussants at the meeting observed, it is difficult to test for structural changes of the sort implied by the hysteresis idea. Given the uncertainties about the precise speed of response to the exchange rate and the possibility of secular shifts in competitiveness, it would be hard to identify hysteresis effects from only one period of extended overvaluation of the dollar.

The authors finally consider whether the increased U.S. trade deficit may, in part, reflect a secular decline in U.S. competitiveness that is not captured in conventional measures of real exchange rates. They present a model building on the observation that trade competitiveness depends on the productivity of only certain sectors of the economy. If the productivity growth of U.S. trading partners is greater in the sectors whose output they export than it is in other sectors, their competitiveness will improve faster than an index of overall prices or unit labor costs would imply. Krugman and Baldwin suggest that productivity in the Pacific Basin countries may have behaved in this way and, in support of this view, show that productivity growth has been more skewed in Japan than in the United States and Germany. Consistent with this fact, the bilateral trade balance of Japan with the United States, as well as its total trade balance, improved much more than did the balances of France and Germany, even though Japan experienced much smaller real currency depreciation. Thus it appears that the conventionally measured real exchange rate understated the improved competitiveness of Japan during this period because of exceptionally fast productivity gains in Japanese export sectors. Although the authors offer no data on the distribution of productivity growth in Korea, they show that Korea's trade balance relative to its currency depreciation fits the Japanese pattern. If these trends continue, the U.S. real exchange rate against these countries, as conventionally measured, will have to depreciate secularly in order to maintain a given trade balance.

Based on the decline in the dollar's real exchange rate and the lags in the response of trade volumes to that decline, Krugman and Baldwin conclude that the U.S. trade deficit will shrink substantially in coming quarters. But they are pessimistic about the long run. In the absence of further depreciation, they expect that the improvement will end before trade balance is achieved. Furthermore, they speculate that productivity growth in the export sectors of some U.S. trading partners will continue to rise exceptionally fast, so that a secular decline in the U.S. real exchange rate will be needed to achieve and maintain trade balance. KNOWLEDGE OF THE SPEED with which wages adjust to inflation and demand has long been thought important to understanding the behavior of the aggregate economy. To take some examples, "sticky" wages in response to demand are central to Keynesian explanations of economic fluctuations and extended periods of unemployment. Analysis of the effects of wage indexation on the variability and level of inflation focuses on the speed of wage response. Prices, on the other hand, are often thought to respond quickly to wage rates, and therefore are given a secondary role in explaining fluctuations. In the second article of this issue, Olivier Jean Blanchard provides a detailed investigation of the speed with which nominal prices and wages adjust to each other and to variations in economic activity. He concludes that price dynamics are more like wage dynamics than is usually realized.

Blanchard begins with a simple three-equation model illustrating how the effects of aggregate demand on output depend crucially on the speed and magnitude with which prices and wages adjust to each other and to real activity. As to the magnitude of the interaction between prices and wages, Blanchard believes that theory supports the assumption of homogeneity, not only in the levels of wages and prices but in their rates of change. That is, a 1 percent increase in price inflation is assumed, in time, to produce a 1 percent increase in the rate of change of wages, and vice versa. With the system homogeneous in nominal values, shocks would be translated into proportional changes in wages and prices in the long run without any impact on real output. The short-run effects on output depend on the speed of adjustment of prices and wages. Although competitive models are often interpreted to imply immediate adjustment, theory is ambiguous about the speed of price and wage adjustment, as well as about the magnitude of price and wage responses to changes in demand.

Blanchard cites recent theoretical work on price and wage adjustment that rationalizes both a slow and weak response of each to demand shocks. The theory of imperfect competition suggests that firms may have flat marginal cost curves and little incentive to change prices in response to variations in demand (Robert Hall, *BPEA*, 2:1986). Firms may also moderate their price response because increases in demand are accompanied by increases in the elasticity of demand for their products. Bargaining models explain how the interactions of union

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behavior, preferences, and technology can lead to small responses of the wage rate to demand. Research on static and dynamic costs of changing prices has provided a further justification for assuming temporary price rigidity. And Stanley Fischer and John Taylor, among others, have demonstrated how staggered wage contracts can lead to substantial inertia in aggregate wages and prices. In their models, even modest lags in the adjustment in individual prices and wages can result in sustained periods of disequilibrium for the aggregate economy.

Most theories are about individual agents or markets, while most data that economists attempt to explain are about aggregates. An innovative feature of Blanchard's empirical work is his attempt to integrate the two. He starts with aggregate equations and then looks at how more disaggregated data can illuminate those results. He first presents aggregate price and wage equations using monthly data for the period January 1965-May 1986. The price equation explains the personal consumption deflator by manufacturing and nonmanufacturing wage indexes adjusted for overtime and sectoral shifts, private nonfarm employment, crude materials prices, and dummies for periods of wage and price controls. The manufacturing and nonmanufacturing wage rates, in turn, are explained by the personal consumption deflator and the other variables included in the price equation. The equations all incorporate a flexible lag structure, with prices, for example, depending upon ten-period distributed lags on wages, employment, and prices themselves. Because lagged dependent variables are included, the adjustment to other variables can be much longer than ten periods.

These aggregate equations yield two main results. First, the adjustments of prices to wages and wages to prices, while relatively slow, take months, not years. In all cases the adjustments are between 60 and 80 percent complete within a year. Second, the speed of adjustment of prices to wages is roughly the same as that of wages to prices. Hence, at the aggregate level the slow nominal adjustment of the system should not be attributed solely to sluggish wages. Blanchard also finds little evidence of strong effects of employment on either prices or wages, a result that conflicts with conventional short-run Phillips curves. Although the estimated long-run effect of employment is positive on both prices and wages, the coefficients are not significantly different from zero.

To examine this issue further, Blanchard tries the unemployment

rate, industrial production, and capacity utilization in manufacturing as alternatives to employment in his equations. The dynamic responses of prices and wages to each other are roughly invariant to the activity variable used, and, like employment, the alternative activity variables are usually insignificant. A Phillips curve specification that relates the rate of change of wages to the level as well as the change in unemployment also leaves the dynamic effects largely unaffected, while the coefficients on unemployment imply that the relationship is almost entirely one between the rate of change of unemployment and rates of wage change.

Throughout most of his empirical work, Blanchard imposes the homogeneity restriction guaranteeing that, in the long-run, output is unaffected by nominal shocks. However, he also reports estimates for his aggregate equations without the homogeneity restriction. His conclusions about the speeds of adjustment are not altered by removal of the restriction, but the estimated long-run elasticity of nonmanufacturing wages to the price level is only two-thirds. Hence, these unconstrained equations imply that changes in nominal demand will permanently affect the level of real output and employment.

For a variety of reasons, one might expect the dynamics of adjustment to have changed during the last twenty years. The nature of macroeconomic shocks has varied widely, with supply shocks and variations in the exchange rate being quite important since 1973. The rapid rate of inflation of the 1970s may have changed the sensitivity of firms and workers to inflation and the speed with which inflationary expectations respond to actual events. Similarly, the adoption of money supply targets in 1979 might be expected to have altered the process by which expectations are formed. Statistical tests do not formally reject the stability of Blanchard's wage and price equations within the period, but the point estimates for various subperiods appear to differ in a systematic way. Paradoxically, the speed of adjustment of prices and wages to each other appears slower in the second part of the sample, when one might have expected a heightened awareness of inflation to quicken those responses.

The relatively slow adjustment of prices to wages that Blanchard finds at the aggregate level seems at odds with the common notion that prices in particular markets adjust rapidly. But Blanchard shows that the interactions of individual prices can result in a much slower aggregate price response. Interactions arise both from the vertical chain of production, with the prices of products at the early stages of production showing up as costs to firms at later stages, and from interdependence of firms competing in the same markets. For either type of interaction, if price decisions are not made simultaneously, aggregate lags appear that are cumulative functions of the lags of individual firms, even if expectations are rational.

Blanchard estimates a chain of price equations for the purpose of assessing the importance of vertical interactions. The chain involves four links leading to an explanation of the personal consumption deflator, with the price equation for each link being of the same general form as that for the aggregate equation. Blanchard obtains good fits for each of these equations, with significance levels considerably higher than those for the aggregate price equation. The reduced form implied by the system of equations exhibits a speed of response that is quite similar to that of the aggregate price equation itself.

Blanchard further explores the cumulation hypothesis by disaggregating to the two-digit industry level within manufacturing. He estimates price equations for seven two-digit sectors that account for about 50 percent of the producer price index for all manufacturing. Coefficients on wages and composite input prices are highly significant in all equations, and the adjustment to both wages and input prices is equally fast. Adjustment is essentially complete in less than six months in many cases and in less than nine months in nearly all cases. Blanchard simulates the system of industry equations, showing that the relatively short price lags found for individual industries cumulate into a slower response in the aggregate, which is approximately the same as the speed directly estimated for the aggregate equation.

In order to assess the relative importance of nominal price and wage rigidities to macroeconomic performance, Blanchard imbeds his estimated price and wage equations into a larger equation system in which aggregate demand responds instantaneously to changes in money balances and nominal crude materials prices move with the general price level. He then simulates the system, first using the estimated coefficients for wage and price equations, and then, in turn, constraining either prices or wages to adjust instantaneously. Using the equations as estimated, he finds that the price level responds more slowly to the money supply than might be expected by looking at either the price or wage equation alone. The adjustment of the price level is only 30 percent complete after one year and 50 percent complete after two years, so that increases in demand have long-lasting effects on real output.

When the price and wage equations are alternately assumed to adjust

instantaneously, the simulations suggest that sluggish price behavior is the most important source of the slow system response to nominal shocks. Instantaneous adjustment of prices to wages speeds the response significantly, with the price level adjustment 50 percent complete within one year and 80 percent complete within two. Instantaneous adjustment of wages to prices also speeds the system adjustment, but not as much: adjustment is 40 percent complete within one year and 65 percent complete within two years.

One important implication of these results is that indexation of wages, even if it were comprehensive in coverage and instantaneous, would have less dramatic effects on the speed of the inflationary process than many have believed. Rather than the economy being vulnerable to explosive acceleration or deceleration of inflation in response to upward or downward shocks, the stickiness of prices themselves would slow the response and dissipate some of the shocks through changes in the real economy. However, Blanchard warns that the hypothetical changes he has modeled would not predict the effects of such a change in a real world situation, where a move to full and immediate wage indexation would alter price-setting behavior as well.

THE SEVENTIES AND EIGHTIES have been troubled economic times for the United States and Western Europe. Although the inflation of the 1970s has subsided, in most Western European countries growth has been slow in the 1980s, and unemployment rates have climbed to record postwar highs. Part of the explanation for this sluggishness is undoubtedly the reluctance of policymakers to risk rekindling inflation. But some analysts and policymakers have come to believe that much of unemployment is "classical" and resistant to demand stimulation, and this belief itself diminishes the willingness of governments to attempt expansionary policies. In the third article of this issue, Robert M. Coen and Bert G. Hickman attempt to decompose the observed unemployment into classical (too high real wages) and Keynesian (too little aggregate demand) components for four economies, the United States, the United Kingdom, Germany, and Austria.

The authors' analysis is closely related to the empirical work of Michael Bruno and Jeffrey Sachs (Sachs, *BPEA*, 1979:2 and 1983:1) and to the theoretical work of various authors on non-market-clearing models. Like the concept of classical unemployment developed by

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Bruno and Sachs, the Coen and Hickman concept reflects a real wage rate higher than that consistent with full employment. Also like Bruno and Sachs, the authors believe that the real wage is relatively insensitive to aggregate demand and that the equilibrating process for the economy involves adjustments in the absolute rather than relative levels of wages and prices. However, in the authors' model, and in contrast to most earlier models of classical unemployment, too high a real wage is not directly responsible for output falling below potential. Arguing that imperfect, rather than perfect, competition is the predominant market environment, the authors reason that firms are typically demand constrained. Lowering the real wage would increase employment, and correspondingly reduce the use of capital, at any given level of output. But in the absence of an increase in demand, it would not result in a higher level of output. Conversely, in spite of "too high" a real wage, they argue, firms would be willing to supply more output in response to an increase in demand.

Thus the effect of too high a real wage on employment—the classical component of unemployment in the Coen-Hickman model—is limited to the substitution of capital for labor. By contrast, according to the Bruno-Sachs concept of classical unemployment, real wages that are too high—a positive wage gap—limit the supply of output because of their effect on profitability. As the authors make clear, and as James Tobin's comments on the paper also emphasize, in principle this difference should result in Coen and Hickman attributing a smaller portion of unemployment to excessive real wages than do Bruno and Sachs. But the authors also note that, in practice, Bruno and Sachs do not take literally the implications of profitability on competitive supply and allow demand considerations to play an important role in determining unemployment. Hence, the Bruno-Sachs results are closer to Coen-Hickman than might be expected from their conceptual differences.

In order to determine excess unemployment and to divide it into classical and Keynesian components, it is necessary first to determine potential output and the full-employment real wage. There are several essential ingredients to that calculation. First a "natural"—or fullemployment—unemployment rate is needed. For prime-age males, the authors assume that that rate corresponds to the level of unemployment experienced in a benchmark period. The natural level of unemployment for other age-sex groups is allowed to differ from its level during the benchmark period as their relative importance in the population changes. Adding across demographic groups yields the aggregate natural unemployment rate. Knowing the natural unemployment rate and the required rate of return on capital, and assuming that the potential real wage rises at the same rate as labor productivity along the potential output path, the authors solve simultaneously for potential output and the associated levels of employment, real wages, and unemployment. According to their analysis, the natural level of unemployment in the United States rose by approximately 3 million workers between the early 1960s and the latter part of the 1970s. For most of the period, excess unemployment was positive and, on occasion, very large, although excess unemployment was actually negative in the second half of the 1960s and during 1972–74 and 1979.

Given expected output and factor costs, Coen and Hickman determine the actual demands for labor and capital by assuming that firms minimize costs subject to a Cobb-Douglas production function and costs of adjusting factor inputs. Hence, still given expected output and factor prices, they solve the labor market equations period by period for the disequilibrium level of employment, unemployment, and hours. Classical unemployment is measured as the unemployment that would be eliminated if the real wage were reduced from its actual level to its value at potential or "full" employment, with this difference known as the real wage gap.

The authors calculate that the wage gap in the United States was small and that the classical component of unemployment was negligible during the early 1960s. The wage gap rose moderately during the Vietnam War years and early 1970s, so that most of the modest excess unemployment of 1977 and 1980 was classical. Nevertheless, classical unemployment has never exceeded approximately 0.9 percentage point in the United States. On the other hand, Keynesian unemployment ranged from -2.6percent to approximately 4 percent of the labor force during the sample period. Classical unemployment was similarly unimportant for the other countries in Coen and Hickman's study. Classical unemployment in West Germany was highest in 1976, when it reached 1.4 percent of the labor force and was roughly the same size as Keynesian unemployment. It has not been an important factor in the later 1970s and 1980s, when total unemployment in West Germany has grown rapidly. In 1984, for example, when the total unemployment rate was 8.2 percent, 7.0 percent was excess unemployment. Of this, only 0.5 percentage point was classical. Classical unemployment has been more important in the United Kingdom in recent years, but even there it accounted for less than a quarter of the excess unemployment in its peak year—2.3 percentage points out of 9.4 percent excess unemployment in 1984, when the total unemployment rate was 11.2 percent.

As these estimates suggest, the most striking conclusion of the Coen-Hickman analysis is that classical unemployment is not an important part of the high unemployment rates in Europe today. The analysis does not investigate whether, or to what degree, a stronger expansion of demand would add to inflation, which eventually is the barrier to expansion even without classical unemployment. But it does argue that, throughout Europe, unemployment is well above its natural rate and would respond to increases in demand.

IN MANY COUNTRIES, data on job vacancies are collected as regularly as data on unemployment. Unfortunately for those attempting to assess the tightness of U.S. labor markets or to understand better how they function, there exists no comprehensive, consistent series on U.S. job vacancies. The only available proxy is the Conference Board's help-wanted index, which is based on help-wanted advertising in major metropolitan newspapers. In a report in this issue, Katharine G. Abraham analyzes and adjusts the help-wanted index and uses it to explore the relation of vacancies to unemployment over the past twenty years. Abraham shows that the normalized help-wanted index associated with any given unemployment rate has increased almost 50 percent since 1970. If the help-wanted index could be interpreted simply as a proxy for the number of job vacancies, the increase would be clear evidence of growing frictions in the labor market or of greater mismatch between demand and labor supply across regions or occupational or demographic categories.

There are, however, other influences that could have increased the volume of help-wanted advertising so that its increase would not signal such changes. Abraham focuses on three: the shift in the occupational composition of employment, and thus vacancies, away from blue-collar jobs toward more heavily advertised white-collar jobs; changes in employer advertising practices, particularly changes due to increased equal employment opportunity and affirmative action pressures; and the decline in the number of competing newspapers in major metropolitan

areas. Using a variety of data sources, she estimates the contribution of each of these developments to the upward drift in help-wanted advertising, and adjusts the help-wanted index to remove their effects. Doing so reduces the trend but does not eliminate it. The adjusted help-wanted index associated with any given unemployment rate has risen almost 30 percent since 1970, and Abraham interprets the rise as evidence of a shift in the underlying relationship between the vacancy rate and the unemployment rate.

What explains the shift? One potential explanation is the influx of women and youth into the labor market. The higher average unemployment rates of these groups account for some of the upward drift in the official unemployment rate. But a demographically corrected unemployment rate has also shifted substantially relative to vacancies, indicating that the changing composition of the work force is only a small part of the answer. Abraham believes that changes in unemployed workers' search behavior have not been important. But she notes that changes in employers' search behavior could have played a significant role. In particular, increases in the costs of firing workers may have made employers more selective in their initial hiring decisions, thereby contributing to the shift in the vacancy-unemployment relationship.

While these demographic and behavioral factors account for at least a part of the shift in the relationship between vacancies and aggregate unemployment, they do not appear to be the whole story. Abraham argues that increased unevenness in labor market conditions across different parts of the country have also been important. She notes that the weighted average shift in the adjusted help-wanted–unemployment locus in individual states has been much smaller than the shift in the national adjusted help-wanted–unemployment locus. This divergence is consistent with the fact that both the dispersion of unemployment rates across states and the dispersion of employment growth rates across states have been higher since about 1970 than during the 1960s. Abraham concludes that increased dispersion in regional labor market conditions has probably contributed to the shift in the aggregate vacancy-rate– unemployment-rate locus.

MOST OBSERVERS concur that the U.S. trade deficit is unsustainable and that over the next decade the noninterest current account will have to shift from its present deficit near 4 percent of GNP to near balance. But

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there is little agreement what role government policy should play in achieving the required adjustment. Some economists and policymakers argue against any government role; others advocate conducting monetary policy so as to affect the exchange rate; still others favor legislating stiff trade restrictions aimed at achieving trade balance quickly. In the first paper from a symposium on trade protection, Rudiger Dornbusch argues that policy should play an active part in improving the trade deficit and compares alternative policies aimed at doing so.

Dornbusch acknowledges that the foreign deficit has indirectly arisen in response to the U.S. budget deficit. But he does not accept the argument that reducing the budget deficit will automatically produce optimum economic performance. First, asset markets cannot be relied on to adjust exchange rates and real interest rates with the right timing and in the proper amount to accomplish a smooth transition to lower foreign and domestic deficits. Because market forces do not assure full employment, a reduction in the budget deficit could cause a slump in the economy if foreign trade and investment were not expanding to offset its depressing effects. Second, stabilization aside, the choice of policies will affect how the adjustment to a changed budget is apportioned among sectors. For any given budget deficit, a combination of trade policies and monetary policy can vary the strength of investment sectors relative to export and import-competing sectors.

Dornbusch offers an econometric analysis of why, given likely growth rates in the United States and abroad, sufficient improvement in the foreign balance will not be achieved with present exchange rates and trade policies. He then sets out a conceptual framework that illuminates the relation among the trade deficit, the full-employment budget, the exchange rate, and real interest rates. Using that framework, he examines the effects of various trade restrictions.

He first considers the imposition of a general tariff on imports. If full flexibility of wages and prices assured full employment—the classical case—then a tariff whose revenues were used to reduce the budget deficit would raise the dollar exchange rate and thus improve the nation's terms of trade. In the more realistic case, however, wages and prices may be sticky, so that unemployment may rise. Dornbusch analyzes that case by assuming that monetary policy maintains nominal GNP. In this second case, a tariff will cause the currency to appreciate and raise prices. Foreigners fully pay the tariff, but, with nominal GNP constrained, higher prices may raise interest rates and, for a time, lead to a lower level of output and employment. Although the trade balance improves, exports are reduced by the currency appreciation. Dornbusch notes that a simulation of a temporary and declining tariff in the Data Resources, Inc., model exhibits all these characteristics.

By comparison with a tariff, Dornbusch shows that a currency depreciation improves the trade balance by both expanding exports and restricting imports. Thus, he argues, it avoids distorting the allocation of resources that occurs as a tariff makes exports less competitive and imports artificially expensive. A further advantage of depreciation over a tariff is that it is unlikely to provoke harmful retaliation. Indeed, according to Dornbusch, an attempt by foreigners to offset a U.S. dollar depreciation by lowering interest rates so as to reduce the value of their own currencies would be highly desirable in the present state of the world economy. A disadvantage of depreciation is that it transfers income abroad, through a worsening in the terms of trade, rather than to the budget, as a tariff would do.

Dornbusch notes that more selective forms of trade intervention, such as tariffs or quotas on a limited range of goods or suppliers, have aggregate effects like those of a general tariff. They raise import prices and shift demand toward domestic goods, and they have income effects that reduce aggregate demand. However, they are less desirable on other grounds. Recent quotas, such as the voluntary restraints on auto exports from Japan, are the worst type of restraint because they raise prices but allow foreigners to reap the resulting artificial scarcity rents. If quotas are used, he suggests that they should be auctioned off to importers so as to capture their scarcity value in government revenues.

Tariffs that discriminate on the basis of a criterion such as whether a country has a bilateral trade surplus with the United States invite a range of problems. Dornbusch observes that most developing country debtors have such a surplus today. A tariff would almost certainly lead them to suspend interest payments and thus aggravate the LDC debt problem. He believes that newly developed countries in Asia could quickly become problem debtors if they were singled out by tariffs, and that European countries would very likely retaliate against a selective tariff. A tariff against Japanese imports might restrain them without producing such responses, but new imports from Europe and Korea might fill most of the gap, thus providing little improvement in the overall trade balance.

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DURING THE EIGHTIES, the U.S. automobile and steel industries both received protection from foreign competition in the form of individually negotiated voluntary restraints on exports to the United States. In the second symposium paper, Robert W. Crandall examines the consequences. He notes two industry characteristics that would be expected to make the auto restraints more effective than those on steel. First, steel is an intermediate good used in further production, while autos are final consumer goods. Restraints on steel itself, to the extent that they lead to higher steel costs in the United States than abroad, can lead to increased imports of products made of steel. Second, steel is produced in many countries, while automobile production is concentrated in a few. Restraints on selected steel producers may simply increase exports from others.

Crandall finds mixed evidence on the effectiveness of steel restraints. Under the threat of antidumping suits, voluntary restraints were negotiated with most steel exporting countries during 1984–85. The share of imported steel in the U.S. market declined to 23 percent in 1986 from 26 percent in 1984 and 25 percent in 1985. But the share in 1986 was nevertheless higher than the share in any year previous to 1984. The price difference between U.S. steel and imports narrowed somewhat in 1986, from exceptionally high levels the two previous years, and the price of steel in the United States actually declined between 1984 and 1986.

In the automobile industry, by contrast, Crandall believes that the export restraints negotiated with Japan had unambiguous effects. He shows that the restraints sharply raised the prices of cars sold in the United States, with the difference between similar Japanese models sold here and in Japan rising to more than \$3,000 in 1985 from around \$500 in 1980. He estimates further that, in 1984–85, U.S. car prices were \$750 to \$1,000 higher and industry cash flow greater by some \$8 billion than they would have been without the restraints. These price effects correspond to a loss to U.S. consumers of \$10 billion to \$15 billion from 1982 to 1985. Because of the rise in the exchange value of the yen since early 1985, Crandall estimates that U.S. and Japanese production costs are now roughly equal, although quality differences, measured by repair frequency, appear still to favor Japanese cars.

Crandall observes that protection of the steel industry during the

1970s was effective and, perversely, added to the longer-run problems of the industry. It helped raise steel wages much faster than the average for all U.S. manufacturing over the decade, thereby contributing to the industry's loss of competitiveness. It may also have encouraged investment in new steel facilities that have subsequently proven to be uneconomical, even with the depreciation of the dollar. In the case of autos, by contrast, Crandall finds that an incidental benefit of protection may be the accelerating Japanese investment in automobile plants in the United States.

IN THE THIRD SYMPOSIUM PAPER, Robert Z. Lawrence and Robert E. Litan question a range of arguments commonly made to support protectionist policies. To begin, they concede that virtually all countries restrict imports, but argue that, worldwide, protection is not much worse than it was during the 1970s, when the United States managed to achieve a trade surplus. They show that the trade balance during the 1980s has deteriorated uniformly in capital goods, autos, and other consumer goods and roughly proportionally with each major trading partner. Thus, unfair practices of particular countries, notably Japan, cannot reasonably be blamed for the U.S. trade deterioration.

Recent U.S. current account deficits stem instead, say the authors, from a shortage of domestic saving relative to investment that induces net investment from abroad. Without some improvement in this domestic balance, or in the level of output itself, protecting industries by imposing selective quotas may alter the composition of trade but not the overall trade balance.

Lawrence and Litan note that if protection saves jobs in a particular industry, it does so at high cost. They cite studies showing that the cost to consumers for each job saved in protected industries usually ranges from \$20,000 to \$100,000 a year and often exceeds \$150,000. What is more, even if there is a net saving of jobs, the existing jobs that protection aims to save may be lost to lower-cost jobs in other parts of the country as protection makes new investment in those areas attractive. The authors also observe that protection could actually reduce output and employment in the protected industry by strengthening its monopoly position and allowing it to raise its prices.

Lawrence and Litan go on to question the use of protection as a way of restoring competitiveness to particular industries. They observe that

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the United States has the best-developed capital markets in the world and that firms with good prospects for regaining competitiveness should be able to raise capital for whatever modernization they need. By temporarily raising prices and profits, protection runs the risk of temporarily sustaining industries that in fact should be allowed to decline, and of interfering with the needed adjustments in industries that should survive by providing an umbrella under which wages and other costs are shielded from the force of competition. A final danger of protection is that it encourages the formation of cartels, with their own adverse effects on economic performance.

If the trade deficit is to decline while the U.S. economy maintains essentially the present level of utilization, the imbalance between national spending and production must be corrected. Because doing so will take time, the trade deficit will continue to create political pressure for protectionist measures. In light of this, the authors offer several reforms that would make trade protection more cost effective. They would convert all existing quotas to tariff equivalents, auctioning quota rights if necessary. The tariffs themselves should be scheduled to decline over time, so as to avoid inefficient investment and to provide appropriate incentives for firms to improve their competitiveness. Lawrence and Litan would earmark the revenues raised by these tariffs for workers adversely affected by imports. They would also allow firms in damaged industries to merge under liberalized standards. And they would provide insurance, both to workers against loss of wages and to municipalities and states against losses in the tax base caused by plant closures or significant layoffs.

As THE TRADE DEBATE has heated up in the United States, opponents of protection have warned that a trade war could develop as we or our trading partners retaliate against each other's measures to restrain trade. In the fourth symposium paper, Catherine L. Mann uses game-theoretic analysis to illuminate the interdependency of nations' behavior, the way changes in economic circumstances can increase the risk of mutually destructive trade wars, and strategies for reducing those risks. She also provides an instructive review of the events surrounding the imposition of the Smoot-Hawley tariffs and finds similarities between the present and the 1930s, when those tariffs provoked retaliation from U.S. trading partners. In Mann's model, one trading partner can choose a trade policy from which it would gain if the other did not retaliate, but from which it would lose if the second partner did. In repeated trials, as countries establish how they will respond to trade restrictions by others, acceptable rules of conduct are likely to develop, leading to a stable free trade environment. If either side departs from the established rules of conduct, there is a greatly increased risk that the other side will also change its behavior and engage in retaliation. Mann observes that major changes in economic circumstances, such as the Depression of the 1930s or the historic trade imbalances of the 1980s, are likely to initiate such departures.

According to Mann, both during 1929–31 and during the 1980s U.S. trading partners found U.S. actions inconsistent with the accepted rules of conduct and unexpected given past U.S. behavior. In 1930 Smoot-Hawley imposed sweeping tariffs at a time when the United States already enjoyed a balance of payments surplus. Of late, the United States has used trade threats against one industry to extract trade concessions for another, and Congress is now considering an omnibus trade bill that would make U.S. trade policy significantly more restrictive. Smoot-Hawley resulted in retaliation, and Mann sees an increased risk that more protectionist U.S. policies will provoke retaliation today.

At the same time that foreigners are concerned about recent and proposed U.S. restrictions, many U.S. observers are accusing foreign trading partners of violating accepted rules of conduct. Uncertainties on both sides about actions and reactions increase the risk that the free trade system could be damaged by a trade war. Mann agrees that U.S. actions signal a shift toward a harder line on trade policy. Whatever the merits of the U.S. policy shift, she says, the United States should make clear what its present trade policy is and what retaliation it would take in response to unacceptable trade practices on the part of others.

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