

Editors' Summary

THE BROOKINGS PANEL on Economic Activity held its sixty-first conference in Washington, D.C., on March 28 and 29, 1996. This issue of *Brookings Papers on Economic Activity* includes the articles and discussions presented at that conference. The first article rejects the concept of a natural unemployment rate by examining the effects of downward wage rigidity, and calls into question policies that would target zero inflation. The second considers the Federal Reserve's experience with money targets and the lessons for rules versus discretion and appropriate targets for U.S. monetary policymaking. The third article examines the Tequila effect of the December 1994 Mexican peso crisis in a sample of developing countries and analyzes the factors that make a country vulnerable to financial crisis. The fourth reviews the evidence from the previously communist-controlled countries of central Europe and the former Soviet Union to show that radical programs of liberalization and price stabilization have been more successful than gradual reforms, in both economic and political terms. And the final article traces the postwar decline in national saving to a redistribution of resources from younger to older generations and a significant increase in the consumption propensities of the elderly.

IN BOTH ECONOMIC research and policymaking, analysis of inflation and stabilization typically rests on a natural unemployment rate model. The key property of such models is that only one rate of unemployment can be sustained in the long run, and there is no long-run trade-off between unemployment and inflation. Inflation speeds up or slows down indefinitely, depending on whether unemployment is below or above its natural rate, and there is no systematic tendency for inflation to change if unemployment is at the natural rate. This makes the natural

rate of unemployment a target for stabilization policies that aim to control inflation, and a benchmark for long-run economic projections such as those used to forecast budget surpluses or deficits. Since any steady inflation rate is compatible with operating at the natural rate, the model has also been used to advocate zero inflation as the appropriate target for stabilization policy. In the first article in this volume, George Akerlof, William Dickens, and George Perry question the standard version of the natural rate model and the implication that zero inflation is the appropriate target for monetary policy. They produce evidence that downward rigidity in nominal wages is an important feature of the U.S. economy and construct a model of inflation that includes this feature. Using this model, they show that the sustainable rate of unemployment consistent with steady inflation is not a unique natural rate. Indeed, the sustainable unemployment rate itself depends on the inflation rate. Simulations of the model and direct estimation with time-series data suggest that the lowest sustainable unemployment rate is achievable with a moderately low, steady inflation rate. With zero inflation the sustainable unemployment rate is measurably higher and real output and employment are sacrificed.

The authors begin by reviewing ethnographic evidence that explains why concern for worker morale and fairness leads rational firms to avoid nominal wage cuts, even though real wage cuts arising from price inflation that is beyond the control of the firm are acceptable. Nominal wage cuts are acceptable only when serious difficulties threaten a firm's survival. They then assemble evidence documenting the importance of downward wage rigidity in practice. The distribution of wage changes is asymmetric in a particular way. Data on manufacturing industries collected by the Bureau of Labor Statistics from 1959 to 1978 show that in any year, the distribution of wage changes follows a conventional bell shape above the median change. But below the median, the distribution piles up at zero wage change, and only a trivial fraction of wages decline. Analyzing union settlements from 1970 through 1994, the authors find a similar absence of wage cuts and truncation of the distribution of wage changes at zero in all years except 1983. In that year, the end of a period of large, recession-induced losses for many firms, wages were cut in 15 percent of settlements. This particular observation is consistent with the idea that wage cuts are acceptable when firms are in serious trouble. The authors also report on their own 1995 survey

that asked individuals in the Washington, D.C., area whether they had experienced a wage cut. Of 409 respondents who had not changed jobs, only seven reported wage cuts, and four of those worked for the D.C. government, which confronted a budget crisis.

In contrast to these findings, some recent studies using data from the Panel Study of Income Dynamics (PSID) have reported that a substantial fraction of wage changes are negative, but Akerlof, Dickens, and Perry make a strong case that these conflicting findings are spurious, arising simply from measurement error. The PSID asks respondents to report the level of their wages in the previous year. Wage changes are then calculated as the difference in these reported wage levels for successive years. In such a calculation, inaccuracies in reporting wage levels greatly exaggerate the actual frequency of wage cuts. Using evidence about reporting errors in the PSID from a validation survey, the authors apply typical PSID errors to their own survey that asked directly about wage changes. This exercise shows that PSID errors would easily account for the high frequency of wage cuts calculated from the PSID data on wage levels. The authors further show that the frequency of wage cuts calculated for the subset of PSID respondents who are union workers greatly exceeds the trivial frequency of cuts in union wages measured directly from other sources. They conclude that the empirical evidence strongly supports their hypothesis that nominal wages are rarely cut, except when a firm is in serious financial trouble.

To examine the quantitative implications of their hypothesis for the macroeconomy, Akerlof, Dickens, and Perry build nominal wage rigidity into a formal stochastic general-equilibrium model that reflects the optimizing behavior of firms and workers and takes account of stochastic demand and supply shocks to individual firms. Individual firms respond to these shocks by changing wages, prices, and employment. In equilibrium, aggregate employment reflects the size of these shocks and the importance of downward rigidity. The shocks are symmetric around a rising trend that corresponds to aggregate nominal growth and a steady inflation rate. In the absence of downward rigidity in nominal wages, the response of firms to shocks is symmetric and the model has a natural unemployment rate. However, when a firm's response to a negative shock is constrained by downward rigidity, its wage and price are high and its employment is low, compared to unconstrained levels. In long-run equilibrium, the presence of constrained

firms raises the average level of both wages and prices (although it leaves real wages unaffected) and raises total unemployment.

In the authors' model, the sustainable unemployment rate thus depends on the fraction of firms that are constrained. This fraction, in turn, depends on the inflation rate and the trend rate of productivity growth, which sum to the mean change in nominal wages. With a moderately high mean wage increase, very few firms receive negative shocks large enough to hit the zero constraint on their wage setting, and so the sustainable unemployment rate is the natural rate that would prevail in the absence of downward rigidity. But as the mean wage increase declines, the fraction of firms constrained rises nonlinearly and the effect on the sustainable unemployment rate becomes noticeable.

To quantify this effect, the authors simulate their model using combinations of parameters that replicate known characteristics of the U.S. economy, including rates of job creation or destruction and the dispersion of annual wage changes. Consistent with typical recent estimates of the natural rate, they also choose 5.8 percent as the sustainable unemployment rate with recent productivity trends and 3 percent inflation. They then simulate the model to find how this sustainable unemployment rate would change if the inflation rate were zero instead of 3 percent. They choose random combinations of parameter values that generate the specified characteristics of the economy, each combination giving rise to a different equilibrium unemployment rate at zero inflation. In this way they obtain a range of values for the increase in the equilibrium unemployment rate associated with going to zero inflation. The median increase is 2.1 percentage points; the tenth percentile of the range is 1 percentage point and the ninetieth percentile is 5.7 percentage points. The authors also report on several variations of the central simulations. These give median increases in unemployment of near 1.5 percentage points.

Akerlof, Dickens, and Perry also develop a variant of the model that can be estimated with time-series data by using nonlinear least squares. This time-series model augments the standard natural rate model with a time-varying term that captures the effects of downward rigidity. This term, reflecting the number of firms that are constrained from reducing wages and the amount by which they are constrained, is constructed to capture the detailed features of the main model. In effect, it measures distortions in unit labor costs constructed so as to be additive to the

effects of unemployment and expected inflation, the other determinants of inflation in the time-series model. The value of the added term is calculated period by period in the process of estimating the coefficients of these other determinants.

Because the effects of downward rigidity are important only when median wage increases are low, it is difficult to test the model with postwar time-series data, which offer few such observations, and so the estimated equation does not clearly dominate the standard natural rate model in this time period. However, when the authors use the postwar equations for out-of-sample simulations of the Great Depression, a period in which prices and wages initially declined, the results are striking. Their model captures the price changes of the entire period remarkably well, while the standard natural rate model captures the deflation of the initial years but fails completely thereafter.

The authors make several observations about the robustness of their time-series results. They show that their postwar estimates are not significantly different from estimates that combine the Great Depression and postwar periods or from estimates for the Great Depression alone. They report that a version of their model that allows price-wage margins and real wages to vary performs about as well in simulating the Great Depression, as the central model does. They also note that the steady-state characteristics of the time-series equation correspond reasonably well with the characteristics of the simulation model. In the postwar estimate of the time-series model, the lowest sustainable rate of unemployment is 5.2 percent and the difference between the sustainable unemployment rates at zero inflation and 3 percent inflation is 2.6 percentage points.

The authors' model is particularly relevant in current economic circumstances. With trend productivity growing slowly in the United States and other advanced industrial nations, zero inflation would bring forth the inefficiencies that raise the sustainable unemployment rate. The authors emphasize that the higher unemployment rates that their model predicts are permanent, and are quite distinct from the temporarily higher unemployment rates that any model would associate with a transition to zero inflation. They illustrate both the transitional and permanent costs by using their estimated equation to compare the unemployment paths when monetary authorities choose to reduce the inflation rate steadily from 6 percent to either 3 percent or zero. For the

first three years the paths coincide and unemployment rises by 2 percentage points. After that, with the 3 percent inflation target, unemployment falls rapidly and is stable by year five. With the zero target, unemployment rises by nearly 3 points more, peaking in the sixth year and then stabilizing in year eight. The higher transitional costs are thus very substantial. But the permanent costs are the additional 2.6 points of unemployment that persist indefinitely.

The authors recognize that any such point estimate of the unemployment cost of zero inflation is subject to a considerable range of uncertainty. Nonetheless, on the basis of their overall results with the time-series model and the results of their simulation model, they are confident that the effects are large enough to be important in both framing policy and modeling the macroeconomy. They believe downward wage rigidity to be deeply rooted in relations between firms and workers and unlikely to disappear under any foreseeable set of policies or economic outcomes. Moreover, they reason that one should not want to get rid of it even if one could, observing that downward rigidity helps to stabilize the economy against extreme outcomes by reducing deflationary expectations, permitting real interest rates to fall, and preventing the bankruptcies that accompany debt deflation. Rather than denying its importance or anticipating that it will give way under some policy regime, the authors urge policymakers to recognize the implications of downward rigidity in framing policy goals. The central implication is that a moderate inflation rate, such as the U.S. economy has recently experienced, permits the lowest sustainable unemployment rate; the current enthusiasm for driving inflation to zero is misguided.

SINCE THE CREATION of the Federal Reserve, there has been recurrent tension between its desire for independence and the Congress's desire for oversight and control. One way in which the Congress can exercise control over the Federal Reserve is by mandating targets for monetary policy or rules for its conduct. Beginning in 1975, the Congress required the Federal Reserve to establish publicly announced, numerical money growth targets and to report regularly to the Congress on its success in meeting them. In 1979 the Federal Reserve itself publicly declared its dedication to controlling money growth and implemented new day-to-day operating procedures designed to enhance its ability to do so, although some observers suggested that the an-

nounced targets were more form than substance. Before long, the Fed began to downplay these monetary targets. In 1987 it gave up targets for M1, the narrow money stock, and in 1993 it publicly acknowledged that it had downgraded the remaining broad money growth targets, including M2. In recent years there has been a resurgence of congressional interest in mandating rules for the conduct of monetary policy, this time in the form of an inflation or price stability target. In the second article in this issue, Benjamin Friedman and Kenneth Kuttner evaluate the experience following the imposition of targets for money growth, exploring both the extent to which the conduct of monetary policy was affected by the targets, and the reasons for the decline in their influence. Finding that the abandonment of money growth targets was a sensible response to the collapse of prior empirical relationships between money and either output or prices, they go on to examine the reasons for that collapse. They then draw general lessons about the wisdom of imposing a goal such as price stability on the Federal Reserve.

How does one assess the extent to which the Federal Reserve actually attempted to implement stated targets for money growth? Friedman and Kuttner note that if there never were any disturbances to the relationships connecting money to the ultimate objectives of low inflation and real economic activity, pursuing a money growth target would be empirically indistinguishable from pursuing policies aimed directly at these ultimate objectives themselves. This observation leads them to examine a stylized Fed policy reaction function to see whether deviations of money from its target influenced policy, after controlling for the effects of inflation and unemployment. They estimate this reaction function using monthly data from 1960 through 1986 for M1, and through 1995 for M2, taking the federal funds rate to be the direct measure of monetary policy actions and using data corresponding to what policymakers saw and construed as money aggregates at the time. The reaction function includes inflation over the last twelve months and the unemployment gap, both lagged one and two periods.

Regression estimates for this reaction function are roughly consistent with the standard view of the Fed's policy. Higher inflation, and increases in inflation, tend to increase the federal funds rate, and a larger unemployment gap tends to lower the rate. Deviations of M1 from its target have the right sign, and the coefficient, while only marginally

significant, indicates that a money stock 1 percent above target is associated with a 50 basis points higher funds rate. The authors make clear that this does not necessarily mean that the Fed is targeting money per se—the positive coefficient may simply mean that the money deviation is treated as information about the likely course of the economy, or that it is correlated with other predictors or objectives, such as the exchange rate, that are not included in the equation. The equation displays severe serial correlation, and when it is reestimated with lagged values of the federal funds rate as an additional explanatory variable, the importance of inflation is reduced and the equilibrium effect of money deviation becomes implausibly large, although the coefficient on money is still only marginally significant. When the authors run the equation allowing a separate coefficient on the money deviation for the period 1979:10–1982:9, the results support the belief of many observers that the Fed placed greater emphasis on M1 during this period. Without lags on the funds rate, the equation implies that a 1 percent money deviation raises the funds rate by about 1.5 percent; adding the lagged funds rate again gives implausibly large effects.

Most observers, and the Fed's own announcements, suggest that the weight placed on deviations of the money stock from targeted levels changed gradually over time, rather than in discrete jumps up and then down. This leads the authors to estimate the policy reaction function using an explicit time-varying-parameter model for the coefficient on money deviations from target. The authors estimate the equation in two ways: recursively, so that any given month's estimate relies on data only through that month, and retrospectively, using data from the entire sample. The first estimates are what a contemporaneous econometric observer would have believed. The second, "smoothed," estimates are what an economic historian would believe about the reaction coefficients in each period, given observations both after and before the period in question. The two sets of estimates are not dramatically different, except that those based on the entire sample are more reliably estimated for the early part of the sample and do not bounce around nearly as much as the recursive estimates. These smoothed estimates show a positive and significant response of the funds rate to a 1 percent money stock deviation, beginning in 1976 at about 0.1 percent, rising to a peak of about 0.25 percent in late 1980, and falling to insignificance by 1984. The authors present similar analyses using unborrowed re-

serves rather than the funds rate as the indicator of policy action, and examining the deviation of M2 rather than M1 from its target. These all suggest roughly the same conclusion as the basic analysis: the Federal Reserve's response to deviations of either M1 or M2 from their target levels built up slowly following the congressional resolution, peaked around 1980, and then gradually declined, so that by 1984 the response was insignificant.

What has led the Fed to disregard the instructions given it by the Congress, even though they are still in effect? The authors show that the decline in the weight given to money in formulating policy followed a decline in the usefulness of money for forecasting inflation and real output. They estimate a four-variable vector autoregression using quarterly data on real gross domestic product, the corresponding price deflator, the stock of M1, and the federal funds rate. The variables are included in that order, so that innovations in money are only given the opportunity to explain variations in output and prices not explained by innovations in those variables themselves, but they are given credit for any effects of correlated surprises in the funds rate. Because they are ultimately interested in what an empirically minded policymaker would believe about the value of money targets at the time when policy is actually being set, the authors estimate this relationship for each time period using data only from prior periods. For each overlapping sample period, they calculate the contribution of money to explaining subsequent movements in real output and prices at a two-year horizon. The results show that as of 1975, the first date for which they do the calculation, recent movements of M1 explain only about 6 percent of output movements and about 14 percent of the movement in prices. The importance of money in explaining output increases sharply in the early 1980s, becoming highly significant for a brief period, and then declines to insignificance after the mid-1980s. The contribution of M1 to explaining subsequent price fluctuations increases rapidly in both magnitude and statistical significance after 1975, only to decline even more rapidly and lose significance in the early 1980s and beyond.

The authors explicitly test the hypothesis that money has no predictive power at all by estimating a difference form of equations for prices and output using four lags of the same four explanatory variables. The coefficient on M1 in the output equation is not significant in any of the overlapping samples, even at the 10 percent level, but it is significant

in explaining prices judged from any vantage point through early 1983. After 1983, however, it loses all explanatory power for prices. M2 performs even worse. At no point does it have significant explanatory power for either output or prices. The authors believe that policymakers recognized this lack of connection between money and the Fed's ultimate objectives, and that this explains why the Fed abandoned money targets. They cite the quip attributed to former governor of the Bank of Canada John Crow: "We didn't abandon the monetary aggregates; they abandoned us."

Having found that money had lost most of its explanatory power by the mid-1980s, Friedman and Kuttner try to determine why. They find no evidence that increased stability in the growth rates of aggregates, an objective of many monetarist economists, was responsible. To assess other possibilities, they examine the implications of various restrictions on their vector autoregressions that enable them to identify the effects of policy. In particular, they assume that none of the "demand-side" disturbances have a long-run effect on the level of real output, that neither money demand nor supply disturbances have within-quarter effects on real output, and that the demand for real money balances depends only on real output and the nominal interest rate. They find there are substantial variations over time in the absolute and relative magnitude of structural shocks, many of which, including the OPEC price shocks, accord with most economists' priors. Their findings do not support the view that the decline in the predictive power of money reflects increased success with using money to offset shocks originating from other sources. For the most recent years, their structural analysis does provide some modest support for the view that the ability of the Federal Reserve to influence economic activity has diminished. Friedman and Kuttner conclude that the increasing instability of money demand is the most plausible explanation for the fact that money growth ceased to anticipate fluctuations in either output or prices after the mid-1980s.

They then turn to a discussion of the currently pending Economic Growth and Price Stability Act, which would give the Federal Reserve two basic monetary policy instructions: "(1) establish an explicit numerical definition of the term 'price stability'; and (2) maintain a monetary policy that effectively promotes long-term price stability." The authors note that the proposed bill would significantly change the ob-

jectives of the Fed by effectively instructing it to focus only on price stability and removing maximum employment and moderate long-term interest rates as goals. Friedman and Kuttner recognize that the Congress has a legitimate right to specify basic goals for monetary policy. Having implicitly criticized the Congress for setting targets for money growth, they note that granting “instrument independence,” which allows the Fed to decide the best way to achieve specified goals, is consistent with the Congress specifying what those goals should be.

However, even if price stability were taken to be an ultimate objective of government policy, Friedman and Kuttner argue, directing the Fed to achieve this goal would not produce good monetary policy. They cite a considerable body of analysis on optimal policy design showing that pursuing a target for inflation—or any other particular variable—is not a good way to conduct monetary policy in the presence of supply or productivity shocks and wage inflexibility. The optimal policy regime depends, not surprisingly, on the behavioral characteristics of the economy and on the relative magnitude of the shocks to which it is subject. The authors note that the performance of the United States following the OPEC shocks of 1973 and 1979 was superior to that of the European economies, and suggest that allowing the price level to adjust was an important element of that better performance.

As one lesson of their article, the authors conclude that a price stability rule, even if it appeared benign in the present environment, would not be sensible. If the Congress legislated a price stability target and productivity or supply shocks became more volatile, for example, the Federal Reserve would once again face the dilemma of either holding to a poorly designed monetary policy framework or disregarding the legal instructions given it by the Congress.

BALANCE OF PAYMENTS crises have often upset the economies of developing countries. The Mexican peso crisis of December 1994, with its spillover into the financial markets of other developing countries and its devastating impact on the subsequent performance of the Mexican economy, renewed the debate over why such crises occur and how they can be avoided. In the third article in this volume, Jeffrey Sachs, Aaron Tornell, and Andrés Velasco examine the Mexican crisis and its aftermath in an attempt to answer these questions. They observe that various simple answers that have been offered are inadequate. For instance,

some assert that Mexico's large current account deficit inevitably led to the loss of confidence and reversal of capital flows that caused the crisis. But other developing nations had equally large current account deficits and yet experienced no problem with capital flows. Similarly, spillover effects were not inevitable. Some developing economies suffered in the wake of the Mexican crisis, while others were largely unaffected. To go beyond such simple explanations, the authors develop a model that takes account of more than one aspect of economic performance and financial exposure, and they use the great variation in the experiences of other developing countries following the Mexican crisis to test it.

Sachs, Tornell, and Velasco first present a theoretical model to help in understanding the process by which a crisis in one country spreads to others, the "Tequila effect." They hypothesize that three factors—the level of the real exchange rate, the strength of the banking system, and the adequacy of international reserves—determine how vulnerable a country is in such a situation, reasoning as follows. Confronted by the heightened risk of depreciation that accompanies a crisis in a developing country, nervous investors will want to withdraw funds from other developing countries. Unless it has plentiful reserves, the government of a country threatened by such capital outflows will need to improve its current account position to offset them, and this will require a recession or currency depreciation. The more overvalued the real exchange rate, the larger the nominal devaluation that is needed. And the weaker the banking system, the more dangerous a recession will be. Thus the risk of a large depreciation is greater the smaller the reserve position, the weaker the banking system, and the more overvalued the real exchange rate. The authors refer to these last two factors as "fundamentals" of an economy's position.

The authors' model permits multiple equilibria, in that the economy can settle at more than one position, depending on how investors evaluate the country's fundamentals and the adequacy of its reserves. If these three factors leave them confident that a devaluation will not take place, the pressures from capital flows will subside and their confidence will be rewarded. If the fundamentals and reserves suggest the risk of devaluation is high, that perceived risk is likely to become reality.

The authors test their model by using it to explain pressures on the foreign exchange markets of twenty developing countries during the

months following the Mexican crisis. To measure exchange rate pressures in this period, they construct for each country a crisis index that is a weighted average of the devaluation rate relative to the dollar and the percent change in foreign exchange reserves. A higher value of the index indicates a greater Tequila effect. To measure the fundamentals and reserves position that their model suggests are important in explaining the crisis index, they calculate for each country the real appreciation relative to a base period as an indicator of overvaluation; the change in the ratio of bank claims on the private sector to GDP as an indicator of lending booms that would leave the banking sector vulnerable; and the ratio of M2 to international reserves as an indicator of reserves adequacy. They then group the countries in their sample according to whether they are strong or weak in each of these dimensions. Thus in their central case, if a country is in the top quartile in both real exchange rate position and bank vulnerability, it is identified as having strong fundamentals, and if it is in the top quartile in reserves, it is identified as having a strong reserve position.

The authors use these rankings of strong or weak to look for nonlinear effects of their basic variables on the crisis index. The main idea that they test is that the effect of reserves and bank positions should be nonlinear and large only when both reserves and fundamentals are weak. Using dummy variables to identify countries as either strong or weak, the authors find general support for their basic model in cross-country regressions that explain the crisis index in the months following the Mexican crisis. The results are robust when they vary the number of months over which they measure the crisis index, when they vary the cut-off for identifying a country's position as weak or strong, and when they omit individual outlier observations from their sample. It is clear that contagion from the Mexican crisis was not random. Rather, countries were vulnerable if they had low reserves and had recently experienced either real appreciations, or steep increases in bank lending, or both.

Sachs, Tornell, and Velasco also evaluate a number of alternative ideas that have been offered to explain the vulnerability of a country to capital flow reversals. They do this in two ways: first, by adding to their basic cross-country regression a variable that captures each idea; and second, by examining that variable in eight countries: Argentina, Mexico, and the Philippines, which fared badly in the crisis, and Chile,

Colombia, Indonesia, Malaysia, and Thailand, which fared well. One such idea is that large capital inflows leave a country exposed to the changing moods of Wall Street traders. But the ratio of capital inflows to GDP between 1990 and 1994 is not significant in regressions, either as an average or a change. Moreover, it does not help to explain the performances of individual countries; the ratio is higher rather than lower in the countries that fared well. The authors conclude that if capital inflows matter, they do so not directly, but by affecting the real exchange rate and bank lending.

Another idea is that the composition of capital inflows matters. Long-term flows, such as direct foreign investment, are good either because they are unlikely to be reversed or because they add to productive capacity, while short-term flows are bad either because they are easily reversed or because they are associated with consumption booms. The authors find some support for this idea in their regressions; the ratio of short-term flow to GDP is marginally significant when reserves are low and fundamentals are weak. But short-term flows fail to discriminate between the individual weak and strong countries in that part of the analysis. Using the same procedures, the authors fail to find support for several other plausible ideas: large current account deficits, loose fiscal policies, low saving rates, and low investment rates are all rejected as explanatory variables for a country's vulnerability to crisis.

Returning to their positive findings that the real exchange rate, bank lending, and the level of international reserves help to explain vulnerability, the authors discuss what accounts for changes in these crucial variables. Looking first at real exchange rates, they find no correlation between these and the size of capital inflows. And they find that this lack of correlation is not explained by the sterilization of inflows by central banks, or by offsetting fiscal contractions, or even by identifiable differences in the structure of economies. However, when they examine whether nominal exchange rate policy can offset the effects of capital flows on the real exchange rate, they find evidence that in three countries—Indonesia, Colombia, and Chile—it did succeed in doing so, at least for a time. Turning to lending booms, the authors find a clear link between booms and subsequent financial crises and emphasize that it is not the level of bank lending relative to output that matters, but rather, abrupt increases in such lending. They find that domestic financial liberalization, but not liberalization of international capital

accounts, has often led to lending booms. Except where there have been explicit efforts to contain credit growth, the privatization and deregulation of banking has often been accompanied by lending booms and a deterioration in credit quality. Thus they conclude that the domestic regulatory environment, which is often not well equipped to deal with the volatile environment of emerging markets, may be crucial to avoiding crises.

THE HISTORIC COLLAPSE of the Soviet Union at the end of the last decade led to its dissolution into fifteen countries and the end of Soviet domination in seven other nations in central and eastern Europe. Most of these countries experienced a rapid decline in the influence of the communist party, a struggle for political power, and the disintegration of the economic system. From the start, thoughtful analysts recognized that economic change and the political acceptability of proposals for reform would interact in many ways. Some believed that reforms should be rapid and comprehensive because the window of political opportunity would be open only briefly and because reforms, once made, would be hard to reverse. Others argued for gradual reform, so as to minimize the individual hardships that drastic change would inevitably bring and thus to make reform more politically acceptable and more likely to survive. In fact, the countries that emerged from the Soviet bloc have differed in the scope and timing of their reforms, the degree of political change, and their economic performance. In the fourth article in this volume, Anders Åslund, Peter Boone, and Simon Johnson assess these diverse experiences and draw lessons about the interaction of economics and politics in the process of reforming transition economies. They pose and answer four main questions. Has radical reform been more costly or more beneficial, in economic terms, than gradual reform? What considerations have determined the choice of reform strategy? How did radical reformers fare in subsequent elections? And, what tactics have been effective for introducing and maintaining reforms?

Addressing the first of these questions raises difficult problems of both measurement and definition. Output changes, which the authors take as the main indicators of the success of reform, cannot be measured with any precision when either relative prices or the proportion of output produced by different sectors changes drastically. All post-communist economies experienced large relative price changes when they moved

away from central control toward a free market, and many, especially Russia, experienced large sectoral shifts away from heavy industry and military-related production. The problems with measuring output are compounded if, as in many of the transition economies, the output of numerous small, new enterprises is not captured in available statistics. Measuring the intensity of reform also raises issues of definition. The authors use two criteria: one is the degree of macro stabilization, measured by how rapidly inflation was brought under control; and the other is the extent of micro liberalization, measured by an index created by World Bank country experts who took account of the liberalization of internal prices, foreign trade, and private sector entry.

Åslund, Boone, and Johnson are aware of the imprecision of the measures at their disposal but expect that strong effects, if they exist, will nonetheless show through in their analysis. In their cross-country regressions, they find that the change in output over the period 1989–95 is positively related (meaning, it declines less) to both macro stabilization and micro liberalization. However, the significance of the relation disappears if the countries of the former Soviet Union and those suffering from war during the transition period are identified separately by dummy variables. The overall relation reflects the worse performance of these countries compared to the others; there is no clear relation within either group. However, when the authors turn from cumulative output change to relate output growth in 1995 to their indicators of reform, they find a positive relation that is robust to these same dummy variables. From these results and a consideration of individual country experiences, the authors infer that inherited structural conditions at the start of the reform period were important in determining subsequent economic performance. Allowing for such differences, they find no evidence that more radical reform led to larger cumulative output declines, and some evidence that early and substantial reform was related, eventually, to good output performance. The importance of initial considerations was also emphasized by those commenting on the paper at the meeting. They observed that since the initial conditions that made radical reform feasible were also conditions that made good performance possible, it is difficult to identify the independent effect of reforms on performance.

In the debates over whether to reform radically or gradually, many who favored gradual reform stressed the social costs that were likely to

accompany radical reform. Using unemployment as a measure of such costs, Åslund, Boone, and Johnson find no evidence that costs were greater under radical reform policies. Employing the same dummy variables as they used for their analysis of output, they find no cross-country relation between unemployment and either their macroeconomic or microeconomic indicators of the intensity of reform. And in defiance of Okun's law, they find no relation between unemployment and output across countries. Looking at individual countries, they observe large differences between outcomes in central Europe and in the former Soviet Union, and note that unemployment in the latter group has remained puzzlingly low in light of the severe output declines in those countries. These findings may reflect the uneven quality of unemployment data and extremely high hidden unemployment in state enterprises. It is not possible to quantify such effects, and the authors simply observe that unemployment has been a surprisingly limited problem in the transition economies.

Turning to the politics of reform, Åslund, Boone, and Johnson ask why some countries pursued radical reform, while many others chose to reform only gradually. Their answer stresses the different initial political conditions across countries and the power structures that arose from them. In most countries the collapse of communism created a political vacuum. In some nations, such as Poland and Czechoslovakia, early elections allowed the powers of leadership to be consolidated and defined. In some, including most of the nations of central Asia, former elites reinforced their positions when Moscow's power broke down. In others, most notably Russia, government leaders fought actively for power, setting the interests of former elites against the goals of liberal reformers. The authors further observe that whoever did gain power faced few checks and balances on their behavior and thus had great opportunities for both the abuse of power and for enlightened change.

To help in understanding the varied outcomes that emerged, the authors produce a model of rent-seeking behavior by those in power, where they define rent seeking as activities that, unlike the allocation of resources, serve no social purpose, but only capture returns. They associate rent seeking with high inflation, which, in turn, is associated with a lack of economic reform. The primary avenues used by state enterprise managers and government officials to capture rents have been subsidized credits to enterprises, import restrictions, and export con-

trols. The authors estimate that in Russia the potential rents from these sources amounted to an incredible 55 to 75 percent of GNP in 1992.

One main message from this analysis is that gradual reform was more likely to be the result of rent-seeking behavior by those in power than an altruistic concern for those who might be hurt by more radical reform. While the pursuit of rents has so far impeded reform in many countries, the authors suggest that the scope for further exploitation may have now diminished as a consequence both of economic improvements, such as the movement of tradeable goods prices toward world levels, and political change that, in many countries, has made government leaders more responsive to public opinion.

As another way of judging the social costs of radical reform, Åslund, Boone, and Johnson examine the popularity of reforms, as reflected in election results and opinion polls. Proreform parties have lost elections in a number of countries, starting with Lithuania in late 1992, and subsequently in Poland, Russia, Hungary, Bulgaria, Estonia, and Latvia. These elections have led to a general impression that reform parties have been repudiated by the voters, with the implication that reforms have, on balance, brought social costs that have made them unpopular with the public. However, the authors argue that a careful analysis of the election results do not support such a strong inference. In part, the political outcomes do not measure political sentiment. The center right parties have been more fragmented than the former communist parties and peasant parties, and this fragmentation has allowed former communists to get a larger proportion of seats than their proportion of the popular vote. In the second election following democratization, communist parties won as much as 40 percent of the vote in just three countries: Lithuania, Moldova, and Mongolia. Only in the last two did communists gain an absolute majority. Throughout the region, modest pluralities were often converted into controlling majorities of legislative seats, thus making these legislative victories an exaggerated indicator of the popularity of the communist parties.

Turning to the specifics of how the intensity of reform affected subsequent elections, the authors show that four out of the six governments that pursued radical reform were reelected. Furthermore, three of the four European non-socialist governments that pursued gradual reform lost their next elections. Elsewhere, results have been mixed. Opinion

polls support this analysis. Only in three radically reforming countries are people reasonably optimistic about the future.

The authors draw several inferences from their electoral analysis. There is no suggestion that slowing reform raised the odds of winning elections. And, except in Estonia, there is no clear sign of a popular backlash against radical reform. In the transition economies, most incumbent governments became unpopular regardless of their economic program. But there has been very little backtracking on reforms, even when communist parties that have transformed themselves into social democratic parties have won control.

Informed by their analysis of reform to date, Åslund, Boone, and Johnson draw lessons for the future. They see rent seeking as the crucial barrier to reform and progress, and support the positions of previous analysts, such as David Lipton and Jeffrey Sachs (*BPEA, 1:1990*), in favor of radical reforms that include near complete price and trade liberalization, the elimination of subsidies, and early measures to better define property rights and governance over state assets. To accompany these economic changes, they stress the importance of a free press and a democratic political process as safeguards against corruption. However, recognizing that such ideals are often not readily attainable, they go on to offer a range of more specific policies, drawn from the experience of particular countries.

The authors note that preemptive policy changes can alter the choices and payoffs available to those subsequently in power, citing as examples the Ukrainian central bank's decision to end hyperinflation during a period of political vacuum and the Serbian finance ministry's decision to peg the exchange rate. Once the costs of these stabilizing measures had been borne, the costs of maintaining stabilization were relatively small, so that subsequent officials continued the policies rather than reversing them. Poison pills, resembling those used to protect against corporate takeovers, are a related device that can affect subsequent decisions. As their prime example, the authors cite the establishment of a currency board in Estonia, with rules that make a run on the currency likely should parliament ever try to alter the exchange rate. The authors suggest that conditional aid can be a useful support for reform, especially if it can be used to support measures that reduce the scope for future rent seeking. And they observe that organizing the

budgetary process so as to make it difficult for any one power group to undo specific elements of reform can provide protection against backsliding.

DURING THE POSTWAR period, the U.S. national saving rate has declined dramatically. Since 1980, the net national saving rate has averaged less than half its level during the 1950s and 1960s, and many observers regard this low rate as a principal factor in explaining the large U.S. trade deficit and low rate of capital accumulation and, in turn, the slow growth in productivity and national income and product. While the decline in national saving is undeniable, there is no consensus about its cause. Attempts to explain the decline using aggregate time-series variables have been inconclusive. The effects of interest rates are not reliably estimated and the effects of other factors that have been suggested as explanations, such as the growth in the value of equities, the growth in government-financed medical insurance, and the increased availability of credit to households, are difficult to disentangle using time-series data. Attempts to use microeconomic data to investigate the saving decline have been similarly inconclusive. In the fifth article in this issue Jagadeesh Gokhale, Laurence J. Kotlikoff, and John Sabelhaus make another attempt to explain the puzzle by using a unique cohort data set they construct from the Consumer Expenditure Surveys for 1960–61, 1972–73, 1984–86, and 1987–90, as well as a host of other microeconomic surveys. The authors take a broader view of consumption than is taken in most previous microeconomic studies, including health care as a component of household consumption, and they construct measures of consumption, income, and lifetime resources by age cohort that are consistent with the national aggregates. The constructed data enable them to allocate changes in national saving to changes in the propensity to consume of different age cohorts and changes in the distribution of resources among cohorts. According to their calculations, much of the decline in national saving can be attributed to two factors: a redistribution of resources from young and unborn generations with low propensities to consume toward older generations with high consumption propensities, and a significant increase in the consumption propensities of older Americans.

The authors point out that the conventional distinction between personal saving and government saving is quite arbitrary. It can depend,

for example, on the particular accounting conventions adopted to identify the receipts and expenditures of government programs. They cite social security as a particularly important case in point. If social security contributions were treated as loans to the government rather than as taxes, and if payments of social security benefits were treated as repayment of past loans plus a tax or subsidy, there would be an entirely different reported pattern of personal saving in the postwar years but, assuming rational consumption and saving behavior, no difference in national saving. For example, the personal saving rate in 1993 would have been almost three times as large as the rate reported. As a consequence, studies that look separately at the decline in personal saving rates and the growth in the government deficit may be very misleading. In contrast, the authors focus directly on the net national saving rate, defined as net national product (NNP) less purchases of goods and services by households and government as a fraction of NNP, and a corresponding measure of private sector saving, defined as the share of NNP less government purchases that is not consumed by households. These measures immediately reveal that government spending is not responsible for any reduction in the rate of national saving. Indeed, the rate of government spending out of NNP has actually declined since 1970. The rate of household consumption, on the other hand, rose from 69.9 percent of output in the 1950s to 76.6 percent in the early 1990s. Health care spending was the major contributor to this growth, rising from roughly 4 percent of NNP in the 1950s to well over 12 percent in the early 1990s. The rate of nonmedical consumption actually fell by 2.2 percentage points over this interval.

The authors organize their analysis of household consumption, and by implication, private sector saving, around the life cycle model of household behavior. This model has two distinctive features. First, an individual household's current consumption is assumed to depend on expected lifetime wealth rather than current income. According to the model, a household's saving in any given period, as conventionally measured, is simply a reflection of the time pattern of disposable income over the life cycle. For example, an increase in a household's current social security taxes, offset in present value by higher future social security benefits, will leave consumption unchanged but will lower personal saving. Second, aggregate consumption behavior does not depend simply on the preferences and life cycle income profile of a

representative individual, but depends crucially on the rate of growth of population and income. For example, in the zero bequest life cycle model used by the authors, with no growth in population or per capita income, aggregate saving would be zero. If, as is typically assumed, households save early in their life cycle and dissave in retirement, more rapid population growth or growth in the incomes of successive generations will increase the aggregate saving rate. Similarly, unanticipated redistribution of resources from the young to the old will raise aggregate consumption, since the elderly consume a larger fraction of their remaining lifetime resources than the young.

To explain the observed changes in aggregate saving over their sample period, the authors compute the values of four variables suggested by the life cycle model as the crucial factors in explaining aggregate private consumption—cohort-specific propensities to consume out of lifetime resources, the shape of the age-resource profile, the age distribution of the population, and the resources-to-output ratio. While the age distribution of the population is readily available, calculation of the other three factors is an elaborate and painstaking process. The authors use cross-section profiles of consumption by age and sex in a given year to distribute aggregate consumption across individuals in that year. Calculation of the distribution of lifetime resources is more complicated and requires additional assumptions. For example, to compute the human wealth component of resources, annual Current Population Surveys are first used to distribute labor income from the National Income and Product Accounts by age and sex for each year. Then the lifetime human wealth for an individual of a given age and sex in a specified year, say 1973, is arrived at by adding up the labor income attributed to the individual in 1973, plus the labor income of an individual in 1974 of the same sex but one year older, plus the labor income of individuals similarly defined for all future years of the individual's assumed working life. Future incomes are discounted and actuarially adjusted. Similar procedures are used to calculate the present values of other individual components of wealth, including social security benefits, private and government employee pension benefits, welfare benefits, other government transfers, and future taxes, including indirect taxes, payroll taxes, and property taxes. To make these calculations, the authors have to make a variety of assumptions about allocations among members of the population and within households and about discount rates. Much of

the article is devoted to describing the calculations and the resulting values. In a number of cases, the authors test the sensitivity of their results by performing the calculations under alternative assumptions.

Their calculations reveal several striking changes over the period sampled. There has been a remarkable increase in the relative consumption of the elderly between 1960–61 and 1987–90. For example, the consumption of seventy-year-olds, including medical expenditures, has grown from roughly 70 percent of the consumption of thirty-year-olds in 1960–61 to almost 120 percent of thirty-year-olds' consumption in 1987–90. Even excluding medical expenditures, the relative consumption of the elderly has grown dramatically. The elderly's share of total household consumption grew by 68 percent over the period, while their proportion in the population grew by less than 20 percent. This striking increase in the relative consumption of the elderly has coincided with an equally remarkable increase in their relative resources. In 1960–61 the average resources of seventy-year-olds were only 55 percent as large as those of thirty-year-olds; in 1987–90 they were over 80 percent as large. The authors show that the growth in the present value of net transfers to the elderly was responsible for most of the rise in their relative resources. In 1960–61 the present value of net transfers to seventy-year-olds represented 3 percent of per capita resources; in the late 1980s the corresponding figure was 22 percent.

Large as it is, the increase in the elderly's share of the nation's resources does not fully explain the increase in their consumption. The authors document a substantial increase in the spending propensities of older Americans. For example, eighty-year-olds increased their propensity to consume from less than 9 percent to more than 13 percent over the entire period sampled. There has been no corresponding increase in the consumption propensities of the young and middle-aged. Other interesting findings from the authors' calculations include a sizable decline in the human wealth ratio for young cohorts, reflecting the slow growth of earned income late in the period and projected into the future, and the rapid growth of wealth in the form of pensions for individuals in their fifties and sixties.

The authors perform a variety of counterfactual calculations to determine the proximate contribution to changes in the U.S. saving rate of each element of their decomposition. For example, they calculate the net national saving rate for 1987–90 implied by the consumption

propensities estimated for young and old cohorts in 1960–61, rather than the estimated values for 1987–90 itself. Such counterfactual calculations are repeated for each year and for each of the factors: changes in the age-resource distribution, in the average propensities to consume, in the age distribution of the population, in the resources-to-output ratio, and in the government spending rate. In a number of cases the results are sensitive to the discount rate. However, several conclusions seem robust. The increase in the elderly's spending propensities and a redistribution of resources from future to living generations, which has raised the resources-to-output ratio, clearly contribute to the decline in the national saving rate. Overall changes in the age distribution, by contrast, have affected the saving rate positively. Government spending during the last three decades has not been a reason for the decline.

What explains the substantial increase in the elderly's propensity to consume? One plausible hypothesis is the substantial increase in the fraction of the elderly's resources that are in the form of annuities. In the absence of annuities, the elderly have to worry about the risk of outliving their savings. The authors cite other work suggesting that a moderately risk-averse individual with no bequest motive and without access to annuity insurance will, on average, consume only two-thirds of his or her resources before death. The fraction of the elderly's wealth in annuitized form is estimated to have grown from 16 percent in 1960–61 to over 40 percent by the late 1980s, suggesting that annuitization may be an important reason for the increase in their consumption propensity.

The authors examine the consequences of changing various assumptions that underlie their calculations. They show that changes in the federal budget on the order of those proposed by the Congress in December 1995 have relatively little effect. Similarly, assuming that individuals are myopic and infer their future incomes from the experience of older individuals currently living, rather than assuming that individuals have perfect foresight, makes little difference to their conclusions. They note that their analysis ignores bequests and the possibility that bequests and inter vivos transfers have been declining over time, which, if true, would mean they understate the rise in the consumption propensities of older Americans.

The authors recognize that their analysis of the decline in the national saving rate is predicated on the assumption that individuals base their

current consumption on expected lifetime wealth. The present value of income flows far in the future has the same effect on consumption as does current income, and as do components of wealth based on quite different sources. The authors attempt to test this central assumption by regressing consumption on the various components of wealth and by estimating separate coefficients for current flows and for the present value of future flows. When wealth is broken into broad categories—net worth, human wealth, pension wealth, and the present value of government taxes and transfers—the coefficients are substantially different across age cohorts and types of wealth and offer only modest support for their application of the life cycle model. When current and future flows are distinguished, the regressions fall apart, and both the signs and magnitudes of the calculated marginal propensities are highly sensitive to the precise list of variables included in the regressions. They conclude that the data are simply not up to the task of testing the life cycle model.

The authors end on a pessimistic note. They believe that intergenerational redistribution will continue in the United States. Hence their analysis indicates that national saving rates will remain extremely low, or even decline further, foretelling anemic rates of domestic investment and growth in labor productivity and real wages.