Editors' Summary

THIS ISSUE of *Brookings Papers on Economic Activity* contains papers and discussions presented at the thirty-seventh conference of the Brookings Panel on Economic Activity, which was held in Washington, D.C., on April 5 and 6, 1984. Three major articles cover macroeconomic issues of current policy concern: a new analysis of the potential gains from policy coordination among nations; a careful assessment of foreign industrial targeting and its impact on U.S. industry; and a statistical analysis evaluating recent trends in productivity, price-wage margins, and the capital share of national income. Three reports in this issue assess the importance for union wage behavior of recent market, institutional, and legal developments; examine the expectations theory relating long-term and short-term interest rates; and analyze how M1 targeting as a means of conducting monetary policy has been affected by regulatory and institutional changes in the financial system.

THE GROWING INTERDEPENDENCE of the world's economies in the postwar period has increased both economists' and policymakers' awareness of the potential for coordination of macroeconomic policies. But though there has been much advocacy of coordination, there have been few examples of it. Even on those occasions when a commitment to coordination has been made—for example, in the aftermath of the 1973 oil shock, when the major industrial countries agreed to avoid "beggar my neighbor" policies—it has been unclear how much actual policies differed from those that would have been pursued on the basis of narrow self-interest. One reason cooperation has not been more evident in practice may be that the gains available from coordination did not seem large to policymakers. In the first article of this issue, Gilles Oudiz and

Jeffrey Sachs attempt to provide a quantitative measure of these potential gains.

The opportunities for mutual advantage from coordination depend crucially on the extent to which national policies directed solely with an eye to domestic consequences are globally inefficient. A necessary condition for there to be gains from coordination is that one country's policy actions significantly affect another. Oudiz and Sachs first present a two-country economic model in order to trace the major theoretical channels for interdependence and to identify the crucial parameters that determine their quantitative importance. Even in the relatively simple two-country model, the authors find the effects of policy are ambiguous and depend on the magnitude as well as the sign of parameter values. Hence it is difficult to draw even qualitative conclusions without an empirical model. When they subsequently turn to estimating the gains from cooperation, the authors make use of two large econometric models—the Japanese Economic Planning Agency (EPA) model and the Federal Reserve Board's Multicountry model (MCM).

The gains available from cooperation depend on national preferences—represented formally as utility functions depending on various economic objectives—as well as on the economic structure embodied in such models. Together, preferences and structure determine the national policy choices and the resulting outcomes in the cooperative and noncooperative regimes. Oudiz and Sachs argue that the widely publicized Project Link analysis that showed how West Germany, Japan, and the United States could jointly engineer a noninflationary recovery actually skirted the coordination question. It did not show how much of the gain from the projected recovery resulted from coordination of policy and how much simply reflected the fact that countries on their own were not taking advantage of the possibility for noninflationary expansion embodied in the Link model.

Oudiz and Sachs define cooperative and noncooperative equilibriums using the familiar Nash equilibrium concepts. In both cases, every country knows what the others are doing. In the noncooperative equilibrium, each country takes other countries' policy actions as given. Hence each country equates the terms on which it is willing to trade one objective for another—the ratio of its marginal utilities—with the trade-off available from varying its own policy instruments. In the noncooperative equilibrium, the policymakers ignore the effects their actions

have on other economies. For the cooperative solution, in which collectively the countries recognize these externalities, Oudiz and Sachs choose the Nash bargaining solution, which is one of the Pareto optimal outcomes in which all countries share in the gains from cooperation.

The authors assume that the observed levels of output, inflation, and the current account—the objectives they use to characterize national utility functions—represent optimizing behavior in the noncooperative regime. They are therefore able to infer the relative marginal utilities of these variables for each country from the trade-offs embedded in the econometric models. Using the MCM, for example, they infer that U.S. policymakers would value equally a sustained 1 percentage point reduction in the rate of inflation and a sustained annual gain of 4.5 percent in gross national product. Japan and West Germany would accept a lower GNP gain. According to the model, an increase in the current account ratio—the current account balance divided by GNP—is of little importance to the United States and of great importance to West Germany and Japan. The EPA model gives somewhat different results, with significantly higher estimates of how much GNP policymakers would give up to reduce inflation in the United States and West Germany and lower estimates of this crucial parameter for Japan.

Armed with these relative marginal utilities, the authors calculate the magnitude of the externalities that one country's actions have on another. These effects are not trivial. For example, a U.S. fiscal expansion of 1 percent of output, which as far as U.S. welfare is concerned is exactly balanced by the cost of the added inflation it would bring, gives an increase in Japanese utility equivalent to an increase of 0.78 percent of GNP according to the EPA model and 0.43 percent of GNP according to the MCM. Although the effects on the United States of other countries' actions are similarly significant relative to the size of the actions, they are not large as seen from the United States because its economy is so much larger.

Using the utility functions they have estimated, the authors determine the cooperative equilibrium and calculate the benefits from cooperation as the difference between national utility at the cooperative and noncooperative equilibriums. Perhaps surprisingly, given the magnitude of the externalities just described, they find the gains are small. The gains are largest according to the MCM but are equivalent to only 0.17 percent of output for the United States, 0.33 percent for West Germany, and

approximately 1 percent for Japan. These gains are achieved by more expansionary monetary and fiscal policies in the United States and expansionary monetary policies and contractionary fiscal policies in West Germany and Japan.

The authors also investigate the implications of treating the present U.S. policy as not optimal, with the present current account deficit an unanticipated consequence of policy rather than a reflection of preferences. When they raise the utility weight on the U.S. current account to allow for this possibility, they find the optimal policy mix is quite different from the present one. The noncooperative equilibrium now requires a cut in the U.S. structural fiscal deficit of 2 percent of GNP and a 460 basis point reduction in interest rates. In response, Japanese and West German policies are also dramatically changed, with structural deficits and interest rates reduced in both cases. The results of the simulation call into question whether U.S. policies are precluding a European recovery, as West Germany's welfare level is lower than it is with present U.S. policy. Apparently the present expansionary fiscal policy in the United States more than compensates for the effect of the strong dollar on West Germany and Japan. The original result that cooperation offers only small gains is confirmed in this second case, and confirmed again when the authors examine the scope for coordination after an oil price shock.

The authors conclude by observing that the small gains from cooperation among the three countries studied probably understate the gains that could be obtained if there were effective cooperation involving a wider group of nations. They note that the European community is roughly three times the size of West Germany and show that if all Europe were included in cooperation, the gains to Japan and the United States would be roughly tripled. However, the authors observe that the political difficulties of agreeing to coordination grow with the number of countries, and the problems of monitoring an agreement grow even more.

As THE U.S. TRADE DEFICIT mounts, setting new records each quarter, concern that U.S. industry is losing its ability to compete mounts with it. Conventional barriers to trade in manufactured goods, such as tariffs and quotas, have been reduced among industrial nations over the years. The new concern focuses on the range of other policies—referred to as industrial targeting—by which foreign governments are alleged to pro-

mote particular industries. In the second article of this issue, Paul R. Krugman examines the significance for the United States of industrial targeting by foreigners and the appropriate U.S. response to such policies.

Krugman notes at the outset that industrial targeting is hard to evaluate because it encompasses a variety of policies whose impacts on foreign trade are impossible to quantify and whose costs, if any, to the U.S. economy are even harder to measure. Hence, the effects of these policies cannot be evaluated by conventional econometric techniques. Instead, Krugman uncovers the facts about past and present industrial policies and makes use of theory and observed performance to sharpen our understanding of how these policies may be affecting U.S. welfare. He first examines a number of specific practices of foreign governments as they affect U.S. industries and assesses how these practices might alter U.S. trade. He then considers whether these possible trade effects are injurious to U.S. welfare or whether, on balance, they are benign or even increase welfare in this country.

Krugman organizes his study of foreign practices into three categories: providing financial support through tax concessions, subsidized lending, or export credits; limiting market access of foreign competitors through preferential procurement and implicit protection by administrative red tape; and assisting domestic firms through collaborative research and development or by sponsoring mergers. After examining all the major policy initiatives that have received attention, he finds only limited instances where they have been both significant and successful in affecting trade. Financial support has been important in the case of the Airbus Industrie consortium, which is jointly owned by several European governments. The restriction of market access has been significant in protecting domestic Japanese markets in the past. And the Japanese, who do not have our antitrust restrictions, have sponsored successful collaborative research among firms in semiconductors and machine tools. Krugman concludes that these last two activities have probably helped Japanese industries compete with the United States.

Greater competition may improve, worsen, or have little effect on U.S. welfare depending on characteristics of the U.S. economy and of particular industries at which the competition is directed. Krugman identifies the characteristics that leave the United States vulnerable to welfare losses and examines the avenues through which industrial

targeting might thus cause harm. These avenues include raising overall unemployment because the labor market did not easily clear; reducing total real income by capturing part of the wage premium now enjoyed by unionized workers in some U.S. industries; obtaining large market shares through market power strategies in oligopolistic industries where returns are high; and capturing important external learning benefits in dynamic, technology-intensive industries.

Krugman observes that, even if foreign targeting initially reduces employment in particular industries, aggregate unemployment will adjust through exchange rate movements or can be controlled by macroeconomic policies. In fact, in the manufacturing sector—the area alleged to suffer from foreign targeting— the relative position of U.S. employment and trade had not worsened until the recent recession and historic rise in the dollar's exchange value occurred. He concludes that there is no evidence of adverse employment effects from targeting.

The automobile industry is the one clear example Krugman finds of employment losses due to trade in an industry whose workers enjoy a substantial wage premium as a result of unionization; but the competition in autos has not been the result of industrial targeting. (He notes that steel would have been an example of such losses due to targeting if it had not been protected by marketing agreements that limited imports). The case of automobiles nonetheless demonstrates the different possible welfare consequences of foreign competition in such an industry. If domestic wages and prices are not reduced in response to the new competition, foreigners simply reap part of the industry's monopoly rent that formally went to labor and capital in the domestic auto industry. The present informal quota system produces this kind of result. If open foreign competition were allowed, it would force down the monopoly rents of the domestic industry and increase real national income and welfare in the United States. Krugman notes that, if the domestic industry is nonetheless to be protected, a tariff is far preferable to quotas because, for any given level of imports, the tariff captures the monopoly rent that would otherwise accrue to foreigners.

Krugman acknowledges the possibility that strategic government interventions in oligopolistic industries could permit firms to stake out market shares that eventually produced excess returns. But he shows that, in practice, targeted sectors have not been highly profitable. Airbus Industrie has received massive subsidies to become a serious competitor

to Boeing and requires continued subsidies today. Steel has been a low-return industry throughout the world for over a decade. And even the recent Japanese success in semiconductors has thus far not generated large profits. Krugman reasons that this lack of success with strategic industrial policy demonstrates how difficult it is to play the strategic market game envisioned by those who fear it. In practice, the potentially profitable oligopolistic markets of the future cannot be anticipated, and political rather than strategic economic considerations dominate the choice of industries targeted for support.

Last, Krugman considers the challenge provided by foreign targeting of innovative industries, in particular the support Japan provides to its high-technology sector. The crucial issue here is whether government support produces innovative knowledge that is accessible to industries around the world or only to Japanese industry. U.S. industries can benefit from generalized knowledge that all can use, and they should not fear it. Because the semiconductor industry generates dramatic innovations, Krugman examines it in some detail and concludes that Japanese success there has no special side effects that should provoke a U.S. policy response. The knowledge generated by Japanese firms is not country-specific and is available to U.S. firms as readily as it is to firms in Japan. Krugman reasons that this outcome is no accident. Japanese industrial targeting is not aimed at producing innovations and knowledge that could be confined to Japan. Rather it is aimed largely in directions where Japanese firms would head on their own. Krugman shows that in fact the U.S. emphasis on high-technology products has not been undermined. The U.S. share of the industrial countries' high-technology exports declined somewhat during the decade of the 1970s. Krugman argues that this decline was to be expected as other nations' endowments of capital and skilled labor grew relative to U.S. endowments. Despite this natural increase in competition, he notes that the relative importance of high-technology products in U.S. manufacturing exports, which was about twice the industrial countries' average in 1970, remained twice the average in 1980.

While acknowledging that industrial policies of foreign governments could be harmful to the United States, Krugman's broad conclusion is that they have not been. The problems of some domestic manufacturing industries are, in part, the natural consequence of changing comparative advantage. As to the source of the prevailing outcry that foreign

governments are responsible for our worsening trade deficit and for the problems of specific industries, Krugman suggests "it is simply easier to blame foreigners than ourselves."

SLOW GROWTH in labor productivity and a reduced share of capital income in total GNP were two striking characteristics of the U.S. economy in the 1970s. In the third article of this issue, Peter K. Clark analyzes whether these characteristics are changing in the economy of the 1980s. Productivity is the main link connecting prices to wages, and price-cost margins are a major determinant of income shares. Accordingly, Clark supplements his direct look at productivity and capital shares with an examination of the historical and recent relation between output prices and labor compensation. His analysis of all three relations features a careful attempt to model the cyclical variations that often mask the underlying developments in economic statistics. Because the past few years have been marked by a deep recession and now a vigorous recovery, sorting out such cyclical effects is especially important in any attempt to assess present trends.

Clark focuses on productivity in the nonfarm business sector, using a model in which firms gradually adjust the amount of labor they employ to their target employment level. Target employment, in turn, is determined by trend productivity and actual and anticipated levels of output. The adjustment of actual labor hours is gradual because it is costly to vary employment and future employment needs are uncertain. This gradual adjustment process leads to systematic variations in labor productivity around its trend as output varies over the business cycle. Using regressions for the period starting in 1954, Clark quantifies this cyclical component of productivity movements and estimates the underlying productivity trend. Roughly confirming the results of earlier researchers, he identifies a slowdown in the trend after 1966 from 2.5 percent per year to 2.0 percent per year, and then a more abrupt slowdown to less than 1 percent per year in the early 1970s. But he finds no significant evidence of a change in the trend after 1979.

Clark examines the 1980s in more detail by comparing actual labor hours and productivity with the predictions from an equation estimated for 1954–79. Given the actual path of output since 1979, and assuming the productivity trend was growing 1 percent per year, this equation exactly predicts the labor hours used in the economy in late 1983 and the first quarter of 1984, and hence the level of productivity in those quarters.

Actual productivity variations throughout this period are fully accounted for in Clark's model, on average, by the cyclical variations of output during the recession and recovery and the assumed 1 percent productivity trend.

Clark does note that productivity gains were better than predicted by his equation during part of the recent recession, and in particular during the second half of 1982. But the good performance in these periods, which Clark associates with extreme cost-cutting efforts as the recession deepened and lengthened, were offset in other quarters of the recession. The 3.3 percent annual rate of productivity gain achieved during the first five quarters of this expansion has been slower than the productivity gains in the comparable quarters of previous postwar expansions, and has even been slightly slower than his model's prediction over this period.

Turning to his model of the relation between prices and hourly compensation, Clark finds that variations in standard unit labor costs—hourly compensation divided by the trend in labor productivity—adequately explain the short-run behavior of prices in the nonfarm business sector, except during the period of price controls and the oil price explosion in the mid-1970s. But he also finds significant trends in the relation between prices and labor costs over various subperiods. The most significant of these is a downtrend from 1971 to 1979 of 0.76 percent per year in the price deflator for nonfarm business excluding domestic oil and gas production relative to standard unit labor costs. By itself, such a downtrend implies a narrowing of average profit margins per unit of output. A downtrend continued, but at only half that rate, after 1979.

In contrast with some previous researchers, such as Robert J. Gordon (*BPEA, 1:1977*), Clark finds no special cyclical influences on price-wage margins, apart from the cyclical adjustment of actual labor productivity to its trend level that is used in computing standard unit labor costs. He does find that import prices have an independent effect on the domestic price deflator, though their effect is not large: a 10 percent change in the relative price of non-oil imports produces a 0.4 percent to 0.5 percent change in the price deflator for nonfarm, non-oil output. Thus far in the 1980s, the price of non-oil imports has fallen about 15 percent relative to this price index. Clark's estimates indicate that this relative decline in import prices has held down the level of the price deflator by 0.6 percent over this four-year interval.

Clark finds that the behavior of prices relative to hourly compensation in the 1980s has been roughly as predicted from his historical relation, again based on a productivity trend since 1979 of 1 percent per year. Thus, if there was any surprising improvement in inflation in this period, it came from the slowing of hourly compensation growth rather than from any unpredicted narrowing of the margin between prices and wage costs.

Clark measures net capital income as economic profits before taxes plus net interest payments. This measure puts profits on a consistent depreciation basis and includes the returns to business capital financed by borrowing as well as the returns to equity capital. The share of net capital income in the nonfinancial corporate sector declined from 16–17 percent of output in the 1950s and early 1960s to 13–14 percent of output by the mid-1970s. The analysis is confined to this aggregate sector because data on profits and interest payments in the oil and gas industry are not available to permit their removal from the aggregate.

During the worst part of the recent recession, the net capital share declined by 3.1 percentage points—from 13.0 percent of gross domestic product in 1981:3 to a record low 9.9 percent in 1982:4. When Clark adjusts the net capital share for the business cycle, using his estimated effect of the cycle on labor productivity and the calculated effect of the cycle on the share of output absorbed by depreciation and indirect taxes, this picture changes dramatically. He attributes 1.7 percentage points of the decline in the capital share between 1981:3 and 1982:4 to the cyclical weakness of productivity that accompanied the recession, and 1.9 percentage points of decline to the cyclical rise in the share of depreciation and indirect business taxes. Thus he estimates the cyclically adjusted capital share actually rose over this interval.

During the first four quarters of recovery, the net capital share rose by 3.9 percentage points. Although most of this improvement came as a part of the normal cyclical process, by the end of 1983 the cyclically adjusted share had risen to 15.4 percent of output according to Clark's estimates. This left it noticeably above the average of 14 percent that had prevailed during the 1970s, but still below the high level of 16 to 17 percent of output reached by the share in the 1950s and early 1960s.

DURING THE PAST few years, the behavior of average union wages and institutional developments surrounding union wage setting have de-

parted sharply from patterns of the previous decade. A confluence of events that started in the late 1970s has placed unusual economic pressure on unions in several major industries. The deep recession reduced output and employment for an extended period. In addition, deregulation brought new competition to airlines and trucking while rising imports provided intense competition in many highly unionized "smokestack" industries. In the first report of this issue, Robert J. Flanagan assesses whether these developments portend important, permanent changes in the U.S. labor market.

Flanagan decomposes the slowdown in union compensation into three components: current settlements, prior settlements, and cost-of-living adjustments. He reports that current settlements—the first year wage changes in newly negotiated contracts—are usually about as sensitive to unemployment as nonunion wages are, though they are also subject to other influences. Adjustments from prior settlements are predetermined and cost-of-living adjustments respond to prices. Effective union wage changes, which average these three components, have typically responded less to unemployment than nonunion wages have. However, in the recent recession, increases received under current settlements peaked at 9.7 percent in 1981 and then plunged to 3.8 percent in 1982 and only 2.6 percent in 1983—0.3 percent in manufacturing. Cost-of-living adjustments also declined sharply after 1981 as energy prices stopped rising, and even the adjustments from prior settlements slowed moderately by 1983. As a consequence, effective union wage changes, which had reached 9.9 percent in 1980 and 9.5 percent in 1981, slowed to 6.8 percent and 4.0 percent the following two years.

Although union wages thus proved highly sensitive to the past recession, causing them to lead rather than resist the moderation in wage inflation that occurred in the nonunion sector, Flanagan questions the permanence of this development. He points out that the institutional characteristics that have damped the response of union wages to unemployment in the past remain largely unchanged: the duration of most contracts has not been shortened, cost-of-living adjustments are still prevalent features of contracts, and most contracts, including those in which substantial concessions were made in the recent past, still include fixed deferred pay increases.

The indexing of compensation to company performance is a development that would add to union wage flexibility if widely adopted.

Because such arrangements were introduced in a number of contracts in the past few years, some observers expect they may become a more important feature of wage arrangements in the future. Flanagan reviews the performance-based compensation arrangements that were negotiated in recent years—basically profit sharing and stock ownership—and concludes they are unlikely to become significant in the labor market or even in the union sector. Profit-sharing plans were negotiated in only a few, though large and important, industries, including steel, autos, farm equipment, and airlines, and involved about 650,000 workers by 1983. In normal times, the attitude of unions, which Flanagan identifies with the interests of the median voter in union referendums, has been opposed to such plans. The median worker is not normally threatened by income loss through layoff and prefers the income stability of traditional contracts to the uncertainty that performance-based compensation would entail. Flanagan notes that new performance-based clauses have been almost invariably associated with concession bargaining. He finds no tendency for such plans to spread to other industries and suggests they may not even remain a feature of contracts where they have been introduced, serving mainly as a "rebate" on large recent concessions. Similarly, he finds no evidence of stock-ownership plans spreading beyond firms where they were introduced as an offset to wage reductions, and reasons that the same considerations that make profit sharing unattractive to unions in normal times applies to stock ownership as well.

Flanagan also examines the significance of the U.S. Supreme Court's *Bildisco* rulings of February 1984, which addressed the question of when a firm can set aside a union contract. The Court ruled that bankruptcy courts could release a firm from its union contract. In a separate and closer vote the Court ruled that companies filing a petition for bankruptcy could unilaterally abrogate their labor agreements. In 1983, two prominent firms, Wilson Foods and Continental Airlines, had done so and resumed operations with markedly lower wages. Flanagan observes that firms have always had the right to attempt to reduce union wages when a contract was renegotiated and to replace striking union workers permanently if they did not agree to the reduction. The outcome of such an attempt would, he reasons, depend on the relative bargaining power of the firm and its union. Thus he sees the *Bildisco* ruling as altering the point at which negotiations can start but not necessarily altering the bargaining power which, in his view, determines the ultimate outcome.

THE UNUSUALLY LARGE current spread between the yield on long-term bonds and treasury bills, coupled with the widespread belief that future government deficits will increase interest rates in the future, has rekindled interest in the relationship between the slope of the yield curve and the future level of rates. In the second report of this issue, N. Gregory Mankiw and Lawrence H. Summers examine that relationship.

The expectations theory of the yield curve views today's long-period rates as equivalent to a properly discounted series of expected future short-period rates plus, possibly, an allowance for risk. One prediction of the expectations theory is that long-term rates will rise when the yield curve is unusually steep. This implication of the expectations theory has failed formal statistical tests numerous times. Mankiw and Summers note that some attempts to understand these failures suggest that the long rate overreacts to changes in short rates; these include the findings that long rates are excessively volatile, the observation that weekly money surprises have a substantial effect on long rates, and the conventional wisdom that "long rates follow short rates." These suggestions lead the authors to test the expectations theory by embedding it in a more general hypothesis that allows the long rate to respond more (or less) to the short rate than implied by the expectations theory.

In a regression of the change in the long rate between this period and next on the spread between this period's long and short rates, they find that a large positive spread is associated with a decline in next period's long rate rather than an increase. The results are inconsistent not only with the expectations theory but with the hypothesis that expectations are moved excessively by changes in current short rates, since excess sensitivity predicts an even larger positive response than the expectations theory. These results are quite robust, showing up in regressions using the spread between twenty-year bonds and three-month bills, and using the spread between six-month and three-month bills, both for the sample period 1963:1–1983:4 and the subsamples before and after 1979:3.

On the basis of these results, Mankiw and Summers reject the view that markets are myopic, overweighting current short rates. In related regressions, they find that the coefficient on "news"—innovations in the short rate—indicates that markets underreact rather than overreact to new information embodied in short rates. All these results imply that one could expect to make money, on average, by taking advantage of the market's failure to accord with the expectations theory. The authors

show, however, that the risks associated with the expected profits are large, with the standard deviation of profits approximately fourteen times their expected value.

The failure of the expectations and excess volatility hypotheses leads the authors to consider the existence of a variable liquidity premium. Such a liquidity premium is, in effect, an error in the expectations equation analyzed by the authors. A positive error implies that the long rate is high relative to current and expected future short rates, with excess returns available to holding bonds rather than bills. The existence of a variable liquidity premium therefore explains the negative (or "too-small" positive) coefficient estimates the authors and others find in pure expectations equations.

In principle, both a variable liquidity premium and expectations of future interest rates could help explain the yield spread. Mankiw and Summers show, however, that changes in expected rates are not important in explaining changes in the spread between six-month and three-month bills. (They do not address this issue for long-term bonds.) They find that only 26 percent of the variance in that spread can be attributed to the change in expected future rates. Thus variations in the liquidity premium, rather than in expectations of short-term rates, are the dominant factor behind movements in the yield spread.

THE FINANCIAL SYSTEM of the United States is in a period of dramatic change, both as a result of regulatory reform and in response to market forces. In the third report of this issue, Thomas D. Simpson examines the implications of these institutional changes for M1 targeting as a means of conducting monetary policy. Historically,the distinction between M1 and other, broader monetary aggregates has rested on the idea that M1—which includes currency and checkable deposits at banks and other depository institutions—is the medium through which economic transactions are made. There has always been some criticism of targeting M1 as a means of conducting monetary policy. If institutional changes have altered the association of M1 with transactions or with GNP itself, they will have further weakened the case for targeting it.

The institutional changes that Simpson reviews include the development of new transactions accounts, some included in M1 and some not, that are more attractive than traditional demand deposits: NOW accounts paying fixed interest on checkable deposits, Super NOWs, which have

no rate ceilings but require minimum balances, and money market deposit accounts with limited checking privileges. The changes also include important new credit services that enhance the liquidity of consumers and thus reduce the level of precautionary transactions balances they require. And they include improved efficiencies in processing financial transactions, which permit the public to economize on transactions balances.

In recent years, while many of these changes were taking place, the movement of M1 relative to income has been erratic and unpredictable. During 1981, when interest rates were falling, the demand for M1 shifted down sharply, producing a surge in velocity—the ratio of GNP to M1. This was followed by exceptional weakness in velocity, with an unprecedented velocity decline at a 5.4 percent annual rate between 1981:4 and 1983:1 and a subpar expansion of velocity since then. As the recession deepened, the St. Louis Federal Reserve's model, which projects GNP from M1, overestimated GNP growth by 10 percent in the five quarters starting 1981:4, missing the entire recession.

Simpson reports on the sophisticated attempts by the Federal Reserve Board staff to explain this behavior of velocity by separately modeling the demand for the different components of M1: currency, demand deposits, NOW accounts, and Super NOW accounts. Because interest-bearing assets are now an important part of M1, the opportunity cost of holding M1 has declined substantially. By itself this would lead one to expect M1 would be higher for a given level of market rates. In addition, the demand for each M1 component presumably responds differently to variations in market interest rates because the opportunity cost of holding each is different. Whereas the opportunity costs for currency, conventional demand deposits, and NOW accounts increase point for point with market interest rates (and therefore by different relative amounts), the opportunity cost of Super NOW accounts will not change at all if the rate they pay just keeps pace with market rates. The model incorporating these differences in opportunity costs predicted M1 growth reasonably well in recent quarters, given the actual changes in GNP and interest rates; but it predicted about as badly as conventional money demand models in the two preceding years.

Simpson notes that deregulation of M1 has further to go. Elimination of the ceiling on NOW accounts is scheduled for 1986. Congress is considering permitting interest payments on demand deposits, which

would permit firms, which are not currently allowed to hold NOW accounts, to earn interest on transactions balances. Such changes, once made, will have two predictable consequences: M1 will closely resemble alternative assets in the portfolios of the public, and the demand for it will be less responsive to market rates.

The reduced responsiveness of M1 demand to interest rates will itself provide a reason for altering the Federal Reserve's operating procedures. Larger variations in interest rates, with consequent larger impacts on the prices of financial assets, will be needed to accomplish any change in M1 holdings. Furthermore, with a less elastic money demand, disturbances in either money or goods markets will generate a larger response in interest rates than before. Simpson observes that the monetary authority could reestablish the previous pattern of these responses to disturbances by introducing institutional changes that make the supply of money more responsive to changes in interest rates.

The fact that deregulation will make M1 more closely resemble other portfolio assets raises several uncertainties about the relation of M1 to GNP in the future. Once deregulation has been completed and the economy has fully adjusted to it, M1 holdings might stabilize as the incentives to create new alternatives diminish. On the other hand, households may become indifferent to the proportion of their wealth held in M1, leading to greater unpredictable fluctuations in those holdings. Last, M1 holdings might respond more to developments affecting portfolio choices, such as variation in the stock market, and therefore might become even less closely tied to income than they have been in the past, when M1 consisted mainly of transactions balances.

Quite apart from these uncertainties, which may be clarified once the adjustment to deregulation has been completed, it will be difficult for some time to know what M1 velocity the public's eventual adjustment will produce or how much of the adjustment has been completed. This will add to the uncertainty about the expected path of velocity in any year and therefore about the appropriate target path for M1. All these considerations argue for reduced attention to M1 as the target for conducting monetary policy, at least until the adjustment to deregulation is complete and the stability of the M1–income relationship can be reassessed.