Editors' Summary

THIS ISSUE of *Brookings Papers on Economic Activity* contains articles and reports presented at the thirty-fourth conference of the Brookings Panel on Economic Activity, which was held in Washington, D.C., on September 16 and 17, 1982. Two articles deal with topics that have been central themes in the economic programs advanced by the Reagan administration: the need to encourage business investment and the desire to return federal program responsibilities to state and local governments. Four reports in this issue cover a range of topics: the likely consequences of decontrolling gas prices, financial problems arising from high interest rates and recession, evidence on the productivity slowdown, and the relation between bankruptcies and the financial policies of corporations.

CAPITAL FORMATION is usually thought to play a central role in productivity growth. Its importance in explaining the recent poor performance of productivity and its potential for reversing that slowdown continue to be the subjects of professional and policy debate. In the first paper of this issue, Barry Bosworth provides a wide-ranging analysis of these issues and a critical look at current economic policies as they affect investment. Bosworth starts by dispelling some currently popular notions. He shows that gross investment in structures and equipment by private business has actually been quite strong during the past decade by most relevant measures. During 1976–80, the latest five-year period for which he has complete data, gross investment as a percent of gross output in the business sector has been at an all-time high. Subtracting depreciation, net investment as a percent of net output has been well below the boom period of 1966–70, but higher than it was in earlier years.

Growth in the gross and net capital stock slowed during the 1970s, but the slowdown was smaller than the slowdown in output growth.

Therefore the ratio of the capital stock to output rose during the 1970s after remaining essentially stable for the previous twenty years. Only when measured against the large increase in labor input that occurred does capital formation during 1976–80 appear weak: annual growth in the ratio of the net capital stock to total hours worked slowed to 1.3 percent after cyclical correction, 2.0 percentage points below its average growth rate during the previous twenty-five years.

Bosworth focuses on the private nonfarm, nonresidential business sector to eliminate the effects on productivity coming from shifts of workers out of low-productivity agriculture and to avoid the measurement problems associated with housing output. For this broad business sector, he carefully constructs estimates of the flow of services from the capital stock using several plausible but alternative assumptions for estimating that flow, including adjusting the aggregate capital stock for changes in its average durability. Compared with earlier years, investment in the latest period has been concentrated in equipment rather than structures. Because equipment is much shorter lived than structures, it provides its services over a much shorter period than does a structure of equal value and, as a result, the ratio of capital services to capital stock is much higher for equipment than it is for structures. Because investment in the 1970s has been concentrated in equipment rather than in structures, the adjustment for durability raises the estimated flow of services from a given aggregate capital stock in the 1970s compared with earlier periods.

Bosworth calculates that the growth of capital services adjusted for durability slowed by 0.4 to 0.8 percentage point between 1967–73 and 1973–80. When translated into its contribution to the growth of output, the slowdown is much smaller. This reflects the fact that the contribution of capital services to the growth of output is the growth rate in services multiplied by the share of capital in total income. Because the capital share is only about 0.2, the modest slowdown in the growth of capital services during 1973–80 accounts for only 0.1 to 0.2 point of the 1.6 percentage point slowdown in labor productivity that occurred between 1967–73 and 1973–80. Similarly, the slowdown in the growth of capital relative to labor inputs had only a negligible effect on productivity: the slowdown in total factor productivity was only 0.1 point more than the slowdown in labor productivity.

Bosworth examines the hypothesis that an unusual amount of the

existing capital has been made obsolete by major economic changes that took place in the 1970s—a hypothesis advanced by Baily in *BPEA, 1:1981* and again in his report in this issue. Bosworth looks for evidence of the increased scrappage of capital one might expect with premature obsolescence. But a comparison of the book value of the capital stock in manufacturing with the value implied by normal retirements does not indicate much unusual scrapping or early retirement. He also looks for evidence of a reduced utilization of capital that might be reflected in a reduced reliance on multiple workshifts. But any such utilization effects again turn out to be small—amounting to no more than 0.1 percentage point a year of reduced services.

Based on all his analysis, Bosworth concludes that there is no evidence that capital services in the 1973–80 period slowed down so much as to be an important part of the explanation of a productivity slowdown in that period.

The return earned by capital provides further insight into the performance of investment in the 1970s. The pre-tax rate of return to tangible capital declined during the 1970s as the ratio of capital to output rose while capital's share of income fell. Bosworth observes that this combination of events could be explained by a reduction in the after-tax cost of capital or in the effective taxation of capital or both, but is inconsistent with the notion that capital formation was insufficient during the 1970s. He shows that, in fact, the effective tax rate on capital probably rose slightly; but the real rate of interest on financial assets—a broad measure of the cost of capital to firms—declined. Bosworth hypothesizes that firms responded to this decline in the real cost of funds by expanding into more marginal investments, thus raising capital-output ratios and reducing the average return on capital.

Bosworth points out that recent economic policies are reversing the pattern of the 1970s by raising real interest rates. Furthermore, although depreciation schedules were accelerated in 1981 to stimulate business investment, he calculates that higher interest rates have more than offset these tax incentives so that the *required* rate of return on corporate investment actually rose between 1980 and 1981. For the near-term, the recession induced by tight money is depressing investment even further by lowering firms' estimates of the *available* rate of return. As Bosworth puts it, "capital formation has joined the unemployed as a victim of the recession."

For the longer run, he points out that high levels of business investment require both high levels of total saving in the economy and sufficiently strong incentives to invest. Even if the fiscal changes adopted by the new administration in 1981 enlarge private saving at high employment, he shows that they will reduce *total* saving by greatly increasing the high-employment deficit. Thus he concludes that even as a longer-run strategy—one that looks beyond the present recession—the current policies of tight money and large high-employment deficits are the reverse of a strategy for high investment. The traditional, and in his view appropriate, policy combination would provide lower interest rates as an incentive for investment and smaller high-employment deficits, or surpluses, to provide the matching saving.

SHIFTING RESPONSIBILITY to state and local governments for income maintenance and for activities now supported by categorical grants has been a major priority of the Reagan administration's economic program. In the second paper of this issue, Edward M. Gramlich investigates the likely consequences of this "new federalism."

Gramlich begins with a discussion of the philosophical and practical issues involved in choosing what level of government should carry the responsibility for providing social benefits. The central philosophical questions are, first, whether individuals have, by virtue of national citizenship, the right to a minimum standard of living; and second, whether citizens as national voters have a right to require that such a minimum standard is provided to other citizens, regardless of where in the nation they reside. The primary practical question is whether needs can be determined and provided for most efficiently at the national or local level.

Even if it is assumed that income-support programs should respect state rather than national preferences, Gramlich shows that there is a potentially severe difficulty with placing responsibility at the state level. If state legislators perceive that beneficiaries will immigrate to states with relatively high benefits and taxpayers will emigrate from states with relatively high taxes, those legislators will have an incentive to keep benefits below the level that would otherwise satisfy the preferences of their state's existing residents. Migration creates an externality; because of it there will be a tendency, even if all states had identical preferences regarding income support, to underprovide welfare benefits.

Attempts by the national government to achieve its desired standards, either by providing benefits directly or by providing grants for particular purposes to states and localities, are not without their own practical difficulties. Gramlich shows that the national government may not succeed in producing the desired level of overall benefits when there exist state benefits that can be reduced so as to offset the federal initiatives.

It may be appropriate to allow both state and national preferences to affect the provision of some types of benefits. Gramlich discusses several schemes which, to a greater or lesser extent, enable the federal government to influence the level of benefits while also preserving some local control. These include categorical matching grants under which the federal government pays a portion of all costs of certain programs while states choose the level at which they want to operate them and "power equalization" grants that support particular programs in a way that compensates for differences in state incomes.

Gramlich turns from this conceptual discussion to an empirical investigation of the determination of benefit levels. This investigation focuses on the key behavioral questions that emerged in the conceptual discussion: the responsiveness of migration to differences in benefits among states; the substitutability of federal benefits for those provided at the state or local level; and the inefficiencies in the provision of benefits resulting from the use of categorical grants.

Gramlich identifies four potentially complementary models, with features ranging from altruism to vote buying, for explaining how the level of AFDC benefits are determined through the political process. These models are not mutually exclusive and, indeed, Gramlich develops a general utility-maximizing model that is consistent with any of them. According to Gramlich's model, the important variables influencing benefits are the level of income and the tax cost or "price" of benefits. This price itself reflects a number of variables including the federal matching rate, the proportion of AFDC recipients in the state population, and the elasticity of migration to the level of benefits.

Gramlich attempts to estimate the income, price, and migration parameters using pooled cross-sectional time-series data for thirty-three states from 1975 to 1981. Allowing for differences in tastes and other unobserved variables and controlling for the average benefit rate in the rest of the country, Gramlich obtains sensible and statistically significant

estimates for price and income elasticities. Using these estimates, he finds that the actual AFDC matching formulas are not far from the formulas that would achieve power equalization—a situation in which differences in average state incomes would not contribute to differences in the level of benefits. However, he also finds that power equalization by itself does not appear to be terribly important; differences in preferences are apparently responsible for much of the observed variation in benefits across states.

Gramlich is less successful in nailing down an estimate of the extent to which states adjust their AFDC benefits in response to changes in the level of federally provided food stamps. There appears to be too little independent variation in food stamp benefits to identify their effects with much confidence. Unfortunately estimates of the extent to which states substitute between food stamps and AFDC are crucial in predicting some of the consequences of the new federalism plan. One extreme that is consistent with the data is that the level of food stamps has relatively little effect on state AFDC benefits. In that case, the administration's original proposal to turn food stamps over to the states would result in a sharp drop in total welfare benefits—AFDC and food stamps combined. Gramlich also has difficulty in statistically distinguishing between the effects on the provision of benefits that come from externalities associated with migration and the effects that come from other factors that may have been affecting the average level of benefits over the sample period. There does appear to be a strong common movement in the benefit levels across states. If this common behavior reflects externalities associated with migration, the level of benefits provided in each state would be inefficiently low. Furthermore, any change in the tax price of benefits affecting all states will have a greatly magnified effect on the level of benefits as each state responds to the changes in benefits initiated elsewhere.

Gramlich also estimates the likely response of states to the proposed conversion of federal categorical grants to block grants, using a model of public consumption purchases that is similar to one he developed earlier *(BPEA, 1:1978)*. In principle, states should prefer block grants to categorical grants because the former have fewer restrictions on how they can be used. But Gramlich estimates that, to a large extent, states have already been able to divert categorical grants to their own preferred uses. Thus they would not be willing to give up very much in total grants

in order to receive the money in the form of block grants. The administration's proposal to reduce grants by 25 percent in exchange for providing the money as block rather than categorical grants thus leaves states much worse off as gauged by their own preferences.

However, Gramlich also estimates that the effect of this exchange on total state spending will not be large. A switch to block grants of $14 billion proposed for the 1983 budget will lower public consumption purchases by an estimated $2.5 billion. Although this is a noticeable reduction relative to the $14 billion conversion, it is less than 1 percent of total state and local government spending. Both because categorical grants are not a major part of budgets and because, as his estimates suggest, states have substituted them for spending that would have been financed by state and local taxes, the overall reductions in state and local spending are not, in his words, "the stuff of fiscal revolutions." By the same token, to the extent that their total spending is unaffected by the reduction in federal grants, the new federalism will raise state and local tax burdens.

THE NATIONAL GAS POLICY ACT of 1978 (NGPA) scheduled phased and partial decontrol of gas prices over a period of many years. Since then, complete decontrol has surfaced repeatedly on the political agenda. In the first report of this issue, Richard N. Cooper examines the economic costs and benefits that would come from immediate and full decontrol of gas prices. Most economists and businessmen, convinced that regulation misallocates resources, favor rapid deregulation. Cooper cites a Department of Energy (DOE) study[1] which shows that the real resource saving from immediate price decontrol reaches $3 billion per year (in 1980 dollars) by 1990—$0.5 billion in improved efficiency and $2.5 billion in lower gas production. However, Cooper observes that this saving is associated with substantial price increases which themselves have significant and adverse effects on output and inflation, income distribution, and oil import dependence.

These economic consequences depend importantly on how much gas prices would change under decontrol and on whether controls are presently distorting gas consumption and supply. In contrast to the DOE study, Cooper argues that the average price of gas today is not far from

1. U.S. Department of Energy, Office of Policy, Planning and Analysis, *A Study of Alternatives to the Natural Gas Policy Act of 1978* (DOE, November 1981).

its long-run equilibrium level and that total gas production is limited by demand. But today's average price comes from blending some wellhead prices that are below the average with others that are well above it. As a result, Cooper believes that the average price of gas is likely to rise substantially above the long-run equilibrium price for an extended period following decontrol because prices currently held at low levels by controls will rise while the high prices being received by some producers will be kept from falling because they are fixed by existing long-term contracts.

Cooper argues that the temporary rise above long-run equilibrium prices that would accompany decontrol would have substantial undesirable economic effects. Higher gas prices would raise the CPI and GNP deflator and transfer income from consumers to producers of gas. Unless the Federal Reserve fully accommodated it, the rise in the price level would automatically tighten monetary policy, while the income transfer would reduce consumer demand. Because Cooper offers no estimate of the immediate price rise he expects, he does not offer quantitative estimates of these economic impacts. But he cites estimates based on the DOE study assumption that gas prices at the wellhead would double. In that case, the transfer of income amounts to $38 billion (1980 dollars); Cooper estimates that under a monetary policy that kept nominal GNP growth unaffected by this price increase, real GNP would be reduced by $26 billion in the first year and $100 billion over the first three years. He also cites simulations from large econometric models that assume more accommodating monetary policies and still predict three-year GNP losses ranging between $20 billion and $40 billion.

Cooper addresses the impact of gas decontrol on oil imports by considering the likely demand and supply responses. His reasoning is as follows: electric utilities and industry would not substitute between oil and gas as a result of decontrol because that substitution is determined largely by other considerations. Residential and commercial use would be reduced with higher gas prices, and oil would be substituted for gas to some extent. Finally, gas supply would not be affected much by decontrol because, under present NGPA regulations, new development and exploration are already encouraged by high prices; indeed the uniform average price after decontrol might be lower than the existing price for most new gas, thus actually reducing the rate of exploration and discovery.

Cooper thus concludes that gas deregulation would lead to a combi-

nation of bad outcomes: more inflation, loss of output and employment, redistribution of income from consumers to producers, and, possibly, an increase in oil imports.

IN THE SECOND REPORT of this issue, Andrew S. Carron analyzes the financial difficulties that have struck U.S. firms and financial institutions in 1982. He starts with a look at earlier episodes of tight money in the 1970s that provide useful comparisons with the present. In the summer of 1970, after the Penn Central Transportation Company went bankrupt, a few other companies in clear financial difficulty had trouble borrowing, but firms in general were not much affected. In Carron's view this situation lacked one important characteristic of a crisis: firm's borrowing costs did not include an extra risk premium reflecting general financial uneasiness.

The financial problems that followed the rise of oil prices in 1973 were more severe. After the Franklin National Bank failed in the summer of 1974, the average risk premium on bank certificates of deposit relative to Treasury bills rose to historically large levels, peaking briefly at nearly 500 basis points in July. Carron argues that this episode was substantially more damaging to real activity than the tight money of 1970 because the enlarged risk premiums on private lending extended to all firms and affected real activity in the economy. But in both these instances the Federal Reserve made clear its willingness to lend to banks through the discount window, and confidence in the banking system was never seriously disturbed.

Carron finds that financial conditions in 1982 were worse than those in 1974 in some respects and not as bad in some others. Risk premiums rose to record levels on all but top-grade bonds but did not reach 1974 levels on short-term instruments. The problems of thrift institutions and of foreign loans were clearly worse than those experienced at any other time in the postwar period, and the profits and cash flows of nonfinancial business were exceptionally depressed for an extended time, with bankruptcy rates reaching postwar highs.

Thrift institutions suffered an unparalleled number of failures. But that problem had been building for a long time and had been well anticipated by the authorities. Government agencies had been resourceful in providing liquidity to thrift institutions and in making mergers of weak firms possible. Nonetheless, Carron reasons that without the decline in short-term interest rates that began in the middle of the year,

the losses of the industry might have been too great to be managed by these methods alone.

The dimensions of the foreign loan problem are still not clear. In 1981 bank loans to Mexico, Brazil, and Argentina were estimated at $134 billion, with nearly $50 billion owed to U.S. banks. The ability of these countries to continue servicing the interest payments on those loans remains uncertain. If a significant fraction of these loans were to go into default, the losses to some major banks would reduce their capital below regulatory minimums. Thus far it appears that efforts by international agencies as well as by the U.S. government and the Federal Reserve have successfully headed off defaults. But Carron points out that this situation too could have become unmanageable without the decline in short-term interest rates that has occurred.

The Federal Reserve has played a role in both the development and the resolution of problems in financial markets. Carron observes that its tight money policies of recent years brought on severe financial difficulties and a deep and protracted recession in the course of fighting inflation. But he also notes that, when the signs of a developing financial crisis emerged, the Federal Reserve acted to avert it, both by relaxing its monetary restraints and by going to the aid of troubled borrowers.

UNDERSTANDING the disappointing performance of productivity continues to challenge economic researchers. Recent articles by Martin Neil Baily (*BPEA, 1:1981*), J. R. Norsworthy, Michael J. Harper, and Kent Kunze (*BPEA, 2:1979*) and Peter K. Clark (*BPEA, 2:1979*) have examined the productivity slowdown using economy-wide data. In the third report of this issue, Baily turns to a comparison of the performance of individual sectors and industries for new evidence on the sources of the slowdown.

Baily's main examination centers on the services being provided by the measured capital stock. As Barry Bosworth's article in this issue shows, during the past decade investment has not been weak and the measured capital stock has not grown slowly relative to output. But in his own recent work (*BPEA, 1:1981*), Baily has hypothesized that the services being provided by capital have declined relative to the measured capital stock. This could have happened because of unexpected obsolescence of capital or because an exceptional amount of new investment was directed toward pollution abatement, energy conservation, or other uses that did not contribute commensurately to measured output. Baily

reasons that, if unexpected obsolescence of capital were widespread, the relative productivity slowdowns in individual industries would be correlated with the relative capital intensity of those industries. He does find a significant cross-sectional correlation between capital intensity and productivity slowdowns among the two-digit manufacturing industries, although not among the major industry groups that make up total GNP, of which total manufacturing is one. He regards these results as providing some support for the hypothesis of capital obsolescence.

Baily also looks for evidence that rising energy prices were somehow responsible for unexpected capital obsolescence by looking for cross-sectional correlations between energy intensity and energy conservation on the one hand and productivity slowdowns on the other. He reports that, although some energy-intensive major industries such as mining and public utilities did experience exceptional productivity slowdowns, he cannot find any significant correlation between these variables for the two-digit manufacturing industries. He also demonstrates that the shifting composition of total output among different industries in the economy can account for only a little of the observed slowdown in aggregate productivity.

Baily also offers some specific observations on individual industries, and suggests that a more detailed breakdown by industries than the one he works with in his article may be useful in understanding productivity performance. He rejects previously offered explanations for the productivity slowdown that are based on the possibility that output is badly underestimated in computer production or construction—two industries in which, for different reasons, output is hard to measure accurately. In construction, the argument that inputs are overstated because of inaccurate price correction could explain weak productivity in that sector, but only by assigning weaker productivity to the sectors producing the inputs. In the case of computers, Baily observes that if production is underestimated because technical improvements are much more rapid than allowed for in the official data, the capital stock of industries using computers is correspondingly understated. If this is the case, then the mystery of why aggregate productivity is so weak, given the capital stock, is all the deeper.

THE CURRENT RECESSION has been characterized by extraordinarily high interest rates, both nominal and real, and a high level of corporate

bankruptcies. A straightforward explanation of this high bankruptcy rate is that corporations, caught with large holdings of debt, have been unable to meet unexpectedly high interest costs from internal cash flow or new lending. In the fourth report of this issue, Roger H. Gordon provides a theoretical explanation of how even anticipated increases in interest rates or inflation could lead to both higher debt-value ratios (the ratio of the firm's debt to the sum of its debt and equity) and to higher bankruptcy rates. Thus current high bankruptcies need not reflect unanticipated interest rate changes. He also gives empirical estimates of how expected and unexpected inflation and interest rates affect the level and composition of debt.

Gordon starts by comparing several theoretical explanations of how corporations choose the ratio of debt to equity financing. The celebrated Modigliani-Miller theorem states that the value of the firm will be independent of this choice; however, it ignores such potentially important factors as taxation and bankruptcy costs. The tax system treats interest payments on debt as an expense that can be deducted from corporate profits, but does not allow a deduction for the dividend payments to equity holders. This, by itself, gives corporations a tax advantage for financing with debt. On the other hand, individuals pay higher personal taxes on interest received than on returns from equity. Some economists have argued that the observed mix of debt and equity results from a balance between these two tax costs. But Gordon believes there remains a tax advantage to additional debt that is offset by the higher risk of bankruptcy that accompanies a greater reliance on debt financing.

In a world without frictions, bankruptcy costs would be very small: the value of a bankrupt firm would be transferred to its creditors, and the only costs would be legal and administrative fees. Real world costs are probably much higher because the assets of bankrupt firms may not be marketable at their full value. However, explicit estimates of bankruptcy costs are not available, and so Gordon can only test the predictions of the theory, not its assumptions.

The most striking prediction of Gordon's bankruptcy cost model is that higher nominal interest rates resulting from inflation lead firms to make greater use of debt finance. This is because the tax advantage of debt increases as nominal interest rates rise. The higher debt, in turn, results in a higher probability of bankruptcy.

Gordon tests the predictions of his model by regressing the aggregate debt-value ratio of a sample of firms on a variety of explanatory variables including long- and short-term nominal interest rates and the inflation rate. Since firms do not adjust their financial policy instantaneously, the immediate effect of a rise in interest rates is a decline in the equity value of a firm and in the market value of its debt. To try to separate such revaluation effects from the equilibrium adjustment of the firm's financial policy, the author analyzes debt-value ratios using debt measured at both book value and market value, and separates inflation and interest rates into anticipated and unanticipated components. His results suggest that an expected increase in long-term interest rates has a large effect on debt-value ratios. But only a minor portion of that is due to an increase in the desired ratio; most of the effect comes from changes in the market value of the firm's outstanding debt and equity that would occur in response to a change in interest rates, whether expected or unexpected.

Gordon interprets his results cautiously, since he has only a small number of observations and several of his estimated coefficients do not seem theoretically plausible. Nevertheless, he concludes that, ironically, the high nominal interest rates of the past ten years have significantly increased firms' use of debt finance. The recent high bankruptcy rate is then not surprising, and indeed may be consistent with the higher bankruptcy risks firms knowingly took. Even with this interpretation, the present high bankruptcy rate represents a real cost to society because it results from tax laws written in nominal terms. These laws push firms to take greater bankruptcy risks in a period of inflation than they would if the laws were neutral with respect to inflation or in their treatment of equity compared with debt.