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Transition Series

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Investment

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General Accounting Office
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Comptroller General
of the United States

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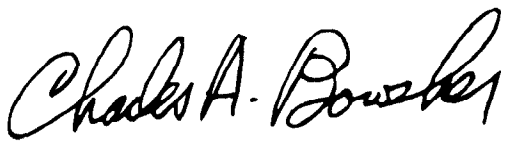
The Speaker of the House of Representatives
The Majority Leader of the Senate

In response to your request, this transition series report discusses a topic critical to our nation's long-term economic future—the need to increase investment, both public and private. Investment is important because it increases the economy's long-term productive capacity.

Within an overall fiscal policy emphasizing deficit reduction, federal priorities should shift toward investment and away from consumption. Structuring the budget to emphasize well-chosen investment would help to support this shift.

The GAO products addressing related issues are listed at the end of this report.

We are also sending copies of this report to the President-elect, the Republican leadership of the Congress, the appropriate congressional committees, and the designated heads of the appropriate agencies.



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The Importance of Investment

Long-term economic growth is central to almost all our major concerns as a society. During the last two decades, growth in U.S. productivity has slowed substantially. Without improved productivity and increased growth, the nation cannot continue to expect an ever-improving standard of living for future generations.

Healthy economic growth depends on many things, but private and public investment in infrastructure, human capital, and technology are essential. Private investment can buy more and better equipment, enhance production processes, stimulate the development of new products and services, and support training to improve job skills—key ingredients required to improve productivity and the long-term productive capacity of the economy. Public investment policies both foster increased private investment and help provide the infrastructure, the education and training, and the technological advances that markets alone cannot provide.

Economic policy in general addresses two distinguishable issues: (1) the health of the economy today and (2) the productive capacity of the economy in the future. Fiscal stimulus, designed to focus on the first issue,

seeks to use existing but unused economic resources to improve the short-term cyclical health of the economy. A successful fiscal stimulus program could help to bring the economy to its full potential in the short term. In contrast, the interest in investment programs lies in their ability to increase the long-term productive capacity of the economy.

The economy will need additional productive capacity in the next century. By the year 2020, the United States will have undergone a large demographic shift. Most of the baby boom generation will have retired, and a relatively smaller working population will have to support this large number of retirees. Because investment takes time to bear fruit, the nation must invest now to ensure the long-term growth needed to support these retirees without causing a decline in workers' living standards.

Lagging Investment and Growth in Productivity

U.S. investment stands at its lowest level in three decades.[1] Since 1960, total gross U.S. fixed capital investment, public and private, has ranged between 17 and 20 percent of Gross Domestic Product (GDP). Until 1989, it never dropped below 17 percent. Since 1985, however, it has declined steadily, to an unprecedented low of 16 percent of GDP in 1990. Furthermore, net investment has declined even more sharply—from an average of 9.8 percent of the economy in the 1960s to an average of 6.0 percent in the 1980s.[2]

These trends alone would be cause for concern. In addition, however, other countries have far surpassed the United States in their commitment to investment. According to the Organization for Economic Cooperation and Development (OECD), Japan in 1990 invested 33 percent of its GDP in gross fixed capital—more than twice as much as the United States. Other major U.S. trading partners also have significantly higher levels

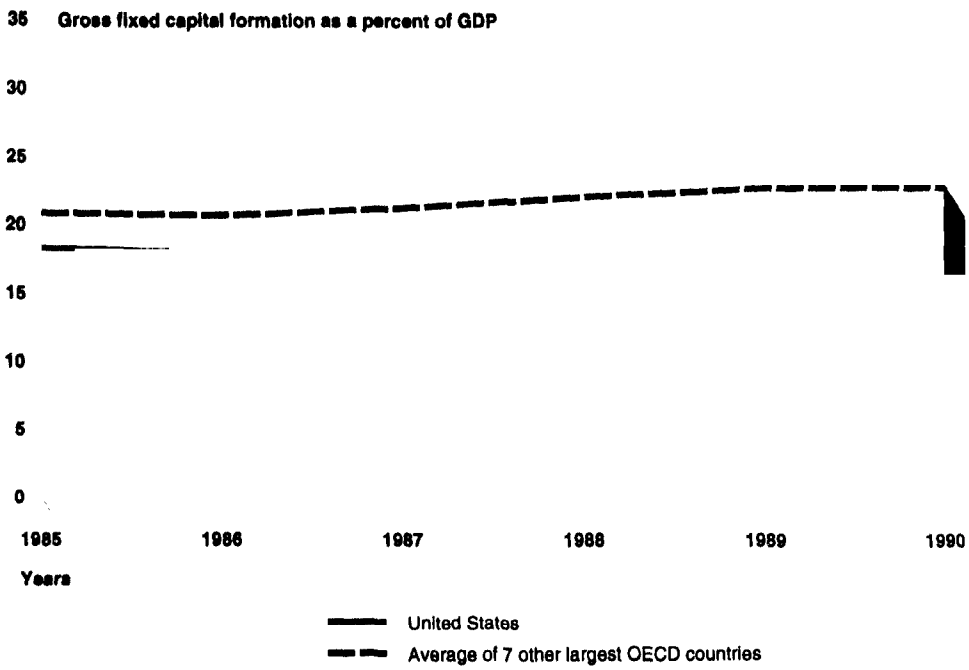
[1]There are several ways to measure investment. To permit use of historical trend and cross-country comparative data, GAO uses the United Nations' System of National Accounts (SNA) definition in this section. Although this measure does not include education and training or research and development spending in its definition of investment, as GAO does, it nonetheless reflects an economy's relative commitment to investment.

[2]Net investment is gross investment minus depreciation. Net investment measures the increase in the capital stock from year to year.

of investment: France, Germany, and Canada invest over 21 percent of GDP. In 1990, the United States ranked last in gross fixed capital formation not only among the 7 largest industrialized nations but also among the 24 OECD member countries.

As figure 1 shows, this gap has widened since 1985. While the other major industrialized countries of the OECD have, on average, been increasing fixed capital investment, the United States has slowed its investment spending.

Figure 1: Gross Fixed Capital Formation

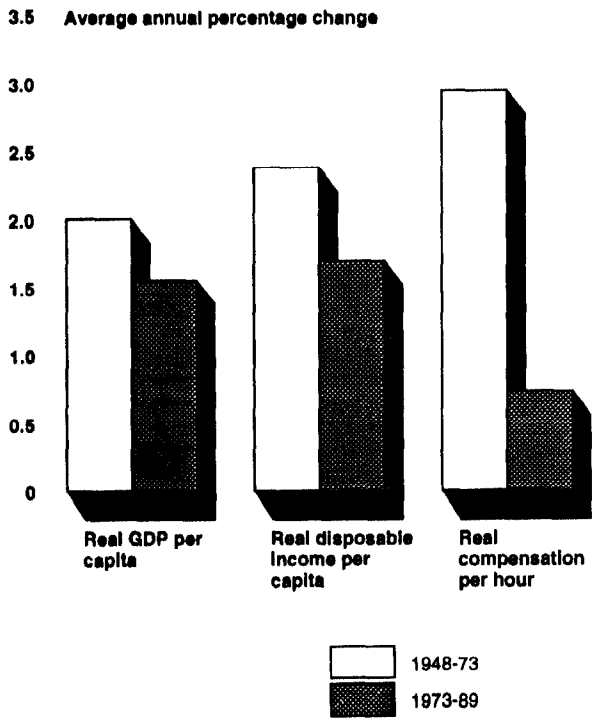


Source: OECD.

The U.S. economy is already paying a price for this slowdown. Figure 2 compares growth since 1973 to growth during 1948-73 in three measures of economic well-being: real GDP per capita, real disposable income per capita, and real compensation per capita.

These measures illustrate the slowdown of the postwar boom in the U.S. standard of living since 1973.

Figure 2: Comparison of Growth Rates of Several Measures of Economic Performance



Source: Committee for Economic Development.

In addition, an analysis by the Committee for Economic Development suggests that if the savings rates of the 1980s had stayed at the pre-1980s levels, the nation's potential GDP would have been $300 billion higher by 1990.[3]

[3]Restoring Prosperity: Budget Choices for Economic Growth, Committee for Economic Development (1992).

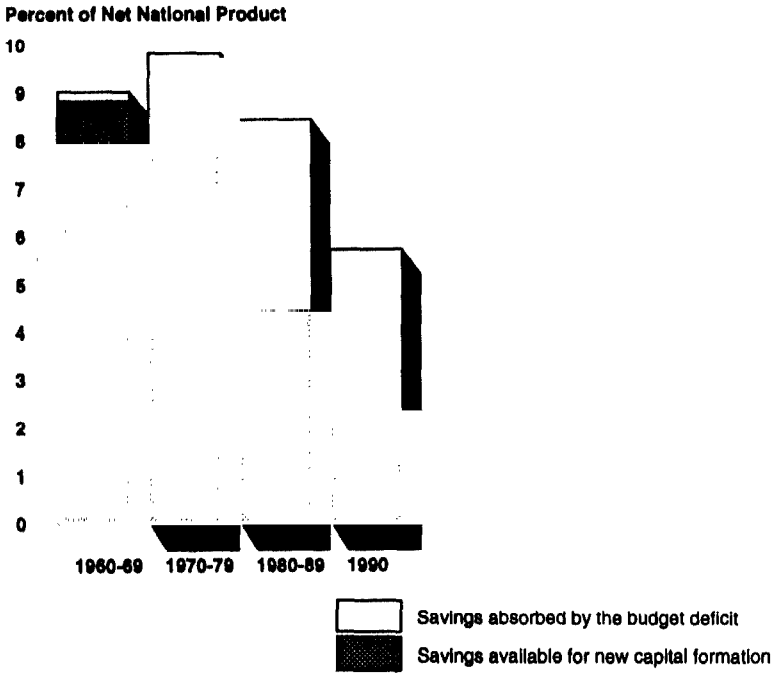
Changing Federal Policy to Increase National Investment

The federal government influences investment by others—state and local governments and the private sector—and engages directly in investment itself. In both of these fundamental areas, the federal government's impact in the last decade has been increasingly unfavorable. The growing federal budget deficit has absorbed savings that would otherwise be available to finance investment, either public or private, and the share of federal spending devoted to public investment programs has declined.

Reducing the Long-Run Deficit Critical to Increasing Investment

The budget deficit exerts the single most important federal influence on investment today. Private investment must be financed from domestic savings or capital from abroad. As the federal deficit has grown, the share of national savings available for private or state and local investment has fallen. Figure 3 shows the combined effect of a declining savings rate and a growing deficit. The share of net national product available for new capital formation declined from about 9 percent in the 1960s to just over 2 percent in 1990.

Figure 3: Effect of the Federal Budget Deficit on Net National Savings (1960-90)



Source: Economic Report of the President (Feb. 1992).

In the 1980s, inflows of foreign capital kept U.S. investment higher than the available domestic savings would otherwise have permitted, but this foreign investment has some cost—the United States must

ultimately pay dividends or interest to the foreign owners of the assets involved. There is no guarantee that foreign capital can continue to flow in at these levels, especially if we fail to reduce the deficit.

The surest way to increase investment in the United States is to increase national savings. And the surest way to increase national savings is to reduce federal dissaving—that is, to reduce the deficit. We have argued that pursuing a fiscal policy path that achieves a budget surplus by early in the next century offers the most promise for boosting savings and long-term growth. Following such a path could increase real GNP in the year 2020 by almost 10 percent—in contrast to "muddling through" with deficits of 3 percent of Gross National Product (GNP).[4]

Reorienting Federal Policies to Focus on Investment

Long-term deficit reduction is a vital element of a federal investment strategy. It can be complemented, however, by other federal policies and programs that encourage private investment and/or programs that support efficient public infrastructure, an educated work force, and expanded

[4]See Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy (GAO/OCG-92-2, June 1992). See also Budget Issues (GAO/OCG-93-1TR, Dec. 1992), another transition series report.

technology innovation. In the past, the federal government—through its investments in physical capital, human capital, and research and development; its tax policies;[5] and its regulations—has played an important role in providing an environment conducive to growth.

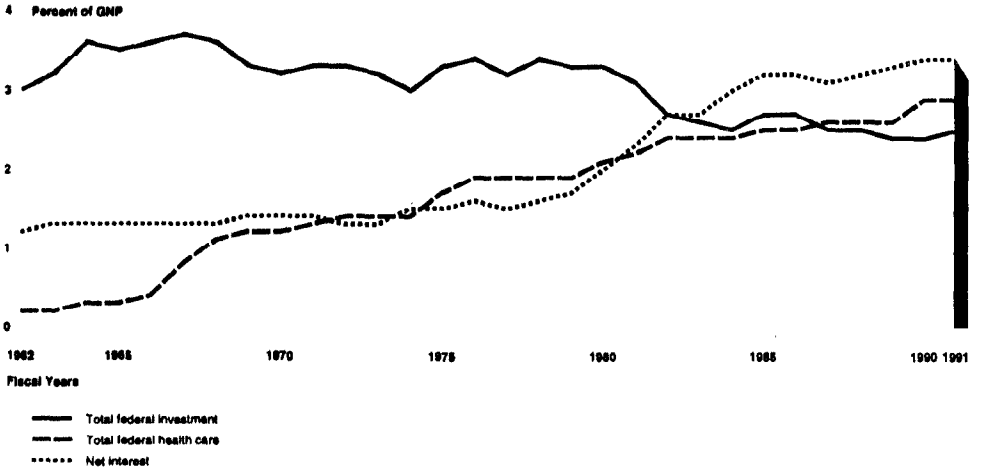
However, recent trends raise concerns. The growing portion of the budget absorbed by interest payments and consumption programs, particularly health, has squeezed the discretionary sector of the budget, which funds federal investment programs. Figure 4 shows trends in federal outlays for investment as a share of GNP. Between 1980 and 1984, total federal outlays for investment programs declined as a share of GNP. During the 1980s, the federal share of GNP for public investment was eclipsed both by federal health spending and by net interest payments on the debt.

Given the size of the deficit and the need to reduce it, however, decisions on the future levels of the deficit should be made independently of decisions on the amount of

[5]Investment tax credits (ITC) historically have constituted an important dimension of federal economic policy and are under discussion at this writing. Economists generally agree that a time-limited ITC creates incentive to move investment forward and hence should exert a positive short-term (stimulative) effect on the economy's cyclical health. There is less agreement regarding the long-term economic effects of an ITC.

federal spending for investment. It would be unfortunate if, in the process of cutting the deficit to increase private investment, the government reduced effective federal investment programs. Therefore, within an overall fiscal policy emphasizing deficit reduction, priorities should shift toward well-chosen federal investment programs. Although the rates of returns of these programs are often difficult to measure, investment programs are more likely to improve long-term growth than many federal consumption programs. As we point out in our transition series report, Budget Issues (GAO/OCG-93-1TR, Dec. 1992), containing explosive health care costs is an essential part of such a shift.

Figure 4: Outlays for Federal Investment, Health, and Net Interest (1962-91)



Source: Budget of the U.S. Government.

Structuring the Budget to Emphasize Investment

Recent trends in the investment share of the budget are not the result of an explicit strategy or set of national priorities. They represent instead the accumulated results of a large number of individual budget decisions regarding dozens of programs. The budget is currently not structured to facilitate a shift in the composition of spending between investment and consumption.

Because the budget treats all expenditures alike, it obscures the long-term investment character of some federal activities. These activities, unlike spending for current consumption, produce assets that can generate future benefits to the economy as a whole. Differences between investment and consumption activities should be taken into account in allocating federal resources.

Federal tax subsidies and regulations can also promote federal investment goals. Tax expenditures represent a major tool for influencing economic activity and should be considered in concert with investment spending decisions. The present budget process, however, does not encourage decisionmakers to consider these other tools along with spending decisions.

The creation of an investment category within the overall unified budget would provide a framework for developing, displaying, and analyzing the information needed for policymakers to consider the investment effects of budget decisions. It would also create a vehicle that could be used to structure the process of making decisions about the allocation of investment resources. Tax expenditures supporting investment could also be displayed within such an investment category to provide a more complete picture of federal resources devoted to investment.

Establishing "investment" as a budget category will raise definitional issues. Care must be taken to prevent stretching the term to cover a host of programs with only remote effects on long-term economic growth. As noted above, we apply the term investment only to those initiatives, programs, or activities that seem likely to increase the productive capacity of the economy. Innovations in technology, better education and training, and improvements in infrastructure all help to increase workers' productivity, thereby raising the productive capacity of the economy and permitting continued improvement in our standard of living.

This definition of investment differs from those in traditional capital budgets. It includes spending to improve human capital, to support research and development, and to fund some public physical capital. But it excludes spending on noninvestment capital, such as federal office buildings and weapons systems. Such expenditures may improve the efficiency of government agencies' operations and create jobs in the short term in particular regions of the country; but they do not improve the long-term productive capacity of the economy.

Choosing Among Competing Investments

Increasing the visibility of investment programs in the budget is important to attaining the larger objective of promoting investment within limited federal resources. This means choosing among competing investment strategies and programs so that federal resources can be used in ways that will most effectively promote long-term economic growth.

Ideally, policymakers would have access to measures of relative rates of return from federal investment programs as a basis for deciding how to allocate resources. However, such data are scarce. Additional research is needed to develop more and better information for estimating the economic effects of various types of public investment. A program found to have minimal impact on private economic growth can then be either evaluated against other criteria or phased out in favor of other strategies.

Although we know relatively little about the economic impact of different investments, a few well-considered questions may be helpful in roughly assessing competing investments' relative worth.

- First, is it really an investment? In other words, does it seem likely to increase the economy's long-term productive capacity? Does the growth represent an addition to total GDP or is it simply a shift from one geographic region or economic sector to another? What evidence supports this investment's link to economic growth?

- Second, how good an investment is it? How much growth might it generate, and over what period of time? Does it address a recognized national problem? How do the potential benefits compare to the costs, and is this investment the best, most cost-effective approach to solving the problem? Why hasn't the private sector already made this investment? Must other actions be taken—or money spent—for this investment to succeed?

- Third, is the investment program well designed? Does it employ the most effective federal policy tools? What other policy approaches are currently in place, and are they duplicative or even conflicting? That is, would a change in pricing, tax policy, or regulation be more effective than federal outlays? Is the program targeted to produce maximum benefit? Is it designed to support or leverage rather than replace private or

state and local funds for this purpose? Does the program include provisions to assess its effectiveness?

Although considering these questions can help focus decision-making, judgment rather than well-documented data will in most instances guide answers. Information on the effects of specific investments on economic growth is limited. Nonetheless, some data are available to assist decisionmakers in identifying attributes of investments.

Investing in Infrastructure

The potential economic impact of investments in infrastructure—such as highways, bridges, airports, and water systems—varies greatly. Evidence strongly suggests that investment in certain types of these projects produces long-term economic returns as well as creates jobs in the shorter term. However, to the extent that existing infrastructure assets can be used more efficiently, the need for new infrastructure can be reduced.

Investment in transportation infrastructure can create economic benefits by improving mobility for people and goods. Our analysis and that of the Congressional Budget Office

(CBO)[6] suggest that maintenance work on existing highways provides particularly significant benefits because it postpones the need for expensive highway reconstruction at a relatively modest cost. CBO has estimated that maintenance work can earn a 30- to 40-percent rate of return. Improvement and modernization of the nation's air traffic control system may also have a positive economic impact.

But expanding and improving the nation's supply of transportation infrastructure is not the only way to achieve federal investment goals. Influencing demand can reduce congestion by fostering more efficient use of existing facilities at less cost to the government. For example, a recent Brookings Institution study[7] observes that congestion pricing for the use of roads and airport runways could create approximately $15 billion in annual net benefits by reducing travel delays. More detailed information on our nation's transportation infrastructure appears in Transportation Issues (GAO/OCG-93-14TR), another document in this transition series.

[6]How Federal Spending for Infrastructure and Other Public Investments Affects the Economy, CBO (July 1991).

[7]Clifford Winston and Barry Bosworth, "Public Infrastructure," Setting Domestic Priorities: What Can Government Do? ed. Henry J. Aaron and Charles L. Schultze (Washington, D.C.: The Brookings Institution, 1992).

Investing in Human Capital

An educated and well-trained population is more productive and thereby enhances national economic growth. Investments in the productive capacity of people are accomplished mainly through activities such as education and training. Yet a significant proportion of our population is not receiving the education and training needed for full participation in the economy. According to a joint report of the Departments of Labor, Education, and Commerce,[8] 66 percent of employers consulted considered the academic preparation of recent high school students for the job market inadequate.

Returns from education and training—for example, the ability to read and write—are economic as well as social. However, the link between federal education and training programs and the nation's economic performance is difficult to quantify, as CBO has noted. First, the relatively small federal investment in human capital programs—as compared with that of state, local, and private entities—makes it hard to isolate the effects of federal programs. Second, it is often difficult to separate the contribution of federal programs from that of important socioeconomic and demographic factors that may also affect participants' behavior.

[8]Building a Quality Workforce, U.S. Departments of Labor, Education, and Commerce (July 1988).

Despite the difficulty of quantifying programs' effects, particular programs have produced some encouraging results. For example, CBO cites a study finding that the Job Corps program appears to have been a good investment.[9] For an investment of about $10,000 in the average participant, society obtained a stream of benefits worth almost $15,000. Recent research has also demonstrated that education and training programs for welfare recipients can increase earnings and reduce dependency. An ongoing study of the effects of the Job Training and Partnership Act provides some evidence that the program has a positive impact on adult earnings.[10]

Thus, the technical difficulties of measuring their effects should not exclude human capital programs from a federal investment strategy. Performance measures are currently incorporated into the Job Training Partnership Act (JTPA) programs and are being developed for the Job Opportunities and Basic Skills (JOBS) Training program. Such measures can provide important

[9]Evaluation of the Economic Impact of the Job Corps Program: Third Follow-Up Report, Mathematica Policy Research Inc., (Washington, D.C.: Mathematica, Sept. 1982), cited in How Federal Spending for Infrastructure and Other Public Investments Affects the Economy, CBO (July 1991).

[10]The National JTPA Study: Title IIA Impacts on Earnings and Employment at 18 Months, Abt Associates, Inc. (May 1992).

feedback to federal, state, and local policymakers and managers as they endeavor to craft and implement the most cost-effective human capital investment programs possible. Some of these measures are discussed in our transition series report, Labor Issues (GAO/OCG-93-19TR).

Additionally, research on the effects of education and training on participants—such as is currently being conducted in the JOBS program—could provide information for determining the long-term relationship between economic gains for participants and for the nation.

In these ways, we can improve our ability to make the most of current human capital programs and to determine how future education and training policies can best enhance productivity.

Investing in Research and Development

Research and development (R&D) contributes to long-term growth by promoting innovations in technology and work processes. However, as for human capital initiatives, techniques for predicting the economic returns of specific R&D investments are not well developed. Here again, lack of specific data should not

exclude R&D programs from consideration as investment programs.

Unlike many of its trading partners, the United States has generally not invested in R&D to support civilian industrial technology. For example, in 1987, only 0.2 percent of all R&D spending in the United States was for civilian industrial technology, as compared with 15.3 percent in Germany.[11] Similarly, federal R&D spending has been oriented towards agencies' specific mission-related goals, primarily in the areas of defense, energy, and health. Consequently, the contributions of federal R&D programs to economic growth have generally not been assessed.

As the nation reduces the share of R&D spending for defense, it may lose some of the civilian spin-off benefits that it realized from these expenditures. This raises the question of whether and how federal spending should be redirected to provide other means of encouraging R&D that promotes economic growth.

[11]Linda R. Cohen and Roger G. Noll, "Research and Development," Setting Domestic Priorities: What Can Government Do? ed. Henry J. Aaron and Charles L. Schultze (Washington, D.C.: The Brookings Institution, 1992).

As federal R&D strategies are developed, however, close attention to their design will be needed. In one study, for example, we found that programs to transfer advanced technology to small manufacturers were not aligned with the needs of the manufacturers. Instead of laboratory-based technology—like the computer-based manufacturing systems provided by the programs—these small manufacturers needed proven technology to solve routine production problems.[12]

In another study, we found that the research and experimentation tax credit, which cost over $7 billion in foregone revenue, stimulated research and development worth only $1 billion to $2.5 billion, in part because a poorly designed incentive structure reduced the subsidy for firms that increased their R&D spending.[13]

[12]Technology Transfer: Federal Efforts to Enhance the Competitiveness of Small Manufacturers (GAO/RCED-92-30, Nov. 22, 1991).

[13]Tax Policy and Administration: The Research Tax Credit Has Stimulated Some Additional Research Spending (GAO/GGD-89-114, Sept. 5, 1989). In 1989, the Congress enacted changes that probably improved the program's effectiveness.

Conclusion

The nation's long-term economic future depends in large part upon decisions made today. The federal government needs to focus on the impact of current decisions on the long-term economic health of the country. Failure to reverse recent trends in investment will doom future generations to a stagnating standard of living and damage U.S. competitiveness and influence in the world. In fact, we are today already paying this price.

Current federal policy not only fails to promote long-term investment but also violates the maxim to "do no harm," as the deficit absorbs private savings needed to improve long-term growth. Therefore, starting to reduce the deficit is essential to future economic growth. Within this overall fiscal policy constraint, well-chosen public investments can also play an important role. Reining in federal consumption spending, particularly for health care, is essential both to reduce the deficit and to shift priorities within the budget toward investment.

New public investment strategies and programs should be scrutinized carefully lest public investment become a new catchword to justify the claims of programs with only tangential long-term economic benefits.

Moreover, policymakers should consider other tools besides spending, such as pricing or regulation, that may achieve federal investment goals more cost-effectively.

In the last decade of the 20th century, the U.S. government must accept accountability for the long-term impact of its decisions. Only if we focus on the future can we provide an ever-improving standard of living for future generations.

Related GAO Products

Budget Policy

Budget Policy: Budgetary Treatment of Investment Programs (GAO/T-AFMD-92-15, July 23, 1992).

Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy (GAO/OCG-92-2, June 5, 1992).

Investment in Infrastructure

Airport Capacity: Synopses of Major Studies (GAO/RCED-92-117FS, Feb. 5, 1992).

Transportation Infrastructure: Preserving the Nation's Investment in the Interstate Highway System (GAO/RCED-91-147, Aug. 2, 1991).

Investment in Human Capital

Welfare to Work: States Begin JOBS, but Fiscal and Other Problems May Impede Their Progress (GAO/HRD-91-106, Sept. 27, 1991).

Transition from School to Work: Linking Education and Worksite Training (GAO/HRD-91-105, Aug. 2, 1991).

Training Strategies: Preparing Noncollege Youth for Employment in the U.S. and Foreign Countries (GAO/HRD-90-88, May 11, 1990).

Job Training Partnership Act: Services and Outcomes for Participants With Differing Needs (GAO/HRD-89-52, June 9, 1989).

Investment in Technology

High-Technology Competitiveness: Trends in U.S. and Foreign Performance (GAO/NSIAD-92-236, Sept. 16, 1992).

Technology Transfer: Federal Efforts to Enhance the Competitiveness of Small Manufacturers (GAO/RCED-92-30, Nov. 22, 1991).

Tax Policy and Administration: The Research Tax Credit Has Stimulated Some Additional Research Spending (GAO/GGD-89-114, Sept. 5, 1989).

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