Chapter 2

Increase in Defense Expenditure and Its Impact on the U.S. Economy

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INTRODUCTION

Both political and military considerations usually determine the level and pace of military spending. To assess the magnitude and types of resources that should be devoted to national defense purposes, the political leadership of a country must evaluate the nature and scope of the threat the nation faces at a particular period. The relevant economic questions are how the increased expenditure should be financed, and what impact a given level of spending and a sustained rate of growth of defense spending have on the U.S. economy. To assess properly, it is necessary to consider the future development of the economy, and to evaluate what impact defense spending may have on economic growth and on the sectoral distribution of output, employment, and investment. Such an evaluation may help answer the question of whether a given national defense program is affordable.

The Reagan administration's defense program that was announced in 1981 constituted a major undertaking to increase the U.S. defense expenditures over the 1980s. The assessment of the need for a substantial increase in military spending had been based, as will be noted, on the evaluation of the perceived threat facing the United States and its allies and of the state of defense preparedness of the U.S. military forces. The economic issues were, first, whether the U.S. economy could accommodate the planned increase in defense spending in the short run as part of

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the aggregate demand, and second, whether a sustained increase in defense spending could lead to structural distortion of the economy in the long run. The administration's plans to expand defense spending in the context of its overall economic design were assumed to produce neither short-term aggregate demand management problems such as serious inflationary bottlenecks, rising prices, and deficits, nor any structural distortion of the economy in the long run.

In this chapter we will briefly examine the economy-wide and industry-level effects of the planned increase in defense expenditure, and try to answer the question of the affordability of the defense program in today's economy. We shall note the salient features of defense spending and of its catalytic role in the U.S. economy and discuss briefly some of the factors that determine defense spending, focusing particularly on the reason why the Reagan administration argued for substantial increases in defense expenditure over the 1981–1985 period. Alternative military spending programs put forward by the Reagan administration critics will be briefly noted. We shall also discuss the outlook of the U.S. economy in the next few years, and analyze the macroeconomic consequences of defense spending in the context of the evolution of the federal budget. Finally, the sectoral and regional effects of the increasing defense spending will be examined.

THE CONTROVERSIAL NATURE OF DEFENSE SPENDING

The study of the effect of increased military expenditure on the U.S. economy has a long and controversial history. Controversies arise at various levels of discourse and for a variety of reasons. Since it is not possible to discuss all the issues that separate proponents and opponents of a large defense buildup, we shall only briefly mention some of their arguments.

Some critics argue that in the context of the present international situation, increased defense spending may not necessarily lead to national security. According to them, larger defense expenditure by the United States stimulates higher defense expenditure by the U.S.S.R., while the resulting weapon sophistication leads to national insecurity for both countries, and the rest of the world. Another group opposes increased defense expenditure because resources are then diverted from meeting social needs such as health, education, assistance to urban areas, etc. Also, it is often but nevertheless mistakenly argued that expenditures on defense programs are wasteful because no useful products or services are created. This argument ignores the fact that "security" is a service with special characteristics and value, and that without it the performance of the civilian economy would definitely be severely hampered. Moreover, the defense program is often criticized for its waste and lack of efficiency. (Cases of excessive cost overruns on major defense systems and of enormous overpayments for simple tools are often pointed out as examples of a mismanaged defense buildup.) Finally, there are those who do not question the need for further defense buildup but question the composition of the defense expenditure program and the need for some of the military procurement systems suggested by the administration, claiming that alternative but more efficient programs are available to meet the national security needs.

The controversy on the economics of defense looks somewhat surprising at first when we examine aggregate economic data. Military expenditure accounts for only one-fifth of the Gross National Product (GNP) and for a much smaller portion of the labor force. In general, few of the major industries take part in provisioning the military goods and services while even the biggest defense contractors sell the bulk of their products in the civilian markets. Also, even though a few states and localities are significantly affected by changes in military expenditures, the majority of the states and metropolitan areas are only slightly concerned about the defense programs. However, despite the fact that at the aggregate level the defense expenditure appears to be of marginal importance, it nevertheless often plays an important catalytic role in the U.S. economy. This is partly due to the unusual nature of the resources devoted to defense programs, and also to the decision process involved in implementing the defense programs. A number of these special features can be identified:

1. In the United States, a major share of the scientific and engineering talent is used in the provisioning of the United States defense program. Increased defense expenditure may also lead to substantial increases in supply of these resources as well.

2. Defense expenditure constitutes the bulk of federal government purchase of goods and services. Thus, defense programs have been a major vehicle for the increased role of the federal government as a purchaser of goods and services.

3. U.S. defense spending has been and is likely to be in the foreseeable future the major component of total NATO defense expenditure. Currently U.S. defense spending constitutes over 50 percent of the NATO total expenditure. Because of the weak economic performance of the U.S. allies, and/or the political and social constraints, it is unlikely that major efforts will be made to reduce the U.S. share.

4. Because of the specialized nature of the defense purchase, a small number of durable goods and high technology industries supply the bulk of the goods directly purchased by the Department of Defense (DoD). The indirect defense purchases are, on the other hand, not highly concentrated and are, to a much lesser extent, very specialized goods.

5. Increased defense expenditure, because of its autonomous nature, means that increasing shares of the national economy are independent of the fluctuations in the private sector.

6. Because of its size and rate of buildup, as well as the method used to finance defense programs, the impact of defense spending has taken on a new dimension since 1981. A serious examination of the effects of defense spending must there-
fore take place within the context of the evolution of the federal budget and the national economy.

Three central economic questions arise from a large defense buildup. First, is there an optimal transfer of resources from the civilian into the defense production sector, i.e., one which disrupts the civilian economy the least? Second, given the method used in the transfer of resources, what are the likely effects on the civilian economy in the near future and on the long-term growth of the economy? Third, can the U.S. economy afford a sustained increase in defense spending over a long period of time?

Critics argue that the transfer mechanism imposed on the economy by the Reagan administration is not optimal — rather it is disruptive. They point to the Korean and Vietnam wars as examples of the right and wrong ways of achieving this transfer. During the Korean War taxes were raised dramatically at the beginning of the war, and a full range of wartime controls on wages and prices, investment, labor, and materials were imposed. Taxes were used to lower consumption, provide resources for military production, and curb excess demand inflation. Controls were used to shift materials, labor, and capital to military production, severely damaging the civilian economy and preventing bottleneck inflation from breaking out. In the Vietnam War taxes and controls were avoided, and the excess demand generated by the military buildup led to the substantial inflationary pressure of the early 1970s. It is argued that, as included in the federal budgetary process, the new military expenditure buildup is deficit-financed, and that as part of the federal budget deficit, it is responsible for the high interest rates in the United States and the rest of the world. The high interest rate has had, in turn, a major retarding effect in most European and developing economies.

Since it takes several years to significantly increase the supply of engineers and scientists, the argument goes that the military buildup will necessarily take a significant amount of manpower away from existing civilian industries. This shift may jeopardize the U.S. high technology firms that compete with businesses from allied nations since the United States alone, among the Western allies, is carrying out a military buildup. The policy option facing the United States is either to pressure the allies to engage in similar military builds so that their firms face the same conditions as the American firms, or to slow down the acceleration in U.S. military procurement.

It is also argued that a rapid increase in defense expenditure may produce shortages of materials, equipment, and skilled labor which in some sectors would create bottleneck inflation and could lead to general excess demand inflation in the rest of the economy. Bottleneck inflation may arise from two sources. First, as resources flow out of civilian industries, civilian production drops, which in turn leads to price increases. Secondly, in the absence of controls, the military industries have to compete by paying high wages for labor and high prices for materials and equipment. Because of the need to move these resources rapidly and the risk associated

with boom-and-bust cycles in military procurement, the economic benefits from moving these resources are likely to be small, wages and material costs will increase, and the price of capital goods for both military and civilian use will rise. The administration’s defense buildup focuses heavily on the procurement of advanced hardware where bottlenecks and shortages can develop very rapidly and spread to the rest of the economy. Particularly since the Vietnam War the economy has become more inflation-prone; wages are highly indexed today, and businesses now pass cost increases through to their customers much faster than before.

**DETERMINANTS OF THE DEFENSE EFFORT AND THE RATIONALE FOR INCREASED DEFENSE SPENDING**

Defense spending is primarily determined by strategic and noneconomic factors. Perception of threat and security needs are critical in determining military budgets but the allocation between defense and nondefense also has to be solved in the most efficient and optimal way, i.e., the least disruptive to the current and future growth of the civilian economy.

There are a number of welfare optimizing models which can explain the stylized facts of the military expenditure; they assume that a country maximizes its intertemporal welfare function subject to constraints. The preference function depends on a society’s preference between expenditure on civilian goods and services (consumption and investment), security, and the level of threat. According to these models the U.S. military expenditure is a function of the U.S. level of income, relative prices of military goods and services compared with their counterparts in the civilian sector, military expenditure by the U.S. allies, and an index of “threat” often measured by the Soviet Union’s or the Warsaw Pact’s military expenditure. Other factors such as population size, extent of the country’s borders to be defended, and economic shocks such as the increase in oil prices in the 1970s are also mentioned as influencing U.S. military expenditure. The purpose of these types of econometric models is to establish a stable demand function for military expenditure in terms of the variables mentioned. This line of research is promising and could lead to significant insights about the determinants of the level and timing of the military expenditure. However, further work is required to establish that these demand functions are stable over time; also, these functions should be embedded in larger econometric models to capture the interplay between the variations in the level and composition of the defense expenditure, and other types of public and private spending and trace their impacts on the various sectors of the civilian economy.

Nonetheless, these types of economic models particularly emphasize three factors which seem to have received specific attention in the administration’s defense program initiatives. First, there is the index of threat which, however measured, is a critical factor in analyzing the defense burden. The level of threat is assumed to be given exogenously and is measured either by the defense burden of the bellig-
erent power or by the difference between the defense burdens of the rival countries. This defense burden is often measured by the military expenditures/GNP ratio to indicate the opportunity cost of defense in terms of civilian goods and services. The second factor is that decision-makers are influenced by subjective evaluations of security needs. Third, even though military expenditure may be caused by strategic considerations, there is the need for balancing the military and nonmilitary needs and taking account of the financial and economic resource constraints facing the nation.

The overall thrust of the Reagan administration's defense program has been to restore U.S. defense capabilities that had eroded over the preceding decade. The rationale behind the allocation of more resources for national defense than President Carter had proposed, was based on an examination of U.S. resource allocation which showed that the share of the federal budget devoted to national security had remained substantially below the 1964 percentage throughout the last decade, while the share of the federal budget devoted to nondefense spending had greatly increased. But these trends alone do not necessarily prove that defense was being underfunded during the 1970s. Such a judgment must be based upon a careful assessment of Soviet military capabilities and the state of readiness of the U.S. forces. In this respect, several observations helped the administration to decide to substantially increase the defense budget. First, the slowdown of the U.S. defense effort occurred at a time of unprecedented Soviet buildup. During the 1970s, the Soviet Union embarked on the greatest military buildup in history. When the dollar estimate of Soviet expenditures for defense investment (procurement, research and development, and military construction) is compared to U.S. levels, the Soviet Union out-spent the United States by almost $5.05 trillion during the 1970 to 1981 period. Moreover, during that same period, the Warsaw Pact countries out-invested NATO and Japan by a net of $185 billion (1984 dollars).

The administration's review of the state of preparedness of U.S. military forces also revealed some important shortcomings. First, the readiness of the forces was found inadequate. Army divisions were not combat ready, Navy ships with major combat deficiencies were being deployed, and combat aircraft could not fly for lack of spare parts. In particular, personnel readiness in the Army and Navy was unacceptably low. Another indicator of the problem facing the military planners was the fact that in most cases, the age of the U.S. General Purpose forces had increased over the 1970s—a consequence of inadequate force modernization. The average age of Air Force tactical combat aircraft had increased from about seven years in 1979 to about ten years in 1981. The average age of Navy combat aircraft had increased from approximately five years to about 10.5 years. The average age of naval ships was more or less the same as in 1970, i.e., about sixteen years.

Based on these arguments, the administration developed a major defense expansion program. Under this program, defense spending as a percentage of GNP was to rise steadily from 5.6 percent in 1981 to slightly less than 8 percent by 1989. This represented a gradual increase back to the 1964 claim of 8.3 percent of GNP which was considered affordable prior to the Vietnam War. The administration plan called for a gradual decrease in nondefense spending as a percentage of GNP, to a level of more than 12 percent by 1989—still well above the claim of 9.5 percent in 1964.

**THE BUILDUP PROGRAM IN THE CONTEXT OF THE PROPOSED ECONOMIC PLAN**

The administration's 1981 economic program gave a precise description of how the structure of federal expenditure and tax receipts was to be shifted so as to accommodate the proposed dramatic jump in defense spending while also ensuring a reduction in the inflation rate and increased economic growth. It is useful to look at the general outlines of this program in order to assess the impact of the increased defense expenditure on the U.S. economy.

The economic program proposed by the administration in 1981 essentially drew economic policies along lines which differed from those of preceding U.S. administrations in their political roots and theoretical foundations. Major tax relief was linked to a restructuring of federal expenditure, thereby sharply altering the impact of taxation on the economy. With a view to combat stagnation, the "Program for Economic Recovery" included a variety of measures: tax reductions, a slowdown in federal spending with the hope of leading to a balanced budget, regulatory relief, and monetary restraint. The latter measure was expected to curb inflation, while the others were to pave the way for a stronger and more sustained economic growth. The tax cuts were to play a crucial role, providing a supply-side boost to the economy by promoting savings, investment, work effort, and productivity. By historical standards, the budgetary shifts implied by these policies and the administration's economic forecast were truly enormous. The expected economic recovery, along with the planned reductions in federal domestic spending, were to bring revenues into balance with total outlays by 1986, despite the large tax cuts and the defense buildup (Table 2.1).

The result was predicted to be an annual real growth of GNP in excess of 4 percent during calendar years 1982-1986, with annual inflation declining to below 5 percent by 1986. In essence, the president embraced a set of tax and defense policies that could be reconciled with his balanced budget objective only through extremely optimistic economic projections and large reductions in domestic spending.

In the context of this economic program, a substantial increase in the level and a dramatic change in the composition of the defense spending were proposed. In the first three years of the Reagan administration total defense budget authorization grew by about 52 percent (about 31 percent in real terms). The original budget and the five-year defense plan submitted to Congress called for $305 billion in budget authorization in fiscal year 1985 and increases of up to 446 billion by fiscal year
Table 2.1. The Original Budget Projections for Fiscal Years 1981 - 1986
Submitted by the Administration

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<td>Revenues</td>
<td>21.1</td>
<td>20.4</td>
<td>19.7</td>
<td>19.3</td>
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<td>19.5</td>
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<td>Outlays (including off-budget)</td>
<td>23.9</td>
<td>22.3</td>
<td>20.6</td>
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<td>19.4</td>
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<td>National defense</td>
<td>5.7</td>
<td>5.9</td>
<td>6.3</td>
<td>6.4</td>
<td>6.9</td>
<td>7.1</td>
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<td>Nondefense programs</td>
<td>15.9</td>
<td>14.3</td>
<td>12.5</td>
<td>11.4</td>
<td>11.0</td>
<td>10.6</td>
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<td>Net interest</td>
<td>2.3</td>
<td>2.1</td>
<td>1.9</td>
<td>1.7</td>
<td>1.5</td>
<td>1.3</td>
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<td>Total deficit (surplus)</td>
<td>2.8</td>
<td>1.9</td>
<td>0.9</td>
<td>0.2</td>
<td>0.0</td>
<td>(0.4)</td>
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Billions of Constant (FY 1972) Dollars

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<tr>
<td>National defense</td>
<td>77.8</td>
<td>83.0</td>
<td>92.6</td>
<td>98.4</td>
<td>110.8</td>
<td>118.9</td>
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<tr>
<td>Nondefense programs</td>
<td>213.9</td>
<td>197.0</td>
<td>180.1</td>
<td>172.6</td>
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1989, a 22 percent increase in real terms over the fiscal year 1984 budget. These figures, though to some extent adjusted downward by Congress, showed that the administration had undertaken a large and sustained increase in the defense expenditure. Another feature of the new defense program was its dramatic shift toward investment accounts: procurement, research and development, and military construction. The rate of increase (in real terms) of these accounts over the 1981 to 1984 period was quite high as shown in Table 2.2. Procurement of technologically advanced equipment takes a substantial lead time, which results in increasing backlog of orders which in turn may complicate control of the defense budget in the future and could lead to sectoral or general inflation if the private sector experiences rapid growth in the near future. Furthermore, the emphasis on new and technologically advanced weapon systems may entail substantial maintenance and replacement costs. Technological advance may lead to substantial obsolescence of highly capital intensive weapon systems. Finally, the changed composition of the defense expenditure may have a differential effect on the different firms and sectors of the economy that provision the defense sector’s demand for goods and services. If the rate of increase and the compositional mix of the defense expenditure are sustained through the 1980s, a substantial shift of resources toward durable goods industries — and particularly defense-related industries — could occur, which may have important economic consequences. Moreover, the compositional shift in the defense budget may also have a regional impact, as will be noted subsequently.

The critics of the administration’s defense buildup have argued that the defense program is both misguided and costly. They have proposed alternative plans which, they argue, provide the appropriate level of national security and are economically efficient. It is argued that the administration had overestimated the pace and level of Soviet modernization of both nuclear and nonnuclear forces. According to CIA estimates, Soviet defense spending had slowed down to 4 percent real growth per year in 1964 – 1975 and to about 2 percent per year in 1976 – 1981. Critics have also pointed out that the surge of investment has concentrated almost entirely on weapon modernization while major changes in force structure have yet to occur. Moreover, some have recently maintained that after several years of substantial expenditure, the level of preparedness of the U.S. forces has remained fairly inadequate. Finally, it has also been pointed out that undisciplined planning and programming in the Defense Department has led to substantial duplication of defense systems by the Army, the Navy, and the Air Force.

Researchers at the Brookings Institution have proposed an alternative program which incorporates three major modifications of the administration’s defense plan: canceling those programs aimed at modernizing those nuclear and general purpose forces that are deemed to be duplicative; slowing down the pace of procurement and other investment expenditures; and, more importantly, abandoning several questionable objectives incorporated in the administration plan. The savings from these changes are estimated to amount to about $45 billion in the fiscal year 1985 budget authority. Additionally, the Grace Commission has also suggested that savings of about $7.3 billion could be achieved, mainly by modifying the defense retirement program. The main thrust of the changes suggested in the Brook-
ings report is not only to lower the level of expenditure (by $45 billion in 1985) but also to change its composition by reducing the procurement account by 32 percent ($34 billion), and the research and development and military construction accounts by about 17 percent each.

We cannot resolve here whether the administration’s critics are correct about the level and composition of the planned defense buildup. Obviously, the total resource needs for a defense program, as well as the skewed demand toward capital goods industries would be reduced under the critics’ plan. As a consequence, the problems of adjustment and affordability of the defense buildup would also be less. The savings thus generated could be used to increase other needed public sector infrastructure investments in roads, bridges, education, health, etc., or to reduce the federal deficit. Any such economies are clearly desirable and need to be pursued, particularly if there is a clear military justification for them. However, for the purpose of this study, we take the administration’s planned expenditure as the upper limit for defense expenditure and trace its impact on the economy. Should actual expenditures be similar to the alternative defense plans suggested by the critics, some of these consequences could be mitigated or modified.

THE ECONOMIC OUTLOOK

Forecasting the evolution of the U.S. economy for the rest of this decade and beyond is a hazardous task. Year to year estimates can vary substantially; the long-run outlook of the economy can be significantly affected by drastic shifts in economic policy, autonomous changes due to technical change, and unforeseen events such as the OPEC price increases in the 1970s and decreases in the 1980s. The available estimates also differ greatly depending on the nature and quality of the forecasting models used. Most of these models are generally demand-oriented and do not fully account for the changes in quantity and quality of the supply of factors of production and types of output. Also, they do not explicitly take technical progress (which may alter the basic structure of the economy or particular sectors in it) into account. These uncertainties are very real and the results presented below should be interpreted with a great degree of care.

There are several well known large-scale econometric models that attempt to forecast the behavior of aggregate economic variables, such as GNP, employment, prices, balance of payments, wage rate, investment in plant and equipment, etc. Although on particular issues the models' estimates may differ considerably, there is a rough consistency among the forecasts. Some highlights of these forecasts are instructive. Nominal GNP was forecasted to grow by 8.6 percent in the 1981 – 1985 period and by about 9.2 percent for the remainder of this decade. Real GNP grew by about 6.8 percent in 1984 and is estimated to grow about 2.8 percent in 1985 and by about 3 percent until 1990. Government purchase was to grow about 6 percent in 1984 and 1985 and then slow down to about 1.1 percent over the 1987 – 1990 period. This is partly attributed to a major reduction in growth of government defense expenditure, which is to grow by about 6 percent in the 1981 – 1985 period, and then decline after 1986, averaging a growth rate of less than one percent in 1986 – 1990. The rate of growth of investment in the first period is dominated by the effect of the 1982 recession, which depressed investment, particularly in residential construction. In 1984, the growth of investment was almost 20 percent and is projected to grow at a rate above 5 percent for 1985 – 1988. This is substantially above the growth rate of investment in 1971 – 1975 but similar to the growth rate of 5.7 percent during 1976 – 1980. The growth rate of investment in fixed assets is forecasted to be about 5 percent in 1986 – 1990.

The rate of inflation, measured by either the consumer price index or the implicit GNP deflator, is generally projected to be around 4 percent for the period 1984 – 1988. According to the models, capacity utilization rate would increase from a low of 71 percent in 1982 to about 82 percent in 1985 and then rise gradually to about 85 percent in 1990. The unemployment rate is forecasted to fall from 7.5 percent to 6.8 percent during the period 1985 to 1988 and reach about 6.6 percent in 1990. Net exports of goods and services are also projected to decline in the 1986 – 1990 period. However, the interest rates on long-term bonds are forecasted to remain high, above 11.5 percent. Similarly, the government deficit, which has increased from $62 billion in 1981, is projected to rise substantially at first (about $200 billion in 1985) and then decline to about $145 billion in 1988. There is considerable uncertainty regarding the size and rate of increase of the federal deficit among the various models.

The period covered in these projections is too long, and the predictions from the econometric models are often too unreliable, to take these estimates as firm forecasts. However, barring basic changes in policy or structure of the economy, the estimates may indicate the trend of the economic activity for at least the next six to seven years. It shows that if there is a small real growth of defense expenditure for the period 1986 – 1990, and the assumptions of the models hold, the economy as a whole can perform satisfactorily, at least as indicated by the aggregated economic series. However, potential crises generated by the international indebtedness, a burst of inflationary forces similar to those of the 1970s, a rapid increase in international commodity prices, the reemergence of inflationary expectations, and a host of other factors could change these forecasts substantially. Therefore, a close monitoring of the economic activities and policies will be essential to keep the economy on a reasonable course.

In evaluating the potential growth and performance of the U.S. economy, it is important to note, aside from the quantitative projections, some of the major changes which have occurred in the last few years in economic policy, technology, institutions, and the political and economic environment. These changes will certainly affect the course of the economy in the next few years. Some of these can be summarized as follows: (a) the Federal Reserve has abandoned interest rate targeting, permitting demand pressure to affect interest rates directly; (b) a huge fiscal stimulus has stimulated consumer and investment expenditures in the private sec-
tor; (c) the business cycle has become more volatile, which has had significant effects on the decisions of U.S. firms; (d) information-based technology is spreading very rapidly throughout the economy; (e) deregulations in the trucking, airlines, and financial sectors, changes in wage setting, etc. have changed some of the institutional framework of the economy; (f) the economic and financial markets are now global in nature, with consequences such as high values for U.S. dollars, greater international competition, and larger flow of capital to the United States; (g) finally, there has been a change from public sector solutions to private sector incentives. These changes will probably lead to a scenario of "generally sustained growth in the economy, although not without some interruptions; relatively low inflation rates; low but still high nominal and real interest rates; a strong dollar; frequent ebbs and flows in economic performance; increasing influence of the new technology on the economy and social fabric; continuing tendencies toward deregulation, competition, and increased productivity; and a shift of emphasis to the private from the public sector."\(^{20}\)

**MACROECONOMIC EFFECTS**

We shall discuss three types of macroeconomic effects caused by the increase in defense expenditure: (a) the effect of the defense program as part of the overall federal budgetary deficit of the past four years and the projected future budgetary developments; (b) the impact of defense expenditure on aggregate demand; and (c), the aggregate supply-side or "crowding out" effect of the governmental budgetary deficit.

**The Deficit Problem and Defense Spending**

The economic game plan envisaged by the administration faltered in two major respects: the substantial increase in the federal budget deficit and the unanticipated deep recession of 1981 – 1982. There are contending explanations for the recent budgetary history. The administration contends that the actual and projected budget deficits are due primarily to growth of nondefense expenditure which was not cut back sufficiently, and that Congress enacted tax policies that reduced tax burdens beyond the level proposed by the administration. It rejects the claim that the defense buildup is excessive. The opposing view is that both the individual income tax cut and the planned defense buildup were excessive, and should be scaled down substantially. What matters is that the enacted and planned defense buildups are taking place while the U.S. economy is facing a significant structural deficit for the rest of this decade. *Structural deficit* refers to non-business cycle related deficit, for example, a deficit that would prevail if the economy was at full employment. In this type of economic situation, the important issue is what happens to the performance of the economy when military spending is not paid for by taxes. This issue is also closely related to the affordability of the defense program.

There are several causes for the federal budget deficits. The most important one is a $750 billion reduction in personal and business taxes which pushed the budget into a permanently deep deficit. The next important factor, ironically, was the success in sharply lowering the inflation rate, from a 13 percent annual rate in early 1980 to about 4 percent in early 1984. (It is estimated that a one percentage point decline in the rate of inflation will, over a five-year period, cause a rise of $18.2 billion in the federal budget deficit). The net interest paid is also a major expense item, now the third largest source of budget outlays. The fourth factor is the three years of slow growth and recession from 1980 to 1982, which greatly reduced tax receipts and raised government spending.\(^{21}\) It is probably true that budget problems reflect the government’s inability to control spending rather than the impact of tax cuts which left revenues above their historical level as a percentage of GNP. U.S. government revenues represented 18.7 percent of GNP in 1984, which is close to the historical value of this ratio while U.S. government outlays represented 23.5 percent in 1984, which is above its historical level. This has happened despite the administration's success in slowing down the rate of growth in federal spending.\(^{22}\)

Table 2.3 indicates the size of the projected deficits for the years 1984 to 1989. In Table 2.3, varying estimates, generated by both the administration and Congress, and by private forecasting services, are reported in order to indicate the existing uncertainty about the magnitude of future deficits. There are some important differences in the projected figures and the actual deficits for 1984 and 1985 have substantially exceeded these figures. Also it is unlikely that without a major effort to reduce the size of the deficits in 1986, the decline in absolute size of the deficit in 1988 and 1989 forecasted by some of the models will not come about. It is clear that precise estimates of future deficits will be difficult to obtain; the underlying models that generate these estimates rest on a number of assumptions which, in a dynamic economy, are subject to substantial changes. Nonetheless, the fact that the federal deficit has grown substantially and is likely to be sizieiole in the future is clearly supported by the available evidence.

To properly assess the problem of the deficit and consequently the affordability of the accelerated defense buildup it is important to interpret the deficit figures properly. Several issues have to be considered. One issue relates to the way the deficit figures are calculated. They refer to the federal budget and do not include the budgetary condition of the state and local governments. For a comprehensive view of how much pressure for resources the public sector puts on the economy, one must look at the net budget situation on all three government levels – federal, state, and local. There are sizable transfers to the states and municipalities as part of the federal government’s expenditure that add to budgetary deficits at the federal level but help to balance or contribute to budgetary surpluses at the lower levels of government. The state and local government budgets have been in surplus since the 1960s and are projected to continue to indicate fairly sizable surpluses in the period 1984 – 1989. According to one estimate, if the state and local government budgets’ surpluses were combined with the deficit in the federal budget, the overall government
sector deficit would be substantially reduced and would represent a fairly insignificant percentage of GNP in the next few years.\textsuperscript{23}

The frequently drawn comparison between the federal budget and individual family budgets also adds to the confusion. In fact, it would be more appropriate to compare the federal government’s budgets with those of the business sector. In government budgets, one does not distinguish between capital and current accounts as is the case for a particular firm. The business sector continuously accumulates debt. It is in fact much larger than that of the federal government. The government debt, like that of the business sector, creates wealth. So, if viewed appropriately, the size of the deficit need not be so alarming. According to one estimate, if the government had a separate capital budget, as is the case with corporate budgets, the expenditures on capital assets (such as public buildings, roads, harbors, trucks, military bases, etc.) would not be part of the yearly deficit; these expenditures are not current expenses.\textsuperscript{24} This correction alone would have reduced the recorded deficits of the years 1980 to 1983 by $20, $27, $43, and $31 billion dollars respectively.\textsuperscript{25} Another appropriate correction would be to take into account the increase in valuation of government-accumulated assets and financial assets such as the federal debt (held by the Federal Reserve System, Social Security, and government pensions) and gold reserves. If all these adjustments were made, the real burden of the government budgetary deficit would be substantially reduced, and for some years, even reversed.\textsuperscript{26}

Finally, some recent evidence suggests that the magnitude of the structural deficit may have been overstated. Most of the available estimates of the potential growth rate of the U.S. economy rest on the assumption that the natural rate of unemployment is 6 – 7 percent, the rate consistent with noninflationary situations. However, some economists have argued that because of demographic changes and changes in the work force (such as the slower growth rate in the number of working women and the drop in the number of teenagers in the labor force, two groups with traditionally high unemployment rates) the natural rate of unemployment has declined below 6 percent to possibly 5 percent. Using the latter figure for the natural unemployment rate would, according to one estimate, reduce the deficit by $36 billion in 1985 and would result in still higher reductions in subsequent years.\textsuperscript{27}

There are other aspects of the deficit problem, such as its impact on interest rates and consequently on investment decisions, capital flow from other industrial countries to the United States, the exchange rate, and finally the debt repayment of the developing countries, all of which require close attention. To be sure, the interest-sensitive sectors, such as housing and the automobile industry, are likely to be adversely affected by the high interest rates. The sharp rise in value of the dollar in recent years is also considered to be partly due to the large projected federal deficits. This, in turn, may have led to a sharp increase in the merchandise trade deficit, which recently exceeded the annual rate of $100 billion. It is true that increased imports have slowed the increase in the rate of inflation and have raised the standard of living of the consumers but the negative impact of high dollar values on the export industries has been considerable.\textsuperscript{28} The high interest rate has stimulated a large outflow of capital from Europe and other areas of the world, and has helped to finance the U.S. government’s deficit and meet the capital needs of U.S. firms. This year, the capital inflow from the rest of the world will probably add $100 billion to the U.S. savings pool, which is enough to finance one-half of the deficit or 40 percent of all net investments in the United States.\textsuperscript{29} The outflow of capital from foreign nations – and the high interest rates existing in other countries – may have contributed to the slow growth of these economies. The high interest rates in the United States have increased the debt burden of several developing countries and created severe adjustment problems in these countries, which may still threaten the stability of the world’s financial structure and may further retard the growth of world trade and development. These issues require considerable attention but exceed the scope of this study. We nevertheless mention them here so that significant adverse side effects of U.S. budgetary deficits not be ignored.

### Demand Effects of the Defense Spending

The argument that deficits may hurt rather than help economic growth rests on the notion that the deficits are so large and so prolonged that the increase in real interest rates may more than offset their direct expansionary impact. Their “unsustainability” rests on the notion that a country running such deficits will repudiate the debt either explicitly or through inflation depreciation.\textsuperscript{30} A prolonged deficit could undermine “business confidence,” and even if there were no increase in real rates of interest, the fall in investments might offset the expansionary effects of deficits. But increased deficits can also strengthen business confidence if firms believe...
that there is a positive fiscal stimulus that would achieve economic recovery and growth. However, prolonged deficits may increase the real rates of interest so much that they offset their positive fiscal stimulus, i.e., though current deficits may be expansionary, anticipation of growing deficits may reduce economic activity. Finally, it is argued that a negative fiscal multiplier is possible if the increased deficit raises the overall price level by increasing the price of consumption goods more than that of investment goods. The increase in the overall price level would, via the reduction in real balances, offset the expansionary effect of deficits. Such an outcome is possible under specific circumstances. However, the recent experience of extremely low inflation rates and the projected rate of price increases for the next five years make this outcome rather implausible.

The effects of defense spending on economic aggregates (such as growth rate of GNP, employment and investment, wages and prices, unemployment rate, capacity utilization rates, deficits, etc.) are often analyzed with the aid of large econometric models. To trace the impact of defense expenditure on any other type of change in economic policy at a disaggregated industry level, these econometric models are often combined with input-output models, and simulation techniques are used to trace the effect of alternative policies on the evolution and structure of the economy and its various sectors. Several available studies have examined the aggregate effects of the increased defense expenditure. In a conference sponsored by the Department of Defense (DoD) in October 1980, five prominent private forecasting companies presented the results of their simulation runs on the impact of accelerated defense spending. Two types of simulations were run: in the first scenario, the planned defense expenditure was held to a 4 percent real growth, and in the second scenario, defense expenditure was increased to 10 percent per year in real terms over the period 1980 - 1985. The results are interesting from several viewpoints: (a) a 10 percent increase in defense expenditure is a very large change and much larger than the administration’s planned increase in defense spending. It would be interesting to see how the economy would respond to such a large increase; (b) a number of models with different structural features are employed to forecast the behavior of economic variables. It is of interest to know whether they predict similar results; (c) enough time has elapsed to judge whether the forecasts of these models have been validated by actual events.

The forecast results of these models were basically similar and pointed to the same type of developments between 1980 and 1986. Specifically, it was estimated that the increase in real defense expenditure from 4 percent to 10 percent would lead to:

- increased growth of GNP, lower unemployment rate, higher productivity growth, and higher investment (except for the DRI model which forecasted a substantial decline in the rate of growth of investment);
- a modest price inflation and wage rate increase;
- an increase in the size of deficits and a rise in the interest rate.

These models did not take into account the occurrence and impact of the largely unanticipated deep recession of 1982 which, with its high level of unemployment and capacity underutilization, created a climate that accommodated the increased expansion of the defense expenditure without much difficulty. This accommodation is clearly supported by the available evidence. Eckstein’s simulation results (using the DRI model) suggest that even if the rate of economic activity were very high, the adverse side effects of the rapid increase in defense expenditure might not occur until 1987. These results suggest that there is enough slack in the economy to accommodate the increased defense expenditure without much difficulty. The models nevertheless do warn against deficit financing of government expenditure of any type because it may have adverse effects on the rate of capital formation of the private sector.

The Crowding-Out Effect

The argument for the crowding-out of private investment expenditure rests on the notion that a large and growing federal deficit forces the treasury to go to the capital market frequently and raise substantial amounts of funds, which puts pressure on the interest rate. The high rate of interest, in turn, inhibits the rate of capital formation in the private sector, the growth and development of which is thus hindered by defense and other federal expenditures. The high interest rates also lead to growing strength of the dollar and absorption of investable funds from abroad. Therefore, since defense spending represents a large portion of total expenditure of the federal government, it may be responsible for part of the crowding-out effect of the private sector and of the long-term slowdown of the growth of the economy.

There is no conclusive empirical evidence on the causal relationship between budget deficits and high interest rates. Even if the increase in interest rate was caused by the deficit, it is not at all clear whether the rate of capital formation has been negatively affected to a great extent. The quantitative effects of crowding-out were addressed by Eckstein. His results indicate that, if the defense spending is not paid for by taxation, the level of investment and potential GNP will be lower by almost one percentage point. Interest rates will be driven up by the combination of fiscal stimulus of the defense spending and monetarist policies likely to be pursued by the Federal Reserve. The rise in interest rates substantially affects the interest-sensitive housing and automobile sectors and, to a lesser extent, the fixed investment capital formation. By 1988 the aggregate supply or potential GNP will be reduced by .9 percent and will grow slower in subsequent years. The conclusion arrived at by Eckstein is that the United States can afford the defense spending program laid out by the Reagan administration but unless it is financed through taxation, the future development of the U.S. economy is likely to be adversely affected.

However, these estimates may overstate the effect of the deficit on private investment. Even if it is true that the deficit causes the high interest rates, the issue is how sensitive investment demand is with respect to changes in interest rates. If invest-
ment expenditure is not very responsive to interest rate changes, then even a large increase in interest rates will not dampen the pace of private investment. The crowding-out hypothesis assumes high interest elasticity of investment. Eckstein's and other investment models, for example, are based on a Jorgenson type of neoclassical investment model that give equal weight to changes in growth of demand and changes in relative prices. 35 But growth of output and changes in relative prices may not have the same effect on investment expenditure. 36 If firms perceive a continued growth and high return on their investment they will probably undertake investment despite high interest rates.

We should also note that the interest rate is only one element of the rental price of capital; other components of this price are the rate of depreciation, the price of capital goods, and tax rates of various kinds. In 1981 the tax laws governing depreciation allowances and tax credits were substantially revised to stimulate further investment. The reduction in taxes lowered the rental price of capital while the rise in interest rate increased it. The two effects may very well have offset each other and may be one reason why investment demand has not declined in response to the increase in the interest rate. 37 Also, the interest rates, though still high, have declined substantially in the past three years from their 1981 levels.

The deficit also increases aggregate demand. Business firms do consider a sustained shift in aggregate demand as a crucial element of their decision to increase capacity. Because of the deep recession of 1981 – 1982 capacity utilization rates had been low and most firms were waiting for signs of a sustained expansion of the economy to utilize their excess capacity first and then undertake further investment. The buoyancy of the private investment in 1983 – 1984 fits this pattern. (Thus, the stimulative effect of the deficit may have dominated its impact via interest rate on investment expenditure). Such a scenario leads to a hypothesis of “crowding-in” and not “crowding-out” of private investment expenditure.

On balance, what can be said from the available evidence on macroeconomic effects of the increased defense expenditure? The deficit issue, as far as the defense budget is concerned, can be summarized as follows. If the deficit is understood properly (i.e., if we make all the adjustments noted earlier) it is not as big, wasteful, or dangerous as is often claimed. The defense budget need not be reduced on account of the deficit alone if national security needs require the level and rate of defense expenditure suggested by the administration. There is, in fact, a reasonable chance that the economy could accommodate the planned increase in the defense expenditures.

The arguments for the crowding-out of private investment are not self-evident when the economy's resources are underutilized. However, a prolonged deficit may become a serious problem at or near full employment; the government's absorption of savings would outstrip any plausible increases in the savings rate; this situation would worsen if the foreign capital inflow failed to fill the gap. Under these conditions the interest rate would rise and the share of the nation's output devoted to net capital formation would at best remain low. 38 Also, the increase in the interest rates have adverse side effects on the U.S. interest-sensitive sectors, the export industries, and the rest of the world.

Congress has already adjusted some of the tax reductions of the 1981 tax cut, and is at work to cut the deficit further in the next few years. In 1986, the defense budget is likely not to increase in real terms which will slow the potential rise in future deficits. Economic growth could also offset some portion — though not the entirety — of the projected deficit. Also, defense spending could be reduced on the grounds of economic efficiency and military relevance, as noted by the Brookings and other studies. However, it is important to note that the attempts to reduce deficits by curtailing public spending and/or raising revenues by taxes together with tax simplification and reform could generate enough uncertainty to affect the rate of growth of the economy, at least in the short run. This, in turn, may make the closing of the deficit gap more difficult.

**SECTORAL AND REGIONAL EFFECTS**

The macroeconomic effect of the increased defense expenditure does not reveal some of the critical influences that a sustained military buildup might have on the structure of the economy. If the growth of the defense sector greatly exceeded that of the private sector, the sectoral and regional distribution of the output, employment, occupation, and investment in the economy could be substantially altered. This is because defense expenditures do not affect all the industries of the economy and all the regions of the nation equally. Some industries may be more closely dependent on defense needs than other industries and some regions and localities may specialize to a large extent in goods and services needed for national defense. Thus the aggregate, sectoral, and regional impacts of the defense program are basically intertwined and must be treated together.

**Sectonal Output Growth**

The estimates generated from econometric input-output models indicate that for some industrial products generated by defense spending the growth rates of demand are substantially larger than for those generated by civilian spending, and also that the configurations of industries that respond to a given increase in demand for defense and nondefense expenditures are quite different. 39 Sectors supplying national security needs directly, such as electronics, aircraft, missiles, shipbuilding, and ordnance, have experienced — and are forecasted to experience — substantial growth. Other sectors, such as refined petroleum products, electronic measuring equipment, chemicals, transportation and communications, and hotels and restaurant services meet the defense needs indirectly by providing immediate goods and services for the defense industries. These industries are likely to continue to experience substantial growth in the next few years. 40
However, the total production indices for defense-sensitive sectors do not indicate rapid increases. This is partly because in the aircraft industry, for example, the civilian demand has fallen while the defense demand has increased. The shipping and electronic component industries have had a sizable excess capacity and the production indices in these industries are not increasing greatly. Data on shipments and new orders in the defense-sensitive industries confirm the same results. Except for communication equipment, there seems to be little evidence of significant tightening in these industries.

However, there is a long-run aspect to changes in the composition of demand between the military and civilian sectors of the economy. If military spending continues to grow at a higher rate than civilian spending, the industrial and sectoral structure of the economy will change, pulling resources such as skilled workers and investments away from the civilian to the military sector of the economy. This in turn will raise the issue of the desirability of such a structural change and also problems of transition associated with the resource transfer among the civilian and military sectors. The transitional problems could become important if military spending slackens after a few years, and the resources released from production of military goods and services have to be absorbed into the civilian sector.

**Capacity Utilization Rates**

Whether the various industries can meet the substantial demand generated by military spending without running into capacity constraints depends on the degree of excess capacity available and the willingness of the industries to undertake expenditure on plant and equipment. The recession of 1982 was deep and the defense expenditure, rather than competing with strong demand from the civilian sector of the economy, has been a source of demand growth. The recession thus provided a “grace period” within which the demand from the Department of Defense could be accommodated with ease by the industry. Now that the economy is out of the recession, expanding the planned defense expenditure will put additional pressure on industrial capacity. The estimates of excess capacity in the key defense sectors indicate that the likelihood of industrial capacity constraints and production bottlenecks is relatively minor in the near future. Measures of capacity utilization in total manufacturing, electrical machinery, transportation equipment, and aircraft show that the capacity utilization still reflects the impact of the recession. The capacity constraints will probably be reached in the late 1980s. A recent long-term projection by DRI of capacity utilization rates for 52 sectors of the U.S. economy for the period 1983 to 1995 suggests that both potential and actual demand in these sectors will grow at equal rates, indicating no significant pressure on capacity rates. Only in 20 percent of the sectors are there indications of potential pressure on capacity utilization which could lead to increases either in prices or in imports to meet the demand over this period.

However, in future years, the investment decisions of the firms will be critical as to whether the economy can accommodate defense demand beyond 1986 without adverse effects. The planned expansion of plant and equipment in 1983 did not occur, because of several factors such as the presence of substantial overcapacity, low profits, high interest rates, and uncertainty about the future course of demand. The 1984 investment increases were generally quite substantial. Expansion of plant and equipment expenditure was robust in most industries, particularly in sectors such as durables, electrical machinery, aircraft, and transportation equipment where the defense-related demand is very strong. What matters is whether the investment expenditure will continue to grow beyond 1985. As we noted earlier, one factor which may be critical in business investment decisions is the potential impact of the federal deficit on the expected increase in interest rates and on the expansion of aggregate demand, which in turn will affect investment in plant and equipment. Also, if there are uncertainties about future defense budget levels in the context of the debate on the federal deficit, investment in plant and equipment will be discouraged in industries closely related to defense production.

Nevertheless, the likelihood of bottlenecks and capacity constraints retarding the accommodation of defense demand in the near future is fairly small. This is because of excess capacity available in defense-sensitive industries as well as in the rest of the economy and also because of some indications of a fairly robust investment in plant and equipment in 1984 and possibly beyond. However, this precarious situation may be reversed very suddenly: the federal budget uncertainties, the tax reform and simplification efforts, and the cumulative impact of the federal deficit may adversely affect business expectations, which could significantly affect investment expenditures.

**Defense Spending Deflator**

There is some evidence that, unlike what happened in the 1970s, the deflator for defense expenditure has, in recent years, been growing at a slower rate than the Consumer Price Index. This improvement is mainly due to the decrease in the rise of energy costs. Also, increases in labor costs, which are an important component of defense producers’ cost structures, significantly affect weapon procurement programs, which are generally labor intensive. The moderate pace of escalation in wage rates experienced in recent years has therefore also contributed to the slow rise in the deflator for the defense expenditures. Additionally, the slowing down in prices of materials purchased by the Department of Defense has made a similar contribution. The same basic slowdown in energy price, labor cost, and material prices also noted in the defense deflators for particular categories of expenditure, such as military construction, aircraft missiles, shipbuilding, combat and noncombat vehicles, communication and electrical equipment, ammunition, and research and development. It has been estimated that in the period from 1983 to 1988, the pace of the overall defense expenditure deflator and the specific deflators
will grow at fairly slow rates. Thus the implication of the projected slow growth of the defense deflators is that the military programs should reach their goal without being forced to seek more funds on account of higher than national rates of inflation. Also, the available indices suggest that there is still excess capacity in most of the industries which directly or indirectly provide the goods and services needed by the Department of Defense.

**Employment Effect and Occupational Impact**

Considerable controversy surrounds the employment effect of the increased defense expenditure. Some estimates suggest that each $1 billion in defense expenditure creates approximately 35,000 incremental jobs and that by 1987 this employment multiplier will drop to 31,000 jobs for $1 billion defense spending.\(^{44}\) This is an outcome of the industrial distribution of defense requirements for goods and services. Most direct defense requirements are met by the durable goods industries, particularly by the electrical machinery and transportation equipment sector. However, the overall defense multiplier is probably somewhat smaller than that for the civilian economy. Production runs are often short and some defense goods, because of their specialized nature, are labor intensive; as noted below, the final demand and the composition of defense production is similar to that of nondefense production.

The planned increase in defense expenditure will have a major impact in terms of the industry distribution of the U.S. labor force. In Table 2.4, a summary of employment projections (in growth terms) for several sectors and manufacturing industries are shown for the years 1982 and 1987. Some of the results are quite significant. The growth rate of defense employment of 8.2 percent is over five times greater than the 1.6 percent growth rate projected for the U.S. nonagricultural sectors. The same type of differential exists in almost all of the industries shown in the table. If this pattern persists, the defense share of employment growth will be quite high. About 16 percent of all new jobs will be devoted to the production of defense output and over half of the new jobs in the durable goods industries will be related to defense production. In some specific industries, such as petroleum products, primary metals, and electrical machinery, almost the entire employment growth is projected to be due to increased demand for defense production.

A sustained growth in defense spending will also affect the occupational distribution in the labor market. The average annual growth and the share of defense in the growth rate of a number of critical skilled jobs are shown in Table 2.5. Most of the additional employment in the different industries mentioned earlier will be drawn from these occupational groupings. The average annual percentage of employment growth in defense industries is greater than that for the entire economy in each occupational category. The last two columns illustrate the significant role of the increase in defense spending. The overall defense share of employment exceeds 15 percent only in a few narrowly defined occupational specialties, but the defense share of the 1982 – 1987 net growth exceeds 15 percent in all but a few of the occupational groups.

An analysis of occupational developments in a number of key defense-supplying industries, including both prime contracting industries and various indirect supply industries.
Table 2.5. Employment Forecasts for Selected Occupations, 1982 to 1987 (Thousands of Persons)

<table>
<thead>
<tr>
<th></th>
<th>Average Annual % Growth</th>
<th>1987 Defense Shares (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Defense</td>
<td>Total</td>
</tr>
<tr>
<td>Engineers</td>
<td>8.8</td>
<td>3.0</td>
</tr>
<tr>
<td>aero-astronaut engineers</td>
<td>10.7</td>
<td>6.0</td>
</tr>
<tr>
<td>electrical engineers</td>
<td>8.9</td>
<td>3.9</td>
</tr>
<tr>
<td>Scientists, NEC</td>
<td>7.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Engineering and science technicians</td>
<td>8.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Electrical and electronic technicians</td>
<td>8.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Technicians, NEC</td>
<td>6.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Computer specialists</td>
<td>10.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Social scientists and other professionals</td>
<td>5.9</td>
<td>1.2</td>
</tr>
<tr>
<td>Business professionals and staff</td>
<td>6.7</td>
<td>1.6</td>
</tr>
<tr>
<td>Craft and related workers</td>
<td>6.4</td>
<td>1.3</td>
</tr>
<tr>
<td>Construction crafts workers</td>
<td>6.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Mechanics, repairers and installers</td>
<td>6.6</td>
<td>1.7</td>
</tr>
<tr>
<td>Metalworking craft workers excluding mechanics</td>
<td>6.6</td>
<td>1.1</td>
</tr>
<tr>
<td>Operatives</td>
<td>6.7</td>
<td>1.0</td>
</tr>
<tr>
<td>assemblers</td>
<td>7.5</td>
<td>2.3</td>
</tr>
<tr>
<td>metalworking operatives</td>
<td>6.9</td>
<td>1.5</td>
</tr>
<tr>
<td>Service workers</td>
<td>7.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Laborers, except farm</td>
<td>5.9</td>
<td>1.1</td>
</tr>
</tbody>
</table>


industries, is also instructive. The results strongly support the notion that the impact of defense expenditure on occupation distribution is quite skewed. The employment growth requirements in four key prime defense contracting industries—ordnance and accessories, communications equipment, aircraft and parts, and other transportation equipment—show that in each of these key industries, the growth rate of jobs for the period 1982–1987 is substantially higher in each occupation because of increased defense expenditures.45

These observations and forecasts suggest that labor force planning, as well as the expansion of plant and equipment, can become important constraints in fulfilling the national security needs at reasonable costs. These constraints will become particularly tight if the economy keeps growing, and particularly after 1985 when the current level of unemployment and the relatively slack level of capital utilization will have decreased substantially. There is no solid evidence on how much the supply of labor with critical skills will be expanding in the next few years. Nor is there any reliable evidence on how much the defense expenditure will stimulate the supply of engineers and skilled workers. If the supply of skilled workers and the expansion of capacity proceed smoothly, it is not very likely that serious sectoral and economy-wide bottlenecks would emerge. Serious attention must therefore be given to training and educational policies to expand the supply of skills and workers that are projected for the next few years.

Regional Impacts

There are regional dimensions to the changing composition of output, employment, and capacity expansion caused by a vigorous increase in demand for military goods and services. These effects arise because of the existing distribution in different regions of the country—or localities within each region—of industries specializing in goods and services needed for national defense. Since the administration’s defense plan emphasizes procurement accounts in the defense budget, the states where large procurement suppliers are situated are likely to show rapid growth. With the shift in defense spending toward procurement in the past three years, the eastern and northern regions (where defense expenditure is relatively more purchase-oriented) have experienced more growth than the southern and western regions. States with key indirect supplying industries for national security needs will also benefit from a rapid growth of defense spending. There are wide variations among the states in terms of the level of spending and share of defense output in the total output of a state. In some states, both the direct and indirect production of defense-related goods and services is high, while in other states the impact of defense spending is skewed toward one or the other of the two categories. Also, the projected impact of defense spending for the period 1981–1988 for different states shows that the growth in defense share of output varies considerably, from low rates of about 7 percent to 9 percent to high rates of 18 percent to 44 percent. Some of the high growth rates such as Vermont’s (27 percent) or Alaska’s (44 percent) apply to a very small industrial base, while the medium rate applies to states like California (18 percent) and Illinois (16 percent), states with a very large industrial base. It is also important to note that in every state, the growth in the defense share is much higher than the growth in the share of nondefense sectors in its economy.

The impact of defense expenditure on an individual state can be substantial if there is a change in the composition of the defense spending even when its level remains unchanged. Thus, the shift toward procurement in the administration’s defense program mentioned earlier will have an important impact on geographical patterns of production, employment, and investment. Some of these changes arise from uncertainties inherent in the decision process related to defense spending: competition among suppliers forces particular programs such as aircraft procurement to shift fairly often from one state to another. Particular changes in military objectives, or congressional decisions to curtail one set of programs and initiate another, can affect a few states more than others. Also, firms may decide to locate their plants in different states in response to defense contracts, which may affect the
pattern of defense contracts, which may affect the pattern of development and
growth in different states and regions.

SUMMARY AND CONCLUSIONS

The relationship between defense expenditure and the economy is complex and
inherently controversial. A discussion of all the relevant issues and controversies
lies outside the scope of our analysis. Instead, we have focused on two important
questions. The first was whether the resource transfer from the civilian to the
defense sector of the U.S. economy - in response to the sizable military buildup pro-
gram of the past four years - has been smooth or disruptive; that is, has military
spending generated any sectoral bottleneck, generalized inflation, or distortions in
patterns of economic activity? The second question was whether the U.S. economy
can afford to finance the administration’s defense buildup program.

To answer these questions, we briefly examined the determinants of the defense
expenditure and the rationale for the Reagan administration’s military buildup. We
also discussed the alternative defense buildup advocated by the administration’s
critics. Moreover, we analyzed the defense program in the context of the adminis-
tration’s overall economic plan, and briefly examined the performance of the U.S.
economy in the past four years as well as its outlook for the next few years, as pro-
jected by various econometric models. Additionally, we considered several macro-
economic consequences of military spending: the defense buildup as part of the
overall federal budgetary deficit, the impact of defense expenditure on aggregate
demand, and finally the aggregate supply-side or “crowding-out” effect of the gov-
ernment’s budgetary deficit. Finally, we assessed the sectoral and regional effects
of defense spending in order to examine the possibility that sectoral bottlenecks and
regional distortions might have developed as substantial changes in the composition
and method of financing of the federal spending were taking place.

The main findings of our analysis can be briefly summarized as follows:

1. We find no evidence of any major disruptive effect of defense expenditure on
the U.S. economy, such as had been predicted by the Reagan administration critics.
No major bottlenecks or tendency toward general inflationary pressure has been
evident. The industry rates of utilization have not reached their critical levels; the in-
flation rate has actually declined and is predicted to remain low for some time in the
future. Even the deflator for defense expenditure has not increased substantially. In
fact, the defense expenditure has served to stimulate demand, directly in defense-
related industries, and indirectly in other industries, thus countering the effect of the
recent recession.

2. The outlook of the U.S. economy remains fairly optimistic, except for the un-
certainty due to the federal budgetary deficit. The econometric projections point to
a sustained growth in the economy (with some likely interruptions), low inflation
rates, lower - but still high - nominal and real rates of interest, a relatively strong
dollar, increasing competition in international markets, and inflow of capital.

3. The deficit issue has been, and is likely to remain, a major policy challenge.
We have noted that if proper adjustments were made, the size of the deficits and
their economic impact might not be as threatening as has been claimed. When
proper economic accounting methods are used, the size of the deficit as percentage
of GNP is likely to be small.

4. The defense expenditure has had a definite expansion effect on many sectors
of the economy. Simulation results have indicated that the administration’s military
expenditure could be accommodated without much difficulty. In fact, defense
spending served as an important, though unplanned, counter-recessionary force in
the recent economic downturn.

5. There is no strong empirical evidence on the relationship between interest
rates and deficits. Even though there may be a strong and positive relationship be-
tween the nominal interest rate and the federal deficit, it is not clear from the evi-
dence that a “crowding-out” of private investment has taken place at least in the past
several years. If investment decisions were highly interest-elastic, the recent in-
vestment boom could not be accounted for. In fact, it is the expansionary effect of
the deficit and the interest in elasticity of private investment that explain the robust
expansion of business investment. However, if the economy were near or at full em-
ployment, continued federal deficits and increased government absorption could
easily outstrip the plausible increases in the savings rate, and as a result the share of
output devoted to net capital formation would remain low. This would particularly
be the case if foreign inflow of capital slowed down.

6. There are other effects of the deficit, however, which should not be ignored;
the large capital inflow from other countries in response to the high U.S. interest
rates, the high U.S. exchange rate, and the increasing U.S. merchandise trade de-
cificet, the high interest rate burden on the developing countries with the potential
consequence of disrupting the world financial markets, and the retardation of the world
trade are important issues that cannot be ignored. Also, the deficit issue has be-
come an important topic of debate in both political and economic circles in the
United States. This continuous debate does generate uncertainties about the future
course of economic policy and performance. Such an uncertainty may very well
lead to slowed economic growth and even another recession.

7. Examination of the sectoral and regional impact of the defense expenditure
suggests that, in many defense-related industries and regions with high concentra-
tions of defense industries, there has been a substantial growth of demand for labor,
and a shift of employment - especially highly skilled labor - toward the defense
industries. But these shifts have not lead to any bottlenecks as yet, mainly because
of overall excess capacity in many industries. However, if the defense program con-
tinues to grow, and the civilian sector resumes its vigorous pace of the 1983 - 1984
period, the likelihood of such bottlenecks is high. Also, in long run, if a large por-
tion of highly skilled labor is absorbed by the defense sector, it may become diffi-
cult for the civilian sector of the economy to command such resources at reasonable
cost.
These observations suggest that, on the whole, the defense buildup has not yet had the harmful effects predicted by its critics, and that the U.S. economy has been able to finance such a sizable effort. However, a large and rapidly growing military expenditure may not be so easily accommodated in the future if the growth rate of the economy slows down, the size of the deficit remains large or increases, or substantial inflationary pressures develop. Also, there may be important military reasons why the size and composition of the military buildup program should be changed. If this is so, the reduction in military spending could be used to lower the deficit or to finance many other public investments in education, environment, urban redevelopment, etc. It is likely that in the next few years, a combination of expenditure reduction (including military spending), tax increase, and tax reform will be undertaken by the administration and Congress to reduce the projected future deficits. Such adjustments will affect the growth rate of the economy. Thus the rate of growth of the economy, the expenditure for national security, and other types of public spending and methods of financing them are part of a simultaneous process which will require very close monitoring.

NOTES

1. The literature on the subject is voluminous. As an example see the articles and references contained in James L. Clayton, ed., The Economic Impact of the Cold War: Sources and Readings (New York: Harcourt, Brace and World, Inc., 1970).

2. There are a few four-digit SIC industries where defense production accounts for at least half of total output. These industries usually contain segments that specialize in producing for the military.


6. Ibid.


8. See James Murdoch and Todd Sandler, “A Theoretical and Empirical Analysis of NATO,” Journal of Conflict Resolution 26 (1982): 237 – 263. Also see chapter by the same authors and chapter by K. Forbes and M. McGuire in this volume for further discussion and references.

9. Or in terms of percentage of the GNP, throughout the decade, defense resources were below the 1964 (pre-Vietnam) level of 8.3 percent, with a low of 5 percent in 1978/79. By 1981, the defense claim was still only 5.6 percent. On the other hand, nondefense spending as a percentage of GNP increased sharply over the decade rising from its 1964 level of 9.5 percent. By 1981 nondefense spending was about 15 percent of GNP – an increase of over 40 percent for the decade – and 57 percent from the pre-Vietnam benchmark. See for further detail Alton G. Keel Jr., “The FY 1984 Defense Budget: The View from OMB,” presented to the Southern Economics Association, November 21, 1983, mimeo, and the 1984 Annual Report of the Council of Economic Advisors, 1984, Table I, mimeo.

10. For an explicit account of Soviet weapons production compared to that of the U.S. over the 1974 – 1981 period, see Alton G. Keel Jr., op. cit.

11. For a detailed analysis of these shortages and shortfalls in U.S. combat readiness see Alton G. Keel, Jr., op. cit.


13. Estimates by the Council of Economic Advisors projects the following figures for defense spending as a percent of GDP:

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<td></td>
<td>6.7</td>
<td>7.3</td>
<td>7.7</td>
<td>7.7</td>
<td>7.7</td>
<td>7.8</td>
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Source: 1984 Annual Report of the Council of Economic Advisors, Table 1.


19. Most of the specific estimates are taken from Allen Sinai, Economic Outlook and Issues, Shearson Lehman Brothers, May 28, 1985, Table 2, page 6.


21. Some estimates indicate a 5-point reduction in real economic growth would depress tax receipts by an average of $34.4 billion a year over five years and raise federal government spending by $11.8 billion over the same period.


23. That is:

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<tr>
<td></td>
<td>Total Deficit</td>
<td>94</td>
<td>85</td>
<td>77</td>
<td>45</td>
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<tr>
<td></td>
<td>as % of GNP*</td>
<td>2.3%</td>
<td>1.9%</td>
<td>1.6%</td>
<td>.8%</td>
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25. The Eisner estimates are as follows:

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<tr>
<td>Actual budget deficits</td>
<td>61</td>
<td>62</td>
<td>112</td>
<td>186</td>
</tr>
<tr>
<td>Capital account correction</td>
<td>20</td>
<td>27</td>
<td>43</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>41</td>
<td>35</td>
<td>69</td>
<td>155</td>
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26. For example, according to Eisner's calculation, instead of having a deficit of $61 billion in 1980 the budget would indicate a surplus of $7 billion in that year.


29. Ibid.


34. Three simulation scenarios were performed; the only assumption that differed across these scenarios was the rate of increase in real consumption expenditure (2.6 percent in the ROBUST scenario, 2.2 percent in the BASE scenario, and 1.9 percent in the SLUGGISH scenario). Defense spending levels and other fiscal and monetary policy variables were held constant across the various scenarios.


39. The estimates of the sectoral impact of defense expenditures are obtained from models which combine macroeconomic models with a fairly detailed input-output model. The procedure involves projections of not only the conventional aggregates (such as GNP and its components, general prices, etc.) but also the sources of final demand for the output of each of over 400 industries; the translation of projected DoD outlays by program and by service into constant dollar purchases from each producing industry, and the use of an adjusted I-O matrix to translate these projected final demands into total requirements (direct and indirect) for the output of the various industries and the development of selected industry capacity utilization and projected capacity growth. See for further description, "Sectoral Implications of Defense Expenditures," U.S. Department of Commerce, Bureau of Industrial Economics, August 1982, mimeo, and David Blond, Defense Economic Impact Modelling System (DEIMS), Office of the Secretary of Defense, July 1983.

40. The impact of indirect or intermediate demand of the national defense spending is strongest in the energy sector; demand for crude and refined products and those of electrical and gas utilities rank among the top intermediate products. Consulting services represent another important intermediate product; after that comes the demand for steel mill products, electronic components, and aluminum products, nonferrous products, iron and steel foundries, and some chemical products. Electronic components as intermediate input are forecasted to grow rapidly due to the emphasis of the defense program on sophisticated hardware. Wholesale trade, real estate, and sales of eating and drinking establishments, as well as housing and insurance services, communication and transportation services are also significant areas servicing the intermediate demand generated by defense spending. See Blond, op. cit., for further analysis and methodology. Also see David Blond, "Defense Analysis – Guns versus Butter in Today’s Economy," Data Resources, Inc., Inter-Industry Review, Fall (1981): 1.55 – 1.64.


42. Estimates of capacity utilization for a period of twelve years are risky and subject to substantial measurement errors. However, the DRI estimates indicate the direction of changes in capacity utilization but may not predict its actual values precisely. For detail and methodology, see Data Resources, Inc., An Approach to Evaluating Industry Bottleneck Potential: The Industrial Capacity Monitoring System, March 1984, mimeo.


44. The relative decline of the multiplier in 1987 is mainly due to changes in the composition of defense spending planned for the period and the fact that 1987 is likely to be a near full-employment economy.


48. A study of the average annual growth rate for direct, indirect, and total defense production for ten sectors of economic activities indicates some interesting results. Some states like California are key supplying states in several of these sectors while other states account for large shares of national defense output only in a few sectors. In all, the ten sectors contributed a substantial portion of the growth projected for the state for the period 1981 – 1988. In some sectors, such as construction and petroleum, defense production is concentrated in a few states. Also, production for defense within the indirect supplying industries has a different geographical distribution in comparison to industries pro-

Chapter 3
Defense Burdens and Prospects for the Northern European Allies
Todd Sandler and James C. Murdoch

INTRODUCTION

Since the oil price shocks of the 1970s, the French and the West German (hereafter called German) economies have not duplicated their miraculous post-1945 economic performances, performances characterized by low rates of unemployment and high rates of savings, investment, and labor productivity. During the 1945–1973 period, the British economy had much more modest economic growth, and in keeping with this lower growth, British savings rates, investment rates, and labor productivity were typically much smaller than those of either France or Germany. This difference in economic performance is highlighted by the growth rates in Gross Domestic Product (GDP) recorded in the post-1945 period. For most years during the 1945–1973 period, including the whole of the 1959–1973 period, the French economy grew at an annual rate of 6.5 percent. The German economy grew on average at an 8 percent rate during 1951–1960 and at a 4.5 percent rate during 1961–1973. In contrast, British GDP grew at a 2.6 percent rate during 1953–1963 and at a 3.2 percent rate during 1964–1973. On average, the French and German economies grew at twice the rate of the British economy until 1974. The French and German economies showed more modest growth, growing at an average rate of 2.4 percent and 2.1 percent per year, respectively, during the 1974–1982 period. The British growth performance was also worse than its pre-1974 record, with GDP growth measured at an average rate of 0.8 percent per year from 1974 to 1982.

In assessing the future of NATO in the 1980s, the outlook for these three economies is crucial, since these allies represent the major European contributors to the alliance. Past burden-sharing behaviors of these allies are depicted in Tables 3.1