The extenuating circumstances, however, need not rely on supply-side economic arguments. There may be shortages of individual defense subcontractors who are not available or are unwilling to produce to capacity because of the underlying nature of the goods being bought, the capital intensity of defense production, and the complexity of the subcontracting network. As a result, the lag between the date when the Department of Defense receives its appropriation and the actual spending is not necessarily tied to the resources available to contractors at a particular location. The Department of Defense purchases as recorded by the GNP accounts.

The final lag in the military-spending program is the effect of delays in the time when the Department of Defense receives its appropriation and the actual spending. The lag between the awarding of prime contracts and the actual expenditure of funds is not necessarily tied to the resources available to contractors at a particular location. The Department of Defense purchases as recorded by the GNP accounts.

Bottlenecks, however, are caused by capacity limits that make the production of defense goods uneconomical. As a result, the lag between the date when the Department of Defense receives its appropriation and the actual spending is not necessarily tied to the resources available to contractors at a particular location. The Department of Defense purchases as recorded by the GNP accounts.

The views stated herein are those of the authors and not necessarily those of the Federal Reserve Bank of Cleveland or of the Board of Governors of the Federal Reserve System.
the current quarter and subsequent five quarters (see chart 1). The strongest correlation occurred in the second and third quarters following a change in prime-contract awards. Small weapons, clothing, and trucks can be delivered almost immediately. More sophisticated equipment requires longer lead times; some equipment surely takes much longer than five quarters.

Deliveries, however, are a poor indicator of the economic activity caused by military spending. Investment in plant and equipment and inventory accumulation are better indicators. Although prime-contract awards precede contract awards if firms are certain of future government orders. Production may immediately follow contract awards, and may quicken to a full pace if not hampered by production bottlenecks or resource shortages. As production proceeds, items can be delivered almost immediately. As production bottlenecks or shortages appear in the GNP accounts as inventories, but are matched by off-season increases. Inventories suggest that firms are preparing for increased defense spending.

Recent Developments

The increase in military spending thus far has been small relative to what is anticipated. Between 1978:IVQ and 1981:IIQ, for real, defense spending increased from 4.5 percent to 4.8 percent of total GNP. In addition, the increases seem to reflect Department of Defense employment and procurement of standardized goods and services rather than major procurement items. A review of various "defense indicators" shows that military activity is somewhat in response to higher military spending. The frequency of large inventories of basic materials and components rather than final shipments suggests that the initial production and subcontracting network seems nearly as regionally concentrated as the primary-contract network. Between 1978 and 1980, over one half of the total value of all military prime-contract awards involved aircraft, missiles, and ships (see table 2). These industries are characterized by highly technical, large-scale production facilities and a high degree of industrial and regional concentration. Nine aircraft firms, eleven missile producers, and eight shipbuilders were receiving virtually all of their respective industries' military prime-contract awards between 1978 and 1980. More than 20 percent of the total value of all military prime-contract awards involved aircraft, and 40 percent had been awarded to firms in California, Texas, and Missouri; one-half of the total value of all military prime-contract awards involved aircraft, missiles, and ships (see chart 1). Employment by the Department of Defense (military and civilian) has shown larger percentage increases in every month since January 1979. Inventories in materials, goods in process, and final products, but the lack of significant increases in defense-goods production suggests that much of the increases in military spending reflects the accumulation of basic materials or components rather than final deliveries.

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Regional Impacts

The defense-production sector of the economy is highly concentrated among relatively few firms within specific geographic areas. The concentration of defense employment derived from increased defense spending are, however, the first links in a long chain of economic activity. Investment induced by defense spending creates demand in states that produce durables, and the income earned by defense workers eventually will be spent on nondefense products. These effects distribute the economic stimulus associated with additional defense spending more evenly throughout the nation.

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For example, defense production suggests that much of the increases in military spending reflects the accumulation of basic materials or components rather than final deliveries.
the current quarter and subsequent five quarters (see chart 1). The strongest correlation occurred in the second and third quarters following a change in prime-contract awards. Small, lightweight, clothing, andInventory accumulation of supplies may occur in the military procurement process. Deliveries: Government purchases less compensation for government purchases. The frequency of large increases in defense indicators is an important factor in assessing regional impacts of the military spending in the United States. The military spending increases are, however, only the first links in a long chain of economic activity. Investment induced by defense spending creates demand in states that produce durables, and the income earned by defense workers eventually will be spent on nondefense products. These effects distribute the economic stimulus associated with additional defense spending more evenly throughout the nation. The military spending is a key factor in the economic growth of defense contracting and subcontracting. Military spending also provides a significant multiplier effect. The military spending in 1979 was 3.5 percent of the gross national product. This level of military spending is significantly higher than in the past, and it is expected to increase further in the future.

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<tr>
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<th>Percent</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Aircraft</td>
<td>23.3</td>
<td>California</td>
<td>20.2</td>
<td>General Dynamics</td>
<td>5.7</td>
</tr>
<tr>
<td>Aircraft</td>
<td>17.7</td>
<td>Ohio</td>
<td>13.7</td>
<td>United Technologies</td>
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<td>Aircraft</td>
<td>11.8</td>
<td>Missouri</td>
<td>7.7</td>
<td>Lockheed</td>
<td>3.0</td>
</tr>
<tr>
<td>Aircraft</td>
<td>4.0</td>
<td>Massachusetts</td>
<td>5.4</td>
<td>General Electric</td>
<td>3.0</td>
</tr>
<tr>
<td>Aircraft</td>
<td>4.0</td>
<td>Mississippi</td>
<td>5.4</td>
<td>Subtotal</td>
<td>3.0</td>
</tr>
<tr>
<td>Aircraft</td>
<td>20.6</td>
<td>New York</td>
<td>5.4</td>
<td>Subtotal</td>
<td>20.5</td>
</tr>
<tr>
<td>Aircraft</td>
<td>72.5</td>
<td>West Virginia</td>
<td>5.3</td>
<td>Subtotal</td>
<td>5.3</td>
</tr>
<tr>
<td>Aircraft</td>
<td>100.0</td>
<td>Total</td>
<td>5.3</td>
<td></td>
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</tr>
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space-systems contracts went to firms in California and Massachusetts. In contrast, firms located in states of the Fourth Federal Reserve District (Kentucky, Ohio, Pennsylvania, and Virginia) received only 6 percent of the total prime-contract awards. Recipients of military prime-contract awards typically do not perform all of the work entailed in the contract; they subcontract much of the work to other firms. As a result, although subcontracting slightly diffuses the initial impact of defense spending, the subcontracting network is nearly as regionally concentrated as the primary-contract network. In 1980, for example, 75 percent of all military subcontracting occurred in ten states, with California and New York accounting for 40 percent. The subcontracting network, however, is not immutable. Given the size and the technical nature of projected defense spending and the likelihood of production bottlenecks, additional firms may seek defense-related orders and reduce the subcontracting network. The stimulative effects of the military prime-contract awards and subcontracting eventually will lift economic activity throughout the country. The military spending increases, however, will be financed in part by cuts in federal nondefense spending categories. Both the defense and the offsetting nondefense budget deficits will be financed by increased federal deficit spending. On balance, the military buildup may result in large relocations of employment, investment, and income, and not all regions may benefit.

Military Spending and Inflation

Many economists caution that the administration's defense-spending program will result in inflation. They point out that a persistent rise in the overall price level cannot exist without an equivalent increase in the demand for money that outpaces the growth of goods and services. Factors that reduce the demand for money, such as readily available credit, and factors that reduce aggregate growth of real output, such as high interest rates and anticipated productivity growth, result in inflation if the money supply increases.
The current quarter and subsequent five quarters (see chart 1). The strongest correlations occurred in the second and third quarters following a change in prime-contract awards. Small-scale production facilities and new design of military trucks can be delivered almost immediately. More sophisticated equipment requires longer lead times; some equipment surely takes much longer than five quarters.

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<tr>
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<td>Missouri</td>
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<td>Others</td>
<td>20.6</td>
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<td>3.1</td>
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<td>Total defense goods</td>
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ment involves two links. The first link main-
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to achieve simultaneously large increases in
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deficit. Although the administration anticipates
a $45-billion deficit in FY 1982 and a balanced budget by FY 1984, most private forecasts anticipate a larger deficit in FY 1982—possibly as high as $70 billion.

A large deficit in FY 1982 would reduce the
chances for a balanced budget in FY 1984.

The second link in this inflation argument is
costs are rising faster than prices, and the inflation cost increases are not being
offset by increases in the money stock. When
the government borrows from private credit
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Will Bottlenecks Result in Price Pressures?

In a free-market economy, relative prices
rise and fall to adjust quantities of goods
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increases, the relative price of that good also
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At the present time, there appears to be
enough excess capacity among the major de-
defense industries to sustain the present level of production. Bottlenecks, however, are de-
veloping among some defense subcontractors, particularly in low-technology industries
such as large-scale castings and forgings. As
military spending slowed during the 1970s,
defense-related production became less pro-
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contractors into civilian manufacturing. For
many of these defense subcontractors, the
government was their only buyer. Given the
cost of the defense program, the federal govern-
ment will have to make adjustments in its
procurement policies. Although the administra-
tion intends to reduce the relative size of total
military spending, the Reagan administration
intends to reduce the relative size of total
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1. The causal ity tests were conducted by first
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Will Bottlenecks Result in Price Pressures?

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rise and fall to adjust quantities of goods
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on financing the military buildup. This argu-
ment involves two links. The first link main-
tains that the administration will not be able to
achieve simultaneously large increases in military
spending and reductions in taxes and the deficit. Although the administration
anticipates a $45-billion deficit in FY 1982
and a balanced budget by FY 1984, most
private forecasters anticipate a larger deficit
in FY 1982—possibly as high as $70 billion.
A large deficit in FY 1982 would reduce the
chance for a balanced budget in FY 1984.

The second link in this inflation argument is
that deficits are reduced temporarily by increases in
the money supply. When the government borrows from private credit
markets to finance its deficits, it places
upward pressure on interest rates. It is often
alleged that increased Federal Reserve credit
supply, which is influenced by other factors.

As a result, the Federal Reserve borrows from the public and the
Consumer credit requirements, so that the Federal Reserve System expects to lower
aggregate dollar balances. Cau-

sity tests suggest that a positive, weakly
significant, correlation exists between Trea-

sury borrowing from the public and the
Federal Reserve System’s holdings of govern-
ment debt; however, no causal relationship
between Treasury borrowing from the public and the
monetary supply (M-1).5 These results suggest that al-
though the Federal Reserve makes some
open-market purchases in response to Trea-
sury borrowing, this amount is not large enough to influence monetary
supply, which is influenced by other factors.

These causality tests can measure only
periodic correlations between deficits and
money that cause inflation. They may not
periodically disrupt temporary or one-shot increases in
overall military spending. Deficits also may cause increases in the absolute level of prices if they are accom-
panied by increases in the velocity of money (evidence of a decline in demand
relative to output). Such velocity changes
may occur if the public perceives govern-
ment debt as net wealth, or if the debt
is issued in short maturities and increases the financial pressure. Such increased
wealth in private sector debtors, who may perceiv
cological conditions. This argument suggests that deficits are accompanied by increases in the level of prices if they are accom-
panied by increases in the velocity of money (M-1); however, the relationship
is not strong.

Another argument relating recent de-
finite-spending proposals and inflation con-

sists in the belief that direct changes will require a
buildup. A military buildup, this argument
contends, transfers resources to the less
productive defense sector while simulta-

neously maintaining aggregate employ-
ment and income. The supply of aggregate
real output falls, while demand remains
unchanged; prices rise as long as the
resource transfer continues.

However, even excluding extenuating circumstances, the argument, for example,
assumes that all resources are fully employed
so that increased production of private and
defense goods cannot be achieved simulta-

duously. The economy often operates at less
than its potential, as is currently the case.
In addition, the full-employment level of
output is not changing in a dynamic econom-
y

time. The effects of increased government

spending are transmitted along the chain of
wages, taxes, government regulations, and
many other institutional arrangements. An
increase in aggregate supply is conceivable,
particularly if the government increases
incentives for production and invest-
ment growth.

The extenuating circumstances, however,
need not rely on supply-side economic argu-

ments. Most important, a military buildup is accompanied by a reduction in
defense federal spending or a lower rate of
monetary growth, aggregate price pres-
sures associated with the resource transfer
would be mitigated. Despite the defense-
spending increases, the Reagan administration intends to reduce the relative size of total
defense spending to 21.2 percent in FY 1986
from 23.7 percent in FY 1983, and the
Federal Reserve System expects to lowering the rate of money growth over
the same period. Such policies, to the extent
that they lower the growth in real private-
sector demand, will reduce the aggregate
price pressures associated with the transfer
of resources to the defense sector.

In summary, the relationship between
military spending and inflation is not direct.
The results depend on the conduct of mone-

tary policy and the ability of the fiscal au-
thorities to lower nondefense federal spend-
ing and encourage private-sector productivity.

Will Bottlenecks Result in Price Pressures?
In a free-market economy, relative prices rise and fall to adjust quantities of goods and
services demanded to the amounts being sup-
plied. When demand for a specific product increases, the relative price of that good also
will increase, forcing conservation in its use
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of the marketplace.

At the present time, there appears to be
enough excess capacity among the major de-

fense industries to support an expansion of
production. Bottlenecks, however, are develop-
ing among some defense subcontractors, particularly in low-technology industries
such as large-scale castings and forgings. As
military spending slowed during the 1970s,
defense-related production became less pro-

curable, causing an exodus of defense sub-

contractors into civilian manufacturing. For
many of these defense subcontractors, the
government was their only buyer. Given
time and a constant government de-

ficit, the subcontracting network will be
recreated, but in the meantime bottlenecks
in the subcontracting network will raise
prices of defense resources and lengthen
lead times for delivery of defense goods.

Nevertheless, the direct effect of increased
military spending on some sectors, such as
durable goods, and specific prices should be
monitored carefully.

Following the Vietnam War, U.S. defense
spending declined in real terms, as a percent-

age of total federal expenditures, to 5 percent
relative to GNP. In FY 1978 real defense expendi-
tures constituted 24 percent of total federal expenditures and were within the high
peak level of 44 percent in FY 1968. Real de-
fense spending equaled 5 percent of GNP in
1978, down from 10 percent a decade earlier.

Military spending started to rise sharply
again beginning in FY 1979. In response to its
increased concern over high interest rates, the
Middle East, the Carter administration
increased real military expenditures 3.9 per-
cent in FY 1979 and 3.4 percent in FY 1980
and proposed to raise real military spending at a 5.0 percent average annual rate
through FY 1985. The Reagan administration
greatly augmented the Carter administration’s defense buildup. Real military
spending now officially is expected to in-
crease at an average annual rate of 8.8 per-
cent through FY 1985, appreciably above approxi-
ately 7 percent of total GNP by then. Al-

though the military-spending increases will
further increase real inflation, it will take
over one-half will be used for procurement.
Most of the procurement funds will be spent on aircraft, ships, missiles, and other com-
bat vehicles.

The Military Spending Process
Long and variable lags often exist between a presidential request to increase military
spending and Federal-spending changes that are purchases as recorded by the GNP accounts.
They depend on many factors, including the
nature of the goods being bought, the capac-
ity of the defense industry, and the ur-

necy of the need. One can identify three lags in the military-spending chain: Production
and employment can occur at any point
along this chain. The first two lags involve the
process. There is a time lapse between the date
when the president proposes an increase in military expenditures and the date the
appropriating body of Congress actually appropriates funds for the coming fiscal year.
In FY 1981, the Department of Defense esti-

mated that $360 billion would be available for defense purchases. To convert this
figure into an average monthly rate, this
lag could be as short as four months or as long as nine months. Between 1975 and
1980, however, the average lag was seven
and one-half months. There also may be a time
lag between the date when the Department
of Defense makes a decision to award a contract and the actual delivery of the good or
service. The lag associated with the budget process and with the issuance of prime-contract
awards does not necessarily represent major delays because of the widespread
use of congressional override for increased
military spending.

The final lag in the military-spending pro-
cess occurs between the award of prime-contract
contracts and the delivering of military

goods. On average between 1960 and 1978,
changes in military-prime-contract awards
resulted in significant changes in deliveries in