

SUSTAINING A BALANCED EXPANSION

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PREFACE

Sustaining a Balanced Expansion is one of a series of reports on the state of the economy issued periodically by the Congressional Budget Office. In keeping with **CBO's** mandate to provide nonpartisan analysis of policy options, the report contains no **recommendations**. It was prepared by Cornelia Motheral, Peter Clark, Ronald Teigen, Marvin **Phaup**, Stephen Brooks and other members of the Fiscal Analysis **staff**, under the direction of Frank de Leeuw.. Editorial assistance was provided by Patricia H. Johnston.

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SUMMARY

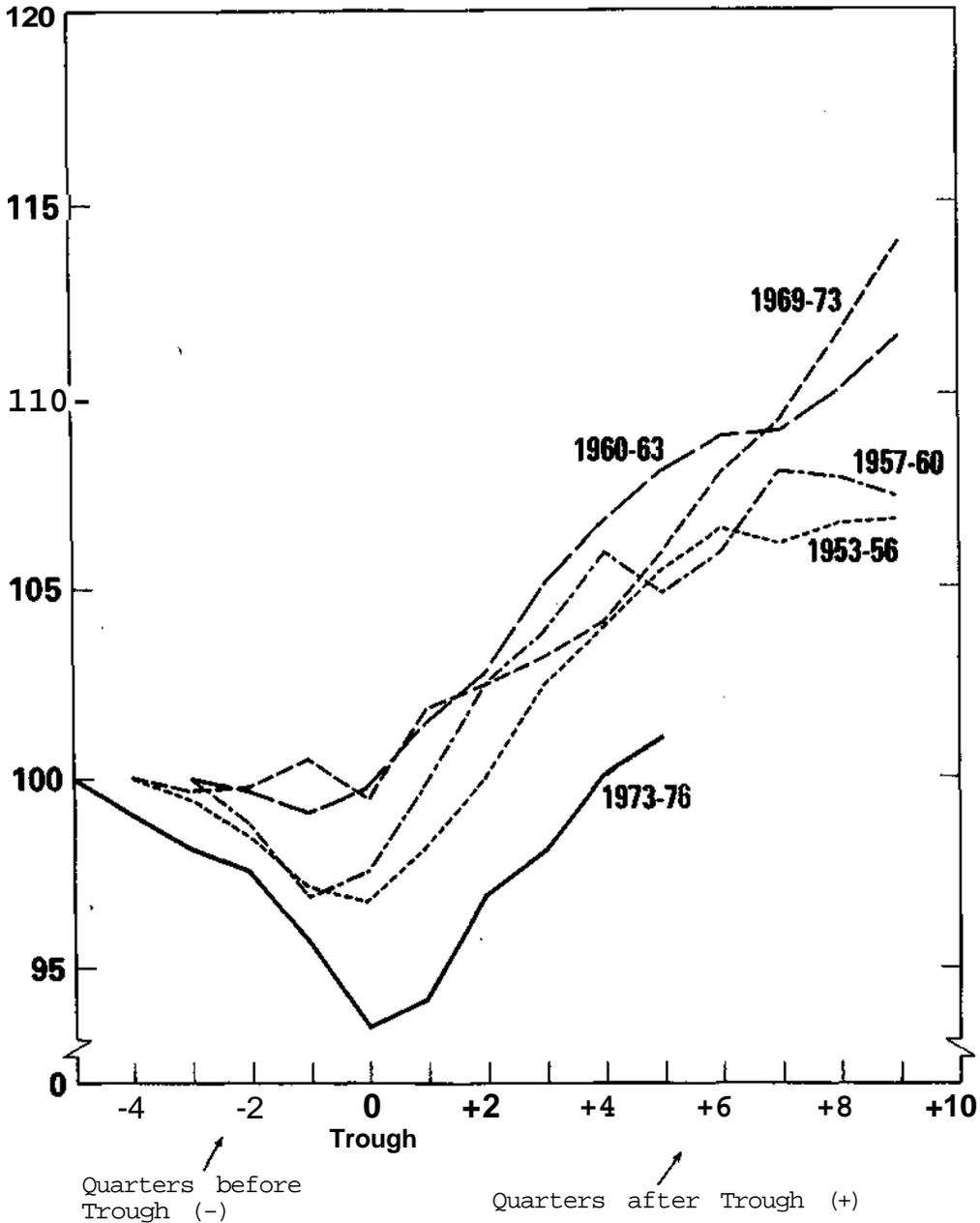
A year of recovery has greatly strengthened confidence in the U.S. economy. In the spring of 1975, when unemployment was at record high levels and double-digit inflation was a very recent memory, doubts about the vigor and stability of the economy were widespread. In the ensuing year and a quarter, private demands have rebounded. The unemployment rate has fallen from nearly 9 percent to 7.5 percent (June 1976). The annual rate of inflation slowed to the 5 to 7 percent range during 1975 and--apart from one- or two-month irregularities--has remained there since. Attention is shifting to whether recovery can be sustained over several years without periodic slowdowns and without rekindling inflation.

In spite of recent improvement, the problems are still formidable. The 5.9 percent rise in consumer prices from June 1975 to June 1976 remains well above the long-term average inflation rate and even further above the goal most Americans would like to achieve. While the rate of recovery so far has matched that of previous expansions, the upswing started from the bottom of a deep fall, and has left output lower in relation to its earlier peak than in previous recoveries (see Chart 1). The June unemployment rate of 7.5 percent, a level reached only at the bottom of earlier recessions, reflects this lag in regaining earlier ground and a slowing of growth in the second quarter of 1976. The coexistence of high inflation and high unemployment continues to be a dilemma challenging policy makers.

Congressional fiscal decisions reflect the change from a seriously ailing economy to an improving one. Last year Congress enacted a sizable tax cut and a number of smaller outlay programs to stimulate private and public spending and thus aid recovery. Tax and spending measures and the recession itself produced a record deficit in the federal budget for fiscal year 1976, currently estimated at slightly below \$70 billion. This year Congress' First Concurrent Resolution on the 1977 Budget implies a less stimulative policy, including some special outlays to boost

CHART 1 REAL GNP IN FIVE RECESSION- RECOVERY PERIODS

(Indexes of GNP in 1972 dollars, previous peak = 100)



SOURCE: U.S. Department of Commerce.

NOTE: The 1973-76 data are based on GNP data before the July 1976 revision; second quarter 1976 based on the percentage change in revised GNP. Peak and trough dates are the business cycle (reference) peaks and troughs designated by the National Bureau of Economic Research. The first quarter of 1975 is a tentative date for the latest trough; it has not been officially designated by NBER.

employment but no substantial change in current tax rates. Outlays voted in the resolution amount to \$413.3 billion, revenues to \$362.5 billion, and the deficit to \$50.8 billion. The resolution is not as restrictive as the Administration budget, which calls for outlays of \$400 billion and a deficit of \$47.5 billion.

Based on the first concurrent resolution, CBO's economic projections through 1977, explained in detail in Chapter I, show:

- continued growth in output, but at an annual rate lower than the 6.7 percent of the first five quarters of recovery;
- an underlying downward trend in the unemployment rate, with the rate in the 5.8 to 6.4 percent range by the end of 1977; and
- inflation at an average annual rate of 5 to 7 percent (as measured by the GNP deflator).

Thus, through 1977 the projections envision continued expansion without accelerating inflation. This forecast is summarized in Table 1.

TABLE 1
 OUTPUT, PRICES, AND UNEMPLOYMENT,
 1976 AND 1977

	GNP (billions of 1972 dollars)	General Price Index (GNP deflator, 1972 = 100)	Unemployment Rate (percent)
<u>Actual, 1976:II</u> (preliminary)	1260	133	7.4
<u>Projected Range</u>			
1976:IV	1290 to 1300	136 to 138	6.9 to 7.3
1977:IV	1350 to 1380	143 to 147	5.8 to 6.4
<u>Projected Growth</u> (annual rate, percent)			
1976:II to 1976:IV	5.0 to 6.5	5.5 to 6.5	--
1976:IV to 1977:IV	4.5 to 6.5	5.0 to 7.0	--

x

Besides adherence to the first concurrent resolution, the forecast assumes rates of monetary growth near the high end of the Federal Reserve's announced targets, leading to gradually rising short-term interest rates during the forecast period; steady growth in exports; moderate increases in food prices; and continuing rises in oil prices. The forecast is quite similar to the forecast CBO published last March and to the economic assumptions underlying the Congressional budget resolution.

Departures from these assumptions would change the projections. Sustained vetoes of \$5.6 billion worth of public employment measures, for example, are estimated to reduce the number of jobs by 400,000 below the baseline forecast by the end of 1977 and to raise the unemployment rate by 0.3 percentage points. The impact of such vetoes in reducing the inflation rate would be nearly zero in 1977, but would grow to a 0.3 percentage point reduction in the inflation rate by 1980. Chapter II explains how this change and other policy alternatives, such as departures from the monetary policy assumptions, would affect the outlook.

Policies outside the realm of traditional fiscal and monetary instruments, such as steps to strengthen competition or tax changes linked to wage and price restraint, would also change the outlook, but it is nearly impossible to predict how much. The longer the twin problems of high unemployment and high inflation persist, however, the more likely it is that these alternative approaches will receive serious consideration.

Another topic which is receiving growing attention as the economy recovers is the fraction of output devoted to investment in the private capital stock rather than to consumption or to government purchases. In the short run, maintaining growth in the capital stock is important in order to avoid bottlenecks in key industries as the economy approaches its potential output. An analysis of output and capacity trends for a number of key materials in Chapter III suggests that unless output significantly exceeds projected growth rates, serious bottlenecks will not develop over the next two years.

In the long run, investment in private capital is a vital ingredient in introducing new technology and maintaining growth in productivity and living standards. In recent years capital per worker has grown more slowly than in the

past, and this slow growth is one factor contributing to a reduced rate of productivity growth. Other factors include rising investment requirements for pollution control and occupational health and safety, shifts in demands from capital-intensive to labor-intensive industries, and shifts in the composition of the labor force toward groups with relatively little work experience (women and **teenagers**).

If policies are sought which would limit or reverse the reduction in productivity growth, then there are a range of approaches to consider. Steps to promote investment, such as a combination of easy money and tight fiscal policy or various tax changes favoring investment in plant and **equipment**, are one strategy. Policies to encourage research and development and programs to promote education and training are among the other **possibilities**. Very little is known at present about which approach would be most effective.

CHAPTER I

THE OUTLOOK

Introduction

The economy is **improving**, but unemployment and inflation remain much worse than they were in earlier **recoveries**. While the growth in output since early 1975 has matched that of previous recoveries, it followed a recession far deeper than other recessions during the last 30 years (see Chart 1 on page x). As a result, total output is now barely ahead of its peak two and a half years ago, and the unemployment rate is still at a level reached only at the bottom of previous recessions. The rate of inflation is also worse than in previous **recoveries**. While **inflation** has receded from the peak rates of 1973 and 1974, it remains much higher than during the 1950s and 1960s.

Between now and the end of calendar year 1977 (the period covered by this **report**), the most likely economic prospect is for continued improvement in output and employment and no substantial change in the rate of inflation. Real output grew at an annual rate of 4.4 percent during the second quarter of 1976, distinctly lower than the 7 percent average during the first year of recovery. Growth will probably continue to average below 7 percent during the remainder of this year and 1977. Inventory investment, which accounted for more than one-third of the first-year recovery, will contribute much less to growth during the next year and a **half**. The fiscal policy embodied in the First Concurrent Resolution on the Budget for Fiscal Year 1977 is moderate rather than **expansionary**, and the monetary targets announced by the Federal Reserve point to a gradual reduction in monetary growth and slowly rising short-term interest rates in 1977.

Plant and equipment spending will probably be a source of growth next year, as the revival in fixed investment gathers momentum. Autos and housing have made important

contributions to the recovery so far and may continue to do so for a while to come. It is likely, however, that they will play their characteristic role of somewhat slower growth during the later stages of recovery than during the early stages.

As for inflation, important influences at the present time are not all pulling in the same direction. Current high unemployment rates are likely to reduce inflation, but the slowdown of productivity growth in recent years and the outlook for fuel prices are likely to increase it. The influence of past cost increases on current prices and wages tends to make recent rates of inflation persist. On balance, these factors suggest that inflation will continue at a rate of 5 to 7 percent per year through 1977.

Trends in DemandConsumption

By the beginning of 1975, American consumers had been through two battering **years**. They had experienced the highest rates of inflation since the outbreak of the Korean War, with price increases particularly large for food and energy. Interest rates reached unheard-of levels and common stock prices plunged. Real disposable incomes had the longest and largest decline in many years, resulting from the combined effects of rising inflation, declining productivity, the progressive income tax system, declining hours of work, fewer new hires, and rising **layoffs**. All of these **events--compounded** by the OPEC oil **embargo--convinced** many consumers that they could no longer take for granted that their standard of living would improve. They responded by saving more and spending less, and consumption spending declined in real **terms**.

During 1975, consumer purchasing power was bolstered by a sharp drop in the rate of inflation from 12 to "only" 7 percent, plus tax rebates and tax **cuts**. Consumer spending responded, and consumer **demands**, along with the ending of inventory liquidation and a pickup in housing investment, gave the initial impetus which brought about rises in production, hours of work, and employment. Falling interest rates and rising common stock prices also contributed to a more favorable atmosphere for consumer spending, and the University of Michigan Survey Research **Center's** consumer confidence index rose to a level in early 1976 that was the highest since the end of 1972.

In the first four quarters after the recession trough in the first quarter of 1975, consumer spending expanded at a fairly steady 12 percent annual rate in current **dollars**. Because the rate of inflation varied somewhat, the path of real (constant-dollar) spending was more uneven, but the increase averaged out to 6.1 percent over the four **quarters**.

In the second quarter of 1976, the growth of consumption spending slowed to a 4 percent annual rate in real **terms**, and the personal saving rate, at 7.0, was little changed after a significant decline in the first quarter. Caution was reported in sample surveys of consumer confidence. Some special events of the second **quarter--an** upturn in food prices and a leveling off in common stock **prices--probably** contributed to this attitude. Unless setbacks of this nature recur, the projected recovery should bring some further increases in confidence and some further decline in the saving rate. A decline in the saving rate--usually associated with increasing **confidence**, purchases of autos and other durables, and use of credit--enables consumer spending to increase faster than income, thus providing extra stimulus to business activity.

Consumer purchases of new automobiles were at an annual rate of 10.2 million units in the second quarter of 1976, about the same as the first quarter and 29 percent higher than a year earlier. Along with the recovery in car sales has come a change in the composition of demand for autos. The share of imports and domestic subcompacts has declined, while the share of larger compacts and intermediate-size cars has increased, leading to widely publicized speculation that the American motorist is not interested in fuel conservation even at high gas **prices**. In fact, however, changes in the mix of auto sales have roughly paralleled changes in the price of gasoline relative to the price of other consumer **goods**. Between 1973 and 1974, gas and motor oil prices rose 20 percent faster than **the** general rate of inflation. Responding to this relative price increase, the mix of cars changed sharply from 1973 to 1975, away from standard and luxury-sized cars and toward **imports** and subcompacts. Since 1974 there has been a **slight de-**cline in the relative price of gasoline (although this decline is expected to be reversed in the projection **period**), and buyer interest in larger cars has increased. The switch away from imports and subcompacts in 1976 has only partly offset the **changes** that occurred between 1973 and 1975, however. Imports are back at about their 1973 market share, but among domestic cars, luxury and standard models have lost ground to compact and intermediate **cars**.

The Survey Research Center has reported that consumer sentiment and spending plans are significantly more optimistic among consumers with above-median **incomes**. The

shift toward somewhat larger cars may **reflect**, in part, greater willingness to buy at the present time on the part of **higher-income** consumers than on the part of lower-income **consumers**.

Housing

Housing activity was the first victim of the recession, Housing starts began to decline in early 1973 and dropped steadily for two years, to less than half of the record 1972 rate.

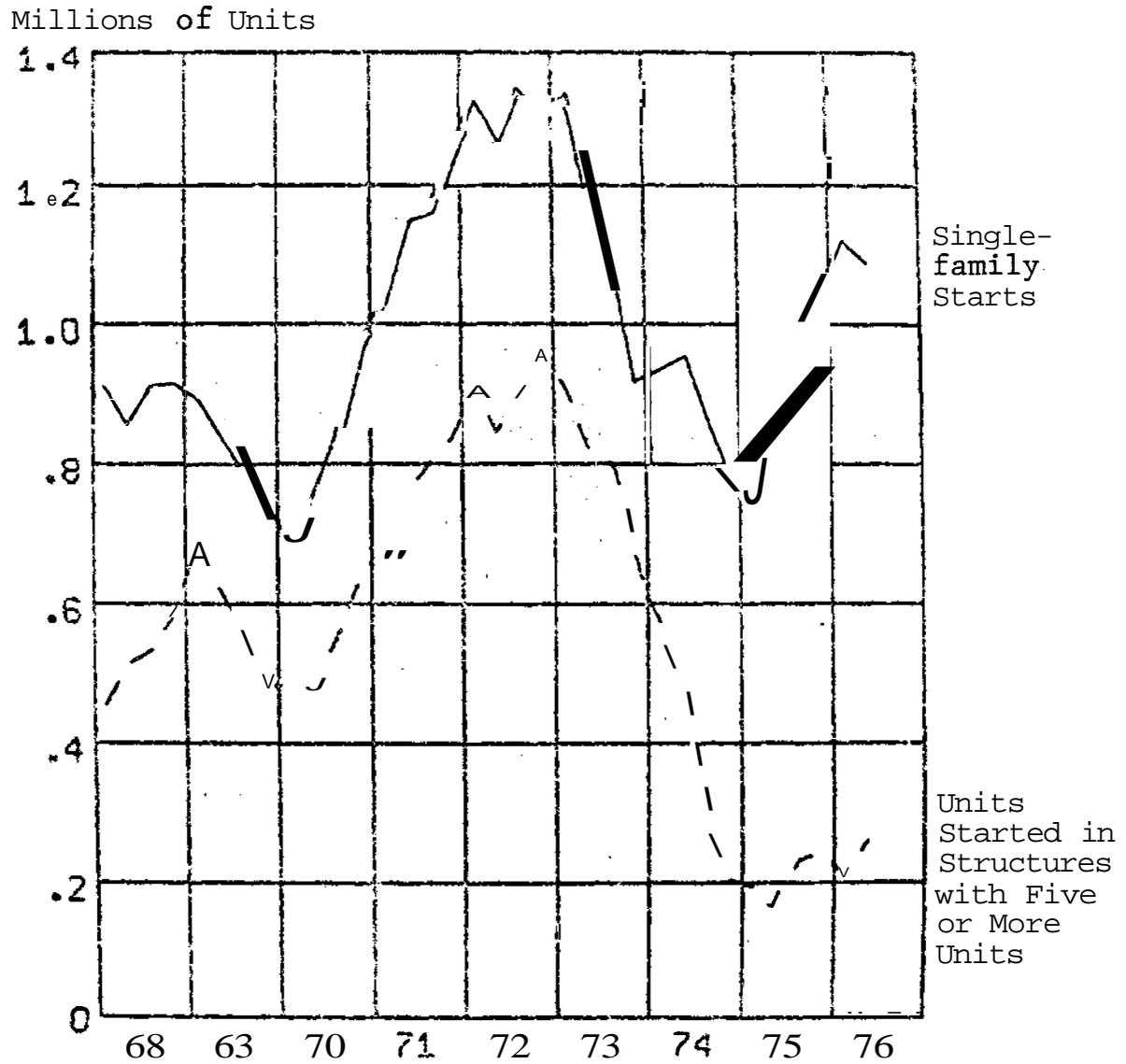
Recovery in this industry was early too--at least for the single-family sector, as Chart 2 **shows**. In addition to the revival of consumer incomes and demand in general, there were some developments specifically favoring **housing**: the decline in short-term interest **rates**, which encouraged savings flows into the thrift institutions which **finance** housing; the tax rebates, which were reflected in particularly large deposits at thrift institutions in the second quarter of 1975; and possibly the tax credit for the purchase of new homes, which had to be used during 1975 (although it is difficult to determine the effect of this **device**).

In spring 1976, savings flows, mortgage lending activity by thrift **institutions**, and single-family housing starts all seemed to be continuing at a high level. Despite high prices, the single-family sector has recovered to about 85 percent of its record performance in 1972.

Multifamily housing has had a very different experience, as Chart 2 **shows**. Although it has increased from last **year's lows**, the number of units started in structures with five or more dwelling units during the first half of 1976 was only **one-fourth** of the 1972 rate. Further gains in residential construction activity are likely to require an end to the stagnation in this sector. A number of interacting factors appear to be contributing to this stagnation:

- First, there has been excess supply in some areas, including a large inventory of unsold condominiums. As of late last year, the percentage of new apartments still not rented after 12 months was continuing to edge upward. Vacancy rates for all rental

CHART 2
 NEW PRIVATELY OWNED HOUSING UNITS
 STARTED, SINGLE AND MULTIFAMILY
 (seasonally adjusted annual rates)



SOURCE: U.S. Department of Commerce.

housing were 6 percent or more in 1974 and early 1975, higher than in the early seventies but well below the rates of over 8 percent reported during the apartment glut of the early sixties. Late in 1975 the vacancy rate dropped to 5.5 percent.

- Second, financing for multifamily projects has dried up as a result of the **financial** difficulties of the real estate investment trusts, reflecting pessimistic assessments of the risks and profitability of rental housing. A new program of the Federal Home Loan Mortgage Corporation to commit to buy mortgages on multifamily projects may help to channel more funds into this market.
- Third, and more basically, present and future profitability of rental housing is widely **regarded as unsatisfactory**. In part, this may be because long-term interest rates remain relatively high, having fallen much less than short-term **rates**. However, homebuyers also have to pay high long-term rates (the effective rate on a conventional mortgage on a newly built house was 8.91 percent in June, little less than the high of 9.37 percent in late 1974) and there has been a marked recovery in single-family starts **nevertheless**. The difficulty seems to be that the high interest rates and other increased costs, such as construction, maintenance, heat, and utilities, have not been fully passed on to the consumer in the **form** of rent **increases**. The rent component of the Consumer Price Index has risen much more slowly than either the total **CPI** or the cost of **homeownership** in recent **years**. So has the median rent on new rental **units**, even when a rough adjustment is made for average size of **apartments**. This rent lag has been ascribed to several causes, notably to high vacancy rates; to rent **controls**, the threat of rent **controls**, and the fear of provoking rent **controls**; and to the substantial advantages of homeownership which result from the tax subsidies to homeowners and the capital gains arising from inflation. Whatever the cause, it seems unlikely that there will be much strength in multifamily housing if rents do not cover costs and provide a competitive profit margin. Though statistics do not yet show it, there have been reports that rent increases have recently become larger.

- **Finally, tax advantages to apartment builders and owners were reduced in 1969, and tax advantages to other forms of investment, mainly producers' durable equipment, have been increased since then. As a result, multifamily housing has less tax advantage than it used to, relative to other forms of investment.**

Housing activity is not likely to increase as fast over the next year and a half as it did in the first stage of the recovery. But as long as short-term rates do not rise enough to induce outflows of savings from thrift institutions, and expanding consumer incomes permit lowering of rental vacancy rates and increases in rents, housing will continue to contribute to growth in real gross national product (GNP).

Investment in Plant and Equipment

As Chart 3 shows, business capital spending declined more during the recession and lagged more after the trough than in earlier recessions. In the past two quarters, healthy rates of increase have taken place. Business capital spending plans, as reported by the U.S. Department of Commerce, appear consistent with further increases at about the same rate for the rest of 1976.

Of the industries surveyed by the Commerce Department, about half reported substantial increases in spending for 1976 compared with 1975. These included industries which had favorable demand changes in 1975, such as the auto and rubber industries, and energy and other industries which had experienced shortages during the 1973 boom, such as petroleum refining, utilities, paper, and textiles.

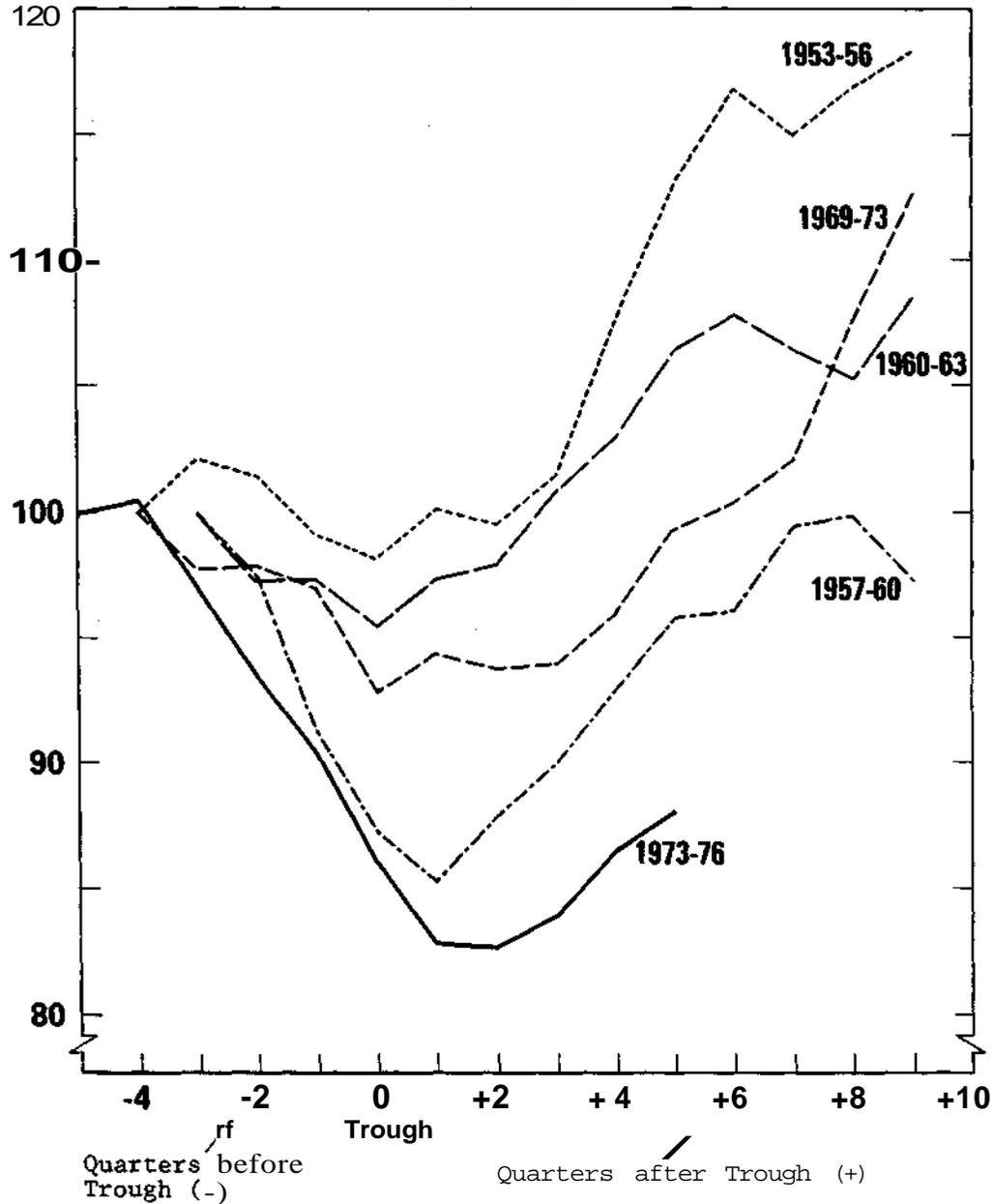
The increased and expanded investment tax credit, enacted in 1975 and now scheduled to expire at the end of 1976, may have influenced the amount of capital spending this year, if only by encouraging businesses to make investments earlier than they normally would have. The provisions of the 1975 act were especially favorable to electric utilities in that they may now receive the tax credit at the same rate as other industries instead of a lower rate.

Further, more widespread strength in capital spending is expected to emerge next year as output and capacity utilization continue to increase. The first signs of this

CHART 3

NON RESIDENTIAL FIXED INVESTMENT IN FIVE RECESSION-RECOVERY PERIODS

(Indexes of 1972-dollar investment, previous peak = 100)



SOURCE: U.S. Department of Commerce.

NOTE: The 1973-76 data are before the July 1976 revision; second quarter 1976 is based on the percentage change in revised data. Peak and trough dates are the business cycle (reference) peaks and troughs designated by the National Bureau of Economic Research. The first quarter of 1975 is a tentative date for the latest trough, it has not been officially designated by NBER.

expected acceleration are not yet clearly apparent; such leading indicators as **manufacturers'** appropriations and contracts and orders for plant and equipment have not shown an uptrend in real terms recently, but are expected to do so over the rest of this year.

State and Local Spending

In real terms, the rate of growth in purchases of goods and services by state and local governments slowed in 1975, and would have slowed more had it not been for federal grants for public service employment. In early 1976, constant-dollar spending by these governments leveled off.

Only moderate future growth is expected, due to the caution induced in voters and officials by the recession and the problems of New York and to the expected decline in the school population. However, the recovery will bring rising revenues to state and local **governments**, which will tend to cause some acceleration in rates of spending growth over the course of the forecast period. Enactment of the first concurrent resolution budget would allow room for a significant increase in federal grants for state and local employment programs and support a revival in demands by this sector.

Foreign Trade

The net export component of **GNP--exports** minus imports of goods and **services--provided** a net addition to U.S. output in 1974 and 1975. In 1974, **U.S.** exports continued to rise while **imports--affected** by the oil embargo and the recession in U.S. demand--were about unchanged in **real terms**. In 1975, U.S. exports declined as the recession spread overseas, but imports declined even more.

In 1976 net exports have declined, as imports of petroleum and other goods have been pulled up by the recovery here, while the slower recovery abroad is causing **U.S.** exports to lag. The expected recovery in other industrial countries should cause exports to resume their upward trend later in the year. If this expected upward trend were to cause an increase in the value of the dollar relative to other currencies, then the exchange rate movement would reduce the stimulation to GNP arising from net exports, while tending to reduce domestic inflation as well.

Inventory Investment

Added to the recession in final demand was the biggest inventory swing in the postwar period. At peak output at the end of 1973, inventory investment reached a record rate of over \$25 billion in 1972 dollars. Much of this investment was involuntary, as unbought automobiles piled up on **dealers'** hands in the first reaction to the oil embargo. At the trough in output in early 1975, inventories were being run down at a \$21 billion annual rate in 1972 dollars. This swing from stock building to liquidation accounted for more than half of the total decline in GNP.

The recovery in inventories has been as rapid as the decline, and has accounted for more than a third of the recovery in GNP. By the end of 1975, the ratio of business inventories to business final sales in real terms had been reduced to about its long-term average level, partly because of the reduction in inventories during 1975 and partly because of the increase in final sales. In the first quarter of this year, inventory investment increased at roughly the rate required to maintain that **ratio**. If the ratio continues to be stable in the next year and a **half**, then inventory investment would increase only in line with final sales growth and would no longer be a factor causing GNP to deviate from its trend growth path.

In fact, in the second quarter inventory investment was a little lower than in the first, while final sales rose faster than they had in the first quarter. The decline in the **inventory-sales** ratio was small, and there was little indication of conditions that would lead to destabilizing movements in inventory investment. With continued steady growth in final sales, it seems possible that the economy could avoid both the buildup of inventories (and subsequent slowdown in output) that would result from a slowdown or decline in final sales and the panic rates of ordering that occur when inventories get too low in relation to sales.

The Outlook

Growth in Output

Both the natural dynamics of economic recovery and the likely course of economic policy lead to a forecast of less growth in the second half of 1976 and 1977 than took place in the first year of recovery. Inventory investment will contribute less to growth because the inventory turnaround of the first year of recovery has succeeded in bringing the economy fairly close to normal inventory-sales ratios. Other sectors of demand are unlikely to take up all of the remaining slack. The tax reductions of 1975 boosted the rate of growth during the first year of recovery. However, as reflected in the First Concurrent Resolution on the Budget, fiscal policy for 1977 does not provide any additional boost and, in fact, by some measures moves slightly in the restrictive direction. The monetary targets announced by the Federal Reserve System probably imply a gradual increase in short-term interest rates (although last year's targets, which most observers felt would increase rates, did not in fact do so).

A forecast reflecting these trends in demands and policies, presented in Table 2, shows:

- a rate of growth of real GNP of 5 to 6.5 percent (annual rate) during the remainder of 1976 and 4.5 to 6.5 percent during 1977;
- an inflation rate (as measured by the GNP deflator) of about 5 to 7 percent during the next six quarters, roughly the same as the 5.5 percent rate during the first year of recovery;
- an unemployment rate between 6.9 and 7.3 percent of the labor force by the end of this year and between 5.8 and 6.4 percent by the end of 1977.

TABLE 2
ECONOMIC PROJECTIONS, 1976 AND 1977

	Actual (preliminary) 1976:II	Projected Range		Projected Growth (annual rate, percent)	
				1975:II to 1976:IV	1976:IV to 1977:IV
		1976:IV	1977:IV		
GNP, Billions of Current Dollars	1673	1755 to 1785	1965 to 2005	11.5 to 12.5	11.0 to 12.5
GNP, Billions of 1972 Dollars	1260	1290 to 1300	1350 to 1380	5.0 to 6.5	4.5 to 6.5
General Price Index (GNP de- flator, 1972 = 100)	133	136 to 138	143 to 147	5.5 to 6.5	5.0 to 7.0
Consumer Price Index (1967 = 100)	169	172 to 175	181 to 186	5.0 to 6.0	4.7 to 6.7
Unemployment Rate (percent)	7.4	6.9 to 7.3	5.8 to 6.4	--	" "

As always, the forecast is subject to great uncertainty. Some of the principal assumptions underlying **it--assumptions** which actual events could easily **invalidate--are**: (1) adherence to the First Concurrent Resolution on the Fiscal Year 1977 Budget, with outlays at \$413 billion (unified **budget**); (2) monetary growth near the high end of the Federal Reserve targets, leading to a gradual rise in the Treasury bill rate to just over 7 percent by the end of **1977**; (3) total exports rising at an annual rate of **5.5** percent (in 1972 dollars) as other countries recover from the world-wide recession; and (4) farm prices rising at about 4 percent and wholesale fuel prices at 8 percent (annual rates) during the **forecast** period.

Growth rates of real GNP in the forecast are somewhat more rapid than is characteristic of the same **period** in most (though not all) other **recoveries**. **Nevertheless**, because of **the** depth of the 1974-75 recession, recovery at the projected range should not create serious strains on capacity through 1977. The projections thus do not represent a rate of recovery which necessarily contains the seeds of a future slowdown and downturn. If the forecast is realized, it may be possible to sustain the expansion for some time beyond 1977.

The Rate of Inflation

Between the second quarter of 1975 and the second quarter of 1976, the general price level (as measured by the GNP deflator) increased about 5.5 percent, substantially less than the double-digit rates of 1974 but considerably faster than most Americans regard as normal or desirable. Over the next 18 months, the CBO forecasts imply a continued inflation rate of 5 to 7 percent. This projection reflects a balancing of conflicting **forces**, some tending to push prices up and some to moderate past rates of inflation.

The main **anti-inflation** factor at present is the existence of substantial unused capacity in the economy. Unemployment is still high and output is well below capacity

in the great majority of industries. Therefore, increases in demand as the economy improves can be expected to lead to increases in output, with relatively little upward pressure on **prices**.

Bottlenecks in a few critical industries were among the causes of accelerated inflation in 1973 and some forecasters are predicting a return of the bottleneck problem a year or two hence. However, the analysis of likely trends in output and capacity for a number of critical industrial materials in Chapter III of this report suggests that general shortages of materials capacity are unlikely to develop before the end of 1977, given overall output growth at a rate of 4.5 to 6.5 percent.

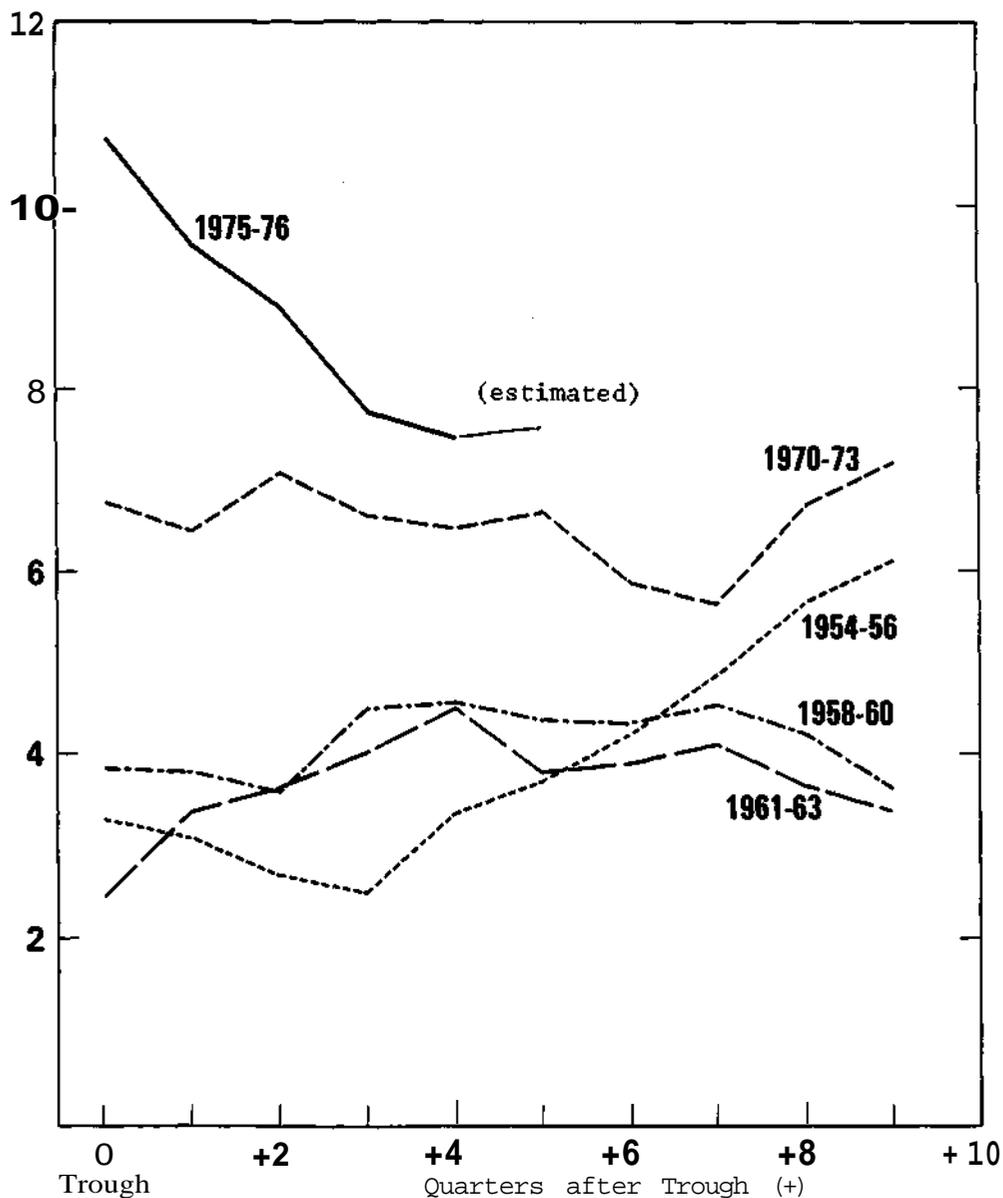
But there are also forces pushing prices **up--especially** the current legacy of past inflation. An important lesson from the recent history of inflation is that it takes a long time for an initial price increase to exert its full influence. In part, the influence of past inflation persists because households and businesses form expectations about inflation on the basis of past history and these expectations themselves affect the actual inflation rate.

The influence of past inflation is especially evident in the cost of labor which is, in turn, an important influence on **prices**. As can be seen in Chart 4, compensation changes in recent quarters have reflected the existence of substantial **unemployment**; they have declined during the last year from an average of more than 10 percent to under 8 percent. As the chart shows, this deceleration of wage inflation during the recovery period is by no means typical. In previous **recoveries**, rates of wage **inflation after** a year of recovery have been at least as high as the bottom of the recession.

Nevertheless, rates of wage inflation remain high by historical standards, as the chart also **shows**. Past rates of inflation, reflected in current inflationary expectations and in the desire to catch up to past price and cost increases, are keeping the rate of wage inflation close to 8 percent rather than the 3 to 5 percent typical of past recoveries in the 1950s and 1960s. It will probably take a long time for these expectations and catch-up factors to recede; that is the main reason for an inflation forecast of 5 to 7 percent for the next six quarters rather than a rate closer to past history.

CHART 4
WAGE INCREASES IN FIVE RECOVERIES

Percent Change



SOURCE: U.S. Department of Labor.

NOTE: The rate of wage increase is the percentage change from four quarters earlier in compensation per hour of all persons in the private **nonfarm** economy. Trough dates are the business cycle (reference) troughs designated by the National Bureau of Economic Research. The first quarter of 1975 is a tentative date for the latest trough; it has not been officially designated by NBER.

Increases in output per hour tend to offset the effect of rising wages on **prices**. Unfortunately, there is some evidence that, apart from the influence of the recession and **recovery**, the underlying rate of productivity growth has slowed in recent **years**. Chapter III of this report discusses productivity trends, which may be another cause of persisting inflation.

All inflation forecasts are subject to great uncertainty, especially in the short run. As recent history teaches, unexpected changes in world markets for food and raw materials can exert strong pressure on domestic **prices**.

Developments in such special markets could influence the current outlook substantially. After declining this winter, farm prices have begun rising again, but most forecasters expect the increase to be at a much lower rate than the run-up of 1972-73. Farm prices, however, depend on the size of this **year's** crops in many parts of the world, and there is still widespread uncertainty about the crop outlook. As for oil, the Energy Policy and Conservation Act of 1975 was responsible for reductions in domestic oil prices early this year and will be responsible for increases at more than the overall inflation rate for several years in the future. Domestic oil prices will thus almost certainly be a factor adding somewhat to inflation. The future of world oil prices is, as **always**, an enigma.

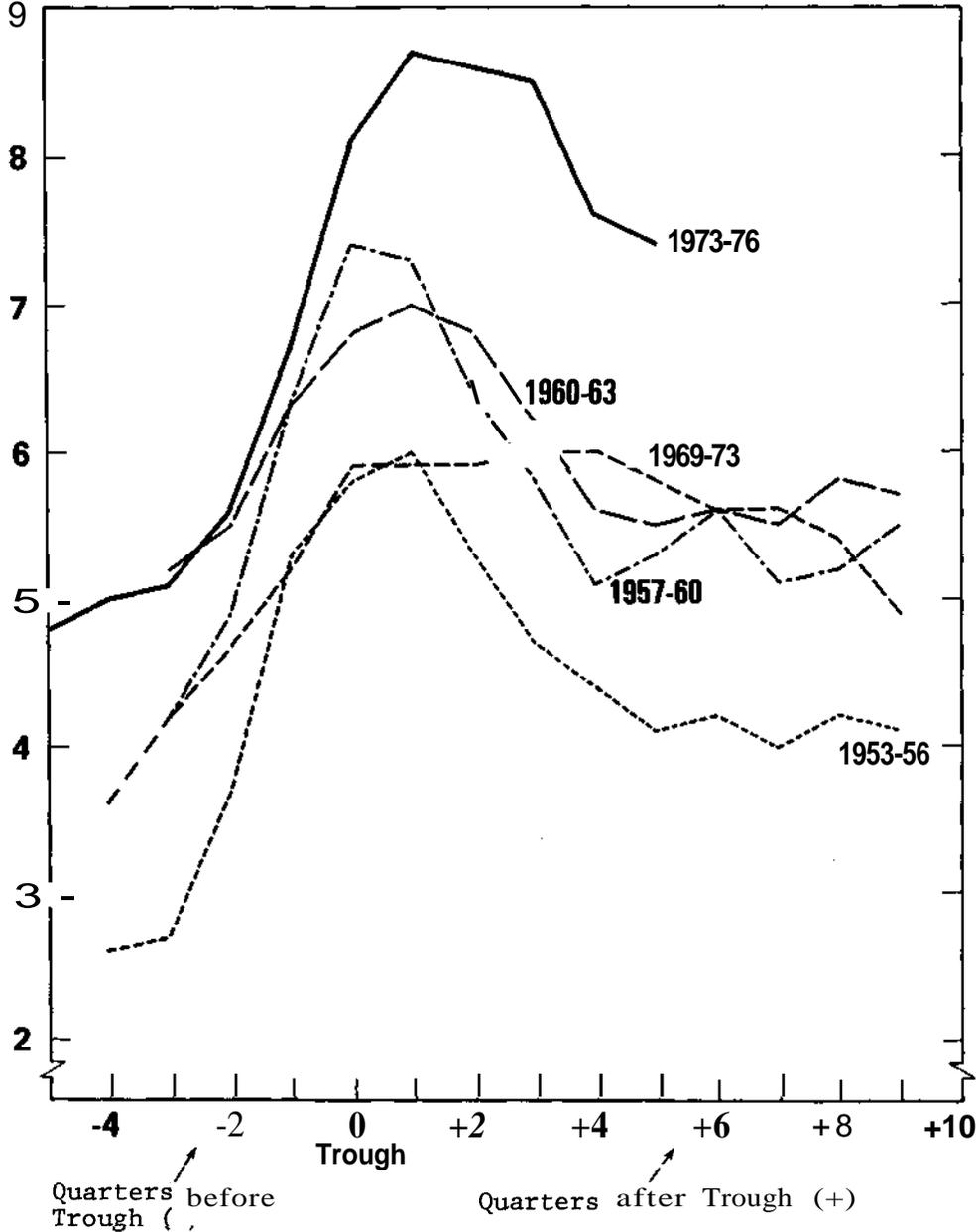
In summary, it is mainly the influence of the past that is keeping the inflation rate well above historical **averages**. Other factors--the current high unemployment rate, the slowdown in productivity growth, the absence of widespread bottlenecks, the food and fuel **outlook--have** mixed influences, but on balance will probably not increase the inflation rate. Unfortunately, present policy tools allow only gradual inroads to be made against the **inflation inherited from earlier years**.

Unemployment

The national unemployment rate in June stood at 7.5 percent (seasonally adjusted) of the civilian **labor** force, an improvement over the **8.9** percent peak in the spring of 1975 but still far above levels at the same stage of other recovery **periods**. As Chart 5 shows, the second quarter

CHART 5 UNEMPLOYMENT RATES IN FIVE RECESSION-RECOVERY PERIODS

Percent of Civilian Labor Force



SOURCE: U.S. Department of Labor.

NOTE: Peak and trough dates are the business cycle (reference) peaks and troughs designated by the National Bureau of Economic Research. The first quarter of 1975 is a tentative date for the latest trough; it has not been officially designated by NBER.

average rate of 7.4 percent was higher than the worst quarter of most other postwar recessions. While the unemployment rate is projected to improve during the next 18 months, it is still estimated to lie in the relatively high range of 5.8 to 6.4 percent by the end of 1977.

Measuring Unemployment

Unemployment statistics have been criticized both for not including enough workers and for including too many. The unemployment rate does not take any account of part-time workers seeking full-time work, nor does it include "discouraged" workers who are not currently seeking a job but would do so in a tighter labor market. On the other hand, unemployment measures do include more than simply persons laid off their jobs. Workers who quit their jobs and persons seeking work for the first time are also counted among the unemployed.

These questions of what categories to include in the concept of unemployment probably have very little effect on comparisons from month to month or from one business cycle to another. The Department of Labor has calculated unemployment rates corresponding to both broader and more restrictive definitions of **unemployment**. While their levels differ, of course, from the published national rate, they all show a strong tendency to move together, and all of them show that recent rates are unusually high.

Month-to-month statistics on unemployment are complicated by the need to adjust for normal seasonal **forces**. Before any seasonal adjustment, the national unemployment rate rose from 6.7 percent in May to 8.0 percent in June. But unemployment nearly always rises from May to June because of the influx of persons looking for summer work. It is of no great interest that unemployment also rose from May to June this year. What is of interest is whether the rate was rising or falling after correction for these **normal** seasonal **influences**. That is what the widely quoted seasonally adjusted rate is intended to measure.

Estimating the appropriate seasonal adjustment is particularly troublesome when the economy is changing rapidly. Problems in the adjustment may well have contributed both to the apparent rapid improvement in the unemployment rate in the early months of the year and to the

rise from 7.3 to 7.5 percent from May to June. The routine updating of seasonal factors to include 1975 data resulted in an unusually large revision of the size of estimated seasonal movements in **unemployment**. Unemployment rose very rapidly in **the** first part of 1975 and fell during the second half, and the procedures for seasonal adjustment may have mistaken some of this cyclical movement for a change in the seasonal pattern. If this happened, the result would be an exaggerated decline in the seasonally adjusted rate in the early months of this year, perhaps accounting for 0.2 points in the rate—and the rate in coming months may be about 0.2 points higher by the same token. The June rate itself may be free of this seasonal bias.

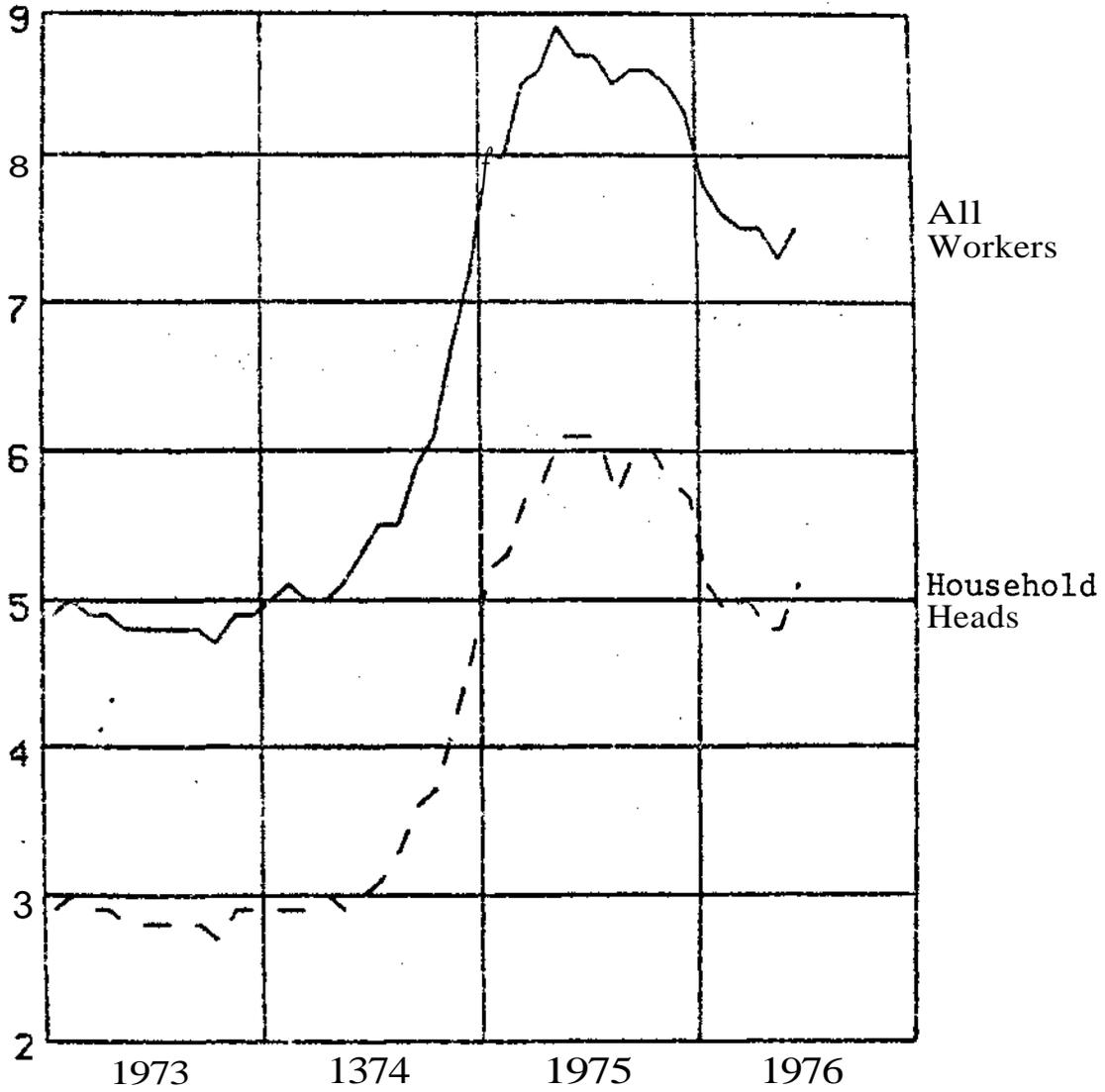
Interpreting the Unemployment Rate

Does the current 7.5 percent unemployment rate represent approximately the same degree of labor market tightness that the same rate represented a decade or two ago? One of the problems about comparisons with earlier periods is that the composition of the labor force has changed **significantly** during the last 20 years. In the first half of 1976, adult women accounted for 36 percent of the labor force, while 20 years **earlier**, they comprised only 29 percent of the labor force. For teenagers the shift has been **equally** dramatic; they accounted for 9.5 percent of the labor force in the first half of 1976 compared to 6.5 percent 20 years earlier. **Adult males**, in contrast, have been a declining fraction of the labor force, from 64 percent 20 years ago to 54 percent in the first half of this year. These are all significant changes which affect the interpretation of **unemployment**, because adult males typically have somewhat lower than average unemployment rates while teenage unemployment rates typically are quite high. Some economists contend that the higher unemployment rates of women and teenagers largely reflect their relative lack of work experience which results in a need for longer periods of job search. Furthermore, women and teenagers may be willing to search longer for the "right" job because they are frequently secondary earners in the household. If this interpretation is accepted, a given overall unemployment rate today is equivalent to a rate nearly one percentage point lower 20 years ago.

Yet at the present time, unemployment is by no means confined to secondary **workers**. As Chart 6 **demonstrates**, unemployment among household heads increased sharply during the recession and has generally paralleled the overall rate.

CHART 6
UNEMPLOYMENT RATES
(Seasonally adjusted, monthly)

Unemployment as Percent of
Civilian Labor Force



SOURCE: U.S. Department of Labor.

Output, Employment, and Unemployment

Over the first four quarters of recovery, output rose by 7 percent, but employment rose 2.5 percent and the unemployment rate came down only 0.5 percentage **points**. Such diverse changes in output, employment, and unemployment are not unusual; in broad outline they are typical of cyclical recovery. Because of growth in productivity and in the labor force, unemployment has remained relatively high even in the face of recovery, and the same forces will limit unemployment gains in coming **quarters**.

Output increases faster than employment when output per worker rises, and unemployment can fall by less than the rise in employment when the labor force is growing. Both output per worker and movements in the labor force are sensitive to the current state of the economy and to longer-term economic **forces**.

Output per worker tends to decline in recessions, partly because the **average** workweek declines and partly because employers prefer to maintain employment during what are expected to be temporary declines in demand rather than incur the costs of laying **off**, hiring, and eventually training new employees. In recovery, all these processes are reversed and output can be expanded without proportional rises in employment.

As of the first quarter of this year, productivity had increased at a relatively high rate, partly explained by the sharp recovery in output. Yet this increase served only to regain ground lost in the exceptionally long and deep recession. Output per worker is still below its previous high in early 1973. Cyclical gains in productivity and in the workweek will diminish as the recovery proceeds and the trend of productivity will be more **important**. As Chapter III of this report **documents**, the trend of productivity in recent years has been towards smaller rates of growth than in the past, a development which should bring future gains in employment closer to the growth of output.

Growth in the labor force, like growth in **productivity**, is sensitive to the state of the economy and also works in the direction of limiting reductions in unemployment during recovery periods. The reason is that the labor force participation **rate--that** is, the proportion of working-age

population which actually works or is actively seeking work-- responds positively to general employment **opportunities**, rising when job prospects are good and falling when job prospects are bad. During recoveries, the gain in employment is partly offset by a rise in the labor force so that the number of unemployed falls relatively slowly.

Participation rates are also affected by longer-run trend forces. Over the entire postwar period there has been a downward trend in the participation rate of males over 20, due partly to early retirement and partly to longer schooling. This has been more than offset by an upward trend in the participation rate for females over 20, also extending over the whole period; this was supplemented in the mid-1960s by an upward trend in participation by **teenagers**.

Some economists find that the unemployment insurance system tends to raise **unemployment**, mainly by inducing the unemployed to remain in the labor force rather than dropping out and pursuing "**nonmarket**" activities when employment opportunities are poor. Yet general employment opportunities and the long-term trends just discussed explain most of the changes in labor force participation rates during the last 26 years, leaving relatively little variation to be explained by the substantial extensions and liberalizations of unemployment insurance which have taken place in the 1970s. However, there was a marked "bulge" in the participation rate last **summer--an** increase at the beginning of the summer, offset by a decrease at the **end--** which seems to have reflected the new Special Unemployment Assistance (SUA) program for workers not eligible **for other forms** of unemployment **insurance**. SUA may have kept school teachers and other workers, who would have normally dropped out of the labor force in the summer, counted among the unemployed. This same factor may be raising participation rates this summer. The 1975 summer "bulge" can account for, at the most, 0.2 percentage **points** on the average unemployment rate for the entire year.

Despite its **shortcomings**, the unemployment rate allows relative judgments to be made about the degree of nonutilization of available human resources in the **U.S.** economy. Taking the latest reading of 7.5 percent and reducing it by about 1 percent **to** account for the change in labor force composition since 1956, and 0.2 percent to account for the effect of SUA, produces a "**1956-comparable**" unemployment

rate of 6.3 percent, still higher than at this point in any previous postwar recovery, and two full percentage points higher than at the comparable point in the 1954-56 recovery.

It is also possible to compare the 1977 unemployment forecast with unemployment in 1973 (the year preceding the **recession**). Changes in labor force composition over that four-year period have been relatively small and can be ignored. Both the total unemployment rate and the rate for heads of households are projected about a percentage point higher than they were in 1973. Now and during the forecast period, there is and will be an above-average amount of unused human resources, and an above-average proportion of families with lower and more uncertain income. The unemployment burden on blacks will be greater than implied by their proportion in the labor force, and the difficulties of teenagers in obtaining job experience will be magnified, in comparison with a high-employment period as recent as 1973.

CHAPTER II

ECONOMIC POLICIES

Fiscal and monetary policies are the traditional tools with which the federal government attempts to influence aggregate output, employment, and **prices**. This chapter describes current policy and considers the effects of some policy **alternatives**.

Economic Policy, Inflation, and Unemployment

Most economic analysis indicates that fiscal and monetary policies have a fairly prompt effect on output and unemployment and a delayed effect on the rate of inflation. Aggregate policies which in the short run add to output and lower unemployment have an eventual cost in the form of increased inflation. Policies which eventually reduce the rate of inflation do so at the cost of at least a temporary increase in **unemployment**.

This conventional view of the ways in which monetary and fiscal policies operate has been under attack recently from advocates of both expansionary and restrictive policies. Some critics dispute the conventional view that expansionary policies drive up prices, and argue that monetary and fiscal policies should be set with low unemployment as the only objective. Other critics dispute the view that expansionary fiscal policies affect employment, and conclude that moving toward a stable price level should be the overriding objective of macroeconomic policies. Both groups support their contention that there is no stable inflation-unemployment relationship by citing developments during the last year, when the recovery of demand caused unemployment to decline significantly from its recession peak while the rate of inflation, instead of accelerating, also declined.

Developments during the last year, however, hardly warrant rejecting the conventional view that there is at least a short-run tradeoff between unemployment and

inflation. The moderation of inflation during the last year is, in part, a response to the recession which reached its trough in March 1975 rather than to the recovery which has taken place since. Moreover, declines in farm and fuel prices during the early part of 1976 were major contributors to the lower rate of inflation during the first quarter.

In short, although special factors may mask the relationship for a time, monetary and fiscal policy makers still face an **unemployment-inflation** dilemma. At a time when both unemployment and inflation are high in relation to historical averages, the dilemma is leading to interest in other alternatives outside the realm of traditional fiscal and monetary policies. The United States has had intermittent experience with one alternative, namely, price and wage guidelines and controls.

A number of other new policy departures have been proposed. Policies to strengthen competition in both product and labor markets might bring down selected prices and costs. Deregulation of transportation prices, reform of health pricing, repeal of the Davis-Bacon Act,¹ and modification of the minimum wage are among the proposals in this area. Programs to train workers and disseminate job information might reduce the amount of unemployment associated with any given rate of inflation. New forms of fiscal policy which reduce costs at the same time as they provide purchasing power are another possibility. A subsidy to state and local governments in return for a reduction of sales taxes is one such proposal. Tax rates related to wage and price increases, or tax credits related to price and wage restraint, have also been proposed.

It is nearly impossible to know in advance how much these new departures would reduce inflation and what their other consequences would be. This report does not attempt to analyze them. The longer the United States continues to suffer from the twin problems of high unemployment and high inflation, however, the more likely it is that one or more of these alternatives will receive serious **consideration**.

1. The provisions of this act, in effect, result in wage levels at or near union scale being paid on construction projects supported wholly or in part by federal government funds.

Fiscal Policy

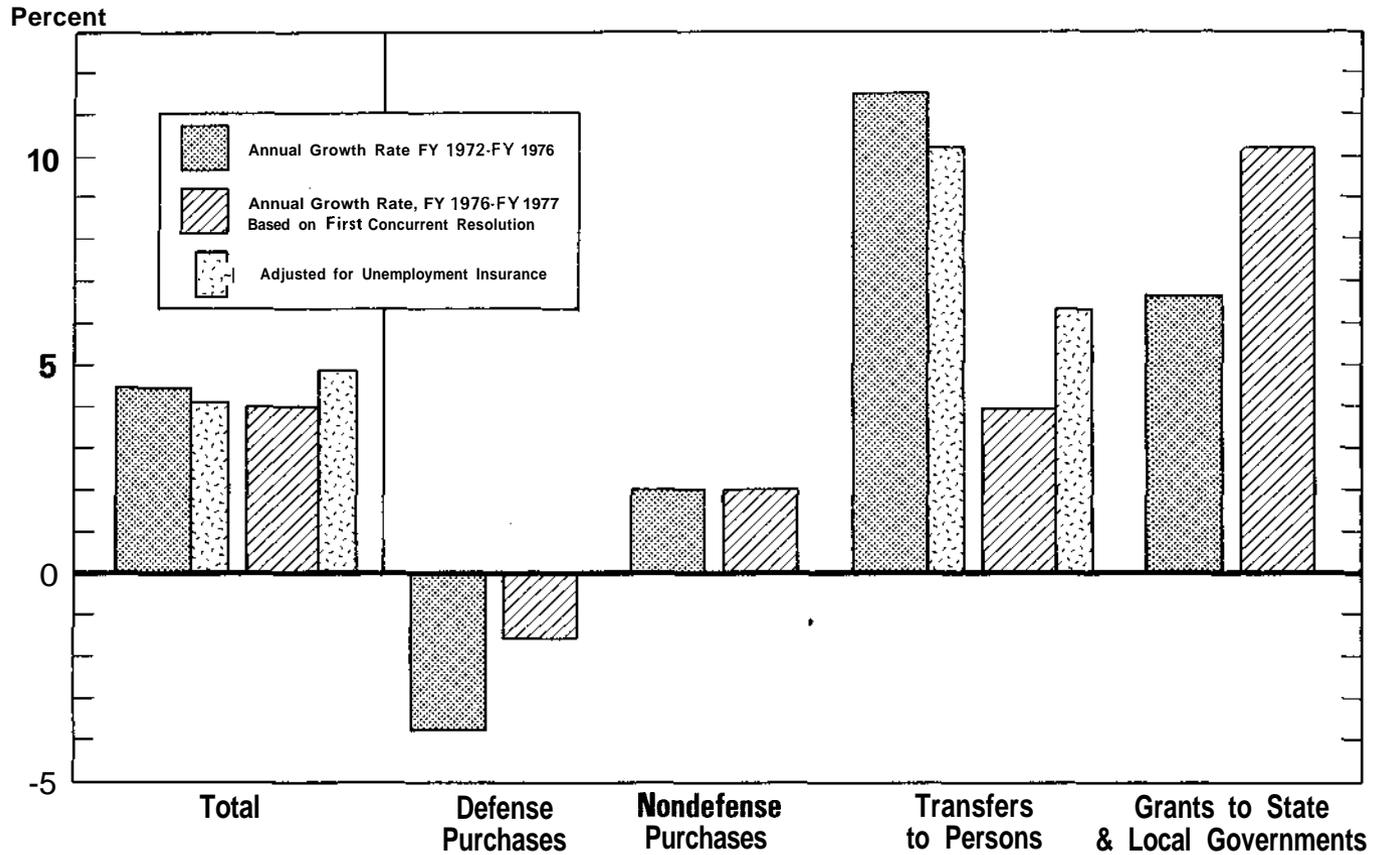
The targets voted in the First Concurrent Resolution on the 1977 Budget may be characterized as calling for a moderate budget. If implemented, it will provide more fiscal stimulus to the economy than the Administration budget, but less than a "current policy" budget of simply continuing the government programs approved in last year's final resolution (including adjustments for inflation and population growth). On the revenue side, the resolution provides for continuation of the 1975 tax reductions and total revenues of \$362.5 billion. On the outlay side, the resolution specifies a total of \$413.3 billion and also subtotals for 17 functional categories. The functional breakdown represents slowdowns in growth for some categories and acceleration in others.

Spending Trends

Trends in broad categories of federal spending, measured in dollars of constant purchasing power, are depicted in Chart 7. When measured in constant dollars, purchases of defense goods and services, have been declining for a number of years. The Congressional budget continues this decline into fiscal year 1977, but at a slower rate than in recent years. Furthermore, authorizations for future spending in the first concurrent resolution point to an increase in real defense spending in the future. Purchases of nondefense goods and services--a category which includes such diverse items as public works, veterans' hospitals, and scientific and medical research, to name only a few--are scheduled to increase slightly in real dollars in fiscal year 1977, a continuation of the trend during fiscal years 1972-76.

Over half of federal outlays consist of transfers of funds to individuals or to state and local governments rather than purchases of goods and services. Transfers to individuals (social security is by far the largest item in this category, followed by unemployment benefits) have risen at a very rapid rate during the past few years. Part of this increase is attributable to the 1974-75 recession; unemployment benefits necessarily rise when the number of insured unemployed increases. Even apart from increases due to the recession, however, transfer payments have risen

CHART 7
GROWTH OF FEDERAL SPENDING, 1972-1977
 (Annual Rates of Change in Constant Dollars)



SOURCE: Current-dollar federal spending, 1972-76, U.S. Department of Commerce.

NOTE: Converted to 1972 dollars using the following deflators from the GNP accounts: defense and nondefense purchases--deflator for federal government purchases; transfers to persons--deflator for personal consumption expenditures; grants to state and local governments--deflator for purchases by those governments; other federal spending (not shown separately)--overall GNP deflator. Fiscal year 1977 estimates and adjustments for unemployment insurance are by the CBO.

rapidly and will continue to rise in fiscal year 1977, although not so rapidly as in previous years. Grants to state and local governments--a category which includes welfare and medicaid payments, public employment grants, and other programs--have also grown rapidly, and are projected to accelerate further in the next year. Expansion of public employment programs is a major element in this increase and a major source of difference between the first concurrent resolution and the Administration budget, which proposes a sharp reduction in public employment spending.

High-Employment Budget

The concepts of "high-employment" receipts and outlays may also be used to characterize the first concurrent resolution budget. High-employment receipts equal actual receipts plus the additional tax revenues that would be generated if the economy were operating at high employment. High-employment outlays equal actual outlays less some of the payments due to excessive unemployment. The difference between high-employment receipts and outlays, the high-employment surplus or deficit, serves as a broad indication of the posture of discretionary budgetary policy. The actual budget surplus or deficit, in contrast, reflects not only discretionary fiscal policy but also the automatic response of the budget to recession and expansion.

There are many conceptual problems in measuring the high-employment budget, including defining "high employment" and identifying outlays "caused" by the recession. The figures cited below are based on 4 percent unemployment as a high-employment baseline, a basis which yields a larger high-employment surplus than would a 5 percent rate. At the same time the figures subtracted from outlays include only a portion of unemployment insurance payments and no recession-induced outlays for food stamps, welfare, and a number of other programs, an omission which reduces the high-employment surplus.

In terms of the high-employment budget, the first concurrent resolution represents a moderate shift toward restrictiveness. As of the first half of calendar year 1976, the high-employment budget was in deficit by approximately \$10 billion, a position considerably more expansionary than the high-employment surplus immediately preceding the 1974-75 recession. The first concurrent resolution

would move the **high-employment** deficit close to zero during fiscal year 1977. The change from the current position to fiscal year 1977 is thus a move in a restrictive direction by this measure; but it is a much smaller move in that direction than the **Administration's** proposed budget for fiscal year 1977.

Budget Alternatives

The range of budget alternatives under consideration for fiscal year 1977 is fairly narrow. A **budget** more **re-** restrictive than the first concurrent resolution would result if much of the public employment legislation in the first concurrent resolution were vetoed (and the vetoes **sustained**). Specifically, elimination of \$5.6 billion in outlays on public employment is the assumption underlying the "low public employment" alternative listed in Table 3. This policy is estimated to result in 400,000 fewer employed persons than the baseline forecast by the end of calendar year 1977, a reduction which translates into an unemployment rate **0.3** percentage points higher than the **baseline**. This more restrictive policy is unlikely to affect inflation in 1977, but would probably reduce the rate of inflation by about 0.3 percentage points by 1980.

These employment effect estimates assume a significant amount of "fiscal substitution" by the state and local governments which receive employment grants. Specifically, only half of the grants are assumed to be earmarked effectively for special employment **programs**. State and local governments are assumed to find ways to use the other half of the grants as if they were simply general additions to revenue. The economic impact of a change in public employment programs is thus assumed to be half of what would take place if there were no fiscal substitution, plus half of what would take place if the grants were simply general revenue sharing. Although the assumption of fiscal substitution reduces considerably the estimated impact of employment grants, the assumption seems consistent with recent **experience**.

Policy alternatives more expansionary than the first concurrent resolution are not under active debate at present. The alternative labeled "expansionary alternative" in Table 3 is not a concrete legislative package, but simply illustrates the probable outcome of exceeding the first concurrent resolution spending targets due to such factors as upward revisions of "uncontrollable" spending on personal transfers,

TABLE 3

ALTERNATIVE FISCAL AND MONETARY POLICIES

	Departures from Baseline Forecast, 1977:IV			Inflation Rate, 1980 (additions to or subtraction from rate of change of CPI, percentage points)
	GNP, (\$ billions, annual rate)	Real GNP (1972 dollars, billions)	Unemploy- ment Rate (percent- age points)	
FISCAL POLICY				
Restrictive Alternative: vetoes of \$5.6 billion public employment bills	-7	-5	+0.3	-0.3
Expansionary Alternative: \$10 billion more outlays	+12	+8	-0.2	+0.2
MONETARY POLICY				
Expansionary Alternative: 1 percent faster growth in M2	+10	+6	-0.2	+0.2
Restrictive Alternative: 1 percent slower growth in M2	-10	-6	+0.2	-0.2

emergency situations with respect to state and local finances, or new spending requests to meet special, defense or international needs. Specifically, adding \$10 billion in outlays to the first concurrent resolution is estimated to reduce the unemployment rate by 0.2 percentage points by the end of 1977, and increase the rate of inflation by 0.2 percentage points by 1980.

Monetary Policy

Monetary policy in the current recovery cannot be unambiguously characterized as expansive, restrictive, or accommodative. Difficulties arise because some of the convenient indicators of monetary policy impact are giving conflicting signals. In a typical upswing, a slower rate of money supply growth than of the money value of GNP would be viewed as restrictive, because it would lead, at least temporarily, to higher interest rates. In the present recovery, the narrowly defined money stock, M_1 , has grown less than half as fast (about 6 percent) as GNP (12 percent), while a more broadly defined money stock, M_2 , has grown almost as fast (10 percent) as GNP. Interest rates, which normally rise during the first year of a recovery, are actually slightly less than levels recorded at the trough of the recession. Monetary policy, accordingly, could be described as restrictive judging by M_1 behavior, accommodative by M_2 standards, and expansive in terms of interest rates.

Since it no longer appears possible to sum up the posture of monetary policy in a single money stock growth rate or interest rate level, the effects of policy on the economic outlook must be assessed in light of the likely behavior of several such policy indicators. The announced policy targets of the Federal Reserve are also relevant to the outlook.

M_1 , V_1 , and Interest Rates

The more rapid growth in national income than in M_1 during the current recovery means that the rate at which the money supply is being spent has accelerated. The number of times M_1 is spent per time period, or the

2. Currency and bank checking account balances held by the public.
3. M_1 plus bank time and savings deposits except for large denomination certificates of deposit.

velocity of M_1 (denoted as V_1), typically increases during economic recoveries, but the increase is rarely as large or as rapid as in the current recovery (see Chart 8). Furthermore, a rising V_1 is usually accompanied by rising short-term interest rates, which induce people to hold smaller money balances and, in effect, to spend the existing money stock faster. The usual pattern, therefore, contrasts sharply with the present acceleration in V_1 , which has occurred without an upward trend in interest rates.

Some of the reasons given to explain the decline in money balances held by businesses and households include rising confidence in an improved economic outlook and recent financial structure changes, including new regulations permitting business passbook savings accounts and telephone transfers of funds between checking and savings accounts. Whatever the true causes of recent V_1 behavior, there is much uncertainty about its future behavior. If V_1 continues to increase, a modest rate of growth in M_1 will not inhibit a fairly vigorous growth in national income. If, however, the rate of growth in velocity should begin to slow, more rapid rates of growth in M_1 may be necessary for continued recovery. The Federal Reserve's present target range for growth in M_1 is 4.5 to 7.0 percent per year.

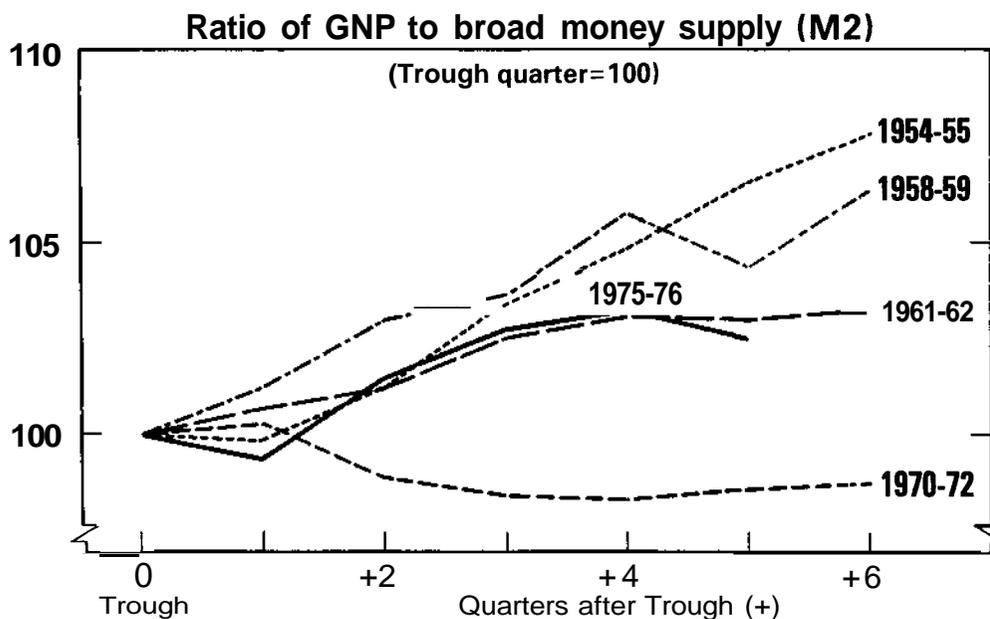
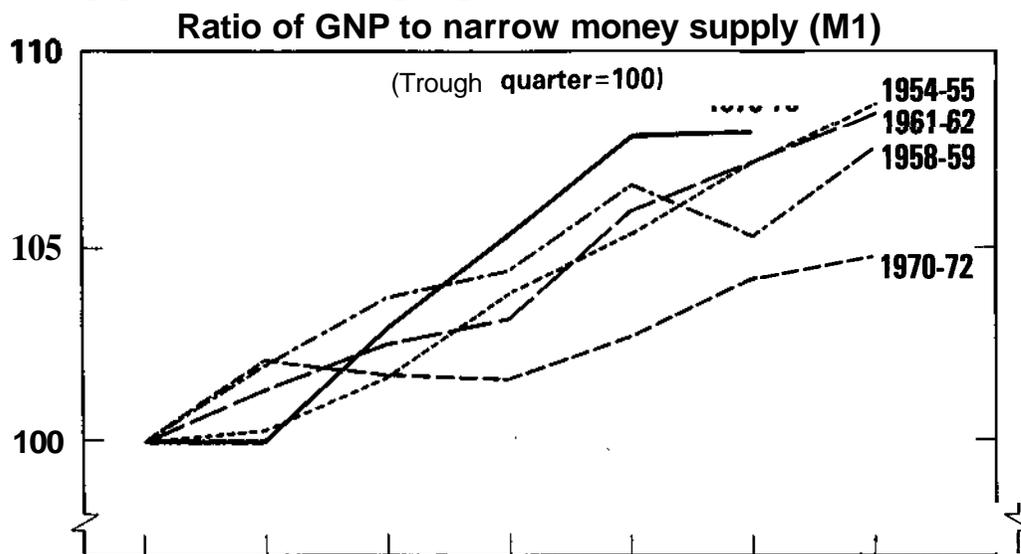
Other Monetary Aggregates

M_2 , or money defined to include time and savings deposits at commercial banks (except for large denomination certificates of deposit) as well as currency and checking account balances, has grown at an annual rate of 9.9 percent since the first quarter of 1975. This rate is fairly close to the 9.6 percent annual growth rate of this aggregate over the past five years. The velocity of M_2 , or the number of times M_2 is spent per year,⁵ has stayed within its historical range during the current recovery (see Chart 8). Similar stability has been observed for the velocity

4. The money stock (M_1) multiplied by the number of times M_1 is spent per time period (V_1) equals total money spending per time period (GNP). Therefore, V_1 equals GNP/M_1 .

5. V_2 equals GNP/M_2 .

CHART 8
VELOCITY OF MONEY, FIVE
RECOVERY PERIODS



SOURCE: U.S. Department of Commerce and Federal Reserve Board.

NOTE: The 1975-76 GNP data are before the July 1976 revision; second quarter 1976 GNP is based on the percentage change in revised GNP. Trough dates are the business cycle (reference) troughs designated by the National Bureau of Economic Research. The first quarter of 1975 is a tentative date for the latest trough; it has not been officially designated by NBER.

of M_0 , a still broader monetary aggregate that includes deposits in nonbank thrift **institutions**. M_3 has also grown at nearly as fast a rate as GNP during the current recovery. Currently, Federal Reserve target ranges for annual growth rates of M_2 and M_3 are 7.5 to 10 percent and 9.0 to 12.0 percent, respectively.

Interest Rates

On balance, short-term interest rates have changed little since the bottom of the recession. The three-month Treasury bill rate, for example, averaged 5.75 percent in the first quarter of 1975, and since then has ranged from a monthly high of 6.44 percent (in August 1975) to a low of 4.86 percent (in April 1976). As of June, the bill rate was 5.41 percent.

Short-term **rates**, however, are expected to rise in late 1976 and 1977. CBO projects a three-month Treasury bill rate reaching 7 percent at the end of 1977, on the assumption that the Federal Reserve will allow money market conditions to tighten somewhat as the recovery **proceeds**. Some evidence of this willingness was provided by the increase in the federal funds rate" from 4.8 percent in April to 5.3 percent currently and the lowering on May 3 of the upper limit of the growth targets for the monetary **aggregates**.

Although the baseline forecast projects rising interest rates, it is not until well into 1977 that these higher rates begin to affect the growth of **demands**. In the course of 1977, projected rates reach levels which attract savings flows away from financial intermediaries and help bring the expansion of housing construction to an end.

6. Federal funds are excess reserves which commercial banks lend each other on a very short-term basis through an organized market. The federal funds rate is the interest rate on such **loans**.

Alternative Monetary Policies

To some extent, fiscal and monetary policy are substitutes. Either one can be used to accelerate or retard economic growth and inflation. The detailed effects of the two on individual industries are not the same, but as far as broad aggregates are concerned, an expansionary fiscal move can be offset by a restrictive monetary move and vice versa.

The two monetary policy alternatives considered in this report can therefore be thought of in combination with fiscal alternatives as well as in isolation. If the easier money alternative were adopted, a more restrictive budget and a smaller deficit than the first concurrent resolution might be sufficient to achieve the overall economic path projected earlier in this **report**. If the tighter money alternative were adopted, then a more expansionary budget might be required to keep to the projected economic path.

The two alternative monetary paths are shown in the table below. The first is a more expansionary policy than the baseline and consists of 10 percent growth in M₂ through the fourth quarter of 1976, followed by four quarters of 11 percent growth. The second is a more restrictive policy with a 9 percent growth rate in M₂ for 1977.

	<u>Baseline</u>	<u>Easier Money</u>	<u>More Restrictive Policy</u>
Growth of M ₂ :			
1975:IV through 1976:IV	10%	10%	10%
1976:IV through 1977:IV	10%	11%	9%
Three-Month Treasury Bill Rate:			
1976	5.3	5.3	5.3
1977	6.6	5.8	7.3

CBO econometric **simulations** suggest that the easier money alternative would keep the bill rate down to an average of 5.8 percent during 1977, well below the level at which savings flows tend to be diverted from **thrift institutions**.

The economic consequences of this (and the more restrictive policy) are summarized in Table 3 on page 31. Real GNP would be increased by an estimated \$6 billion by the end of 1977 and the unemployment rate would be reduced by 0.2 percentage points compared to the baseline solution. The consequences for inflation would be negligible during 1977, but by 1980 would add an estimated 0.2 percentage points to the annual rate of inflation. In terms of unemployment and inflation, this easier money alternative has estimated effects in the opposite direction from those of the restrictive fiscal alternative (public employment vetoed and sustained) also shown in Table 3. However, the monetary effects would be only about half as large as the restrictive fiscal effects. Therefore, both these policy alternatives were followed, the net effect would be to increase unemployment and reduce inflation compared to the baseline solution, but only by about half as much as the restrictive fiscal alternative alone.

The tighter money alternative would reduce the rate of growth of M_2 from the baseline of 10 percent to 9 percent in 1977, with the Treasury bill rate assumed to rise to 7.3 percent for 1977. This policy is estimated to lower real output by \$6 billion at the end of 1977 and add 0.2 percentage points to the unemployment rate by the last quarter of the year. Effect on the inflation rate, once again negligible during 1977, would amount to an estimated 0.2 percentage point reduction by 1980, as compared to the baseline forecast.

CHAPTER III

INVESTMENT, CAPACITY LIMITS, AND PRODUCTIVITY

Introduction

Expenditure for new plant and equipment has lagged more than usual in the current recovery. The upturn did not really begin until early 1976, and in the second quarter, **nonresidential** fixed investment (in constant 1972 dollars) was little higher than the cycle trough, compared to an average rate of growth of **8.6** percent in four previous recoveries (see Chart 3 on page 9).

Investment in plant and equipment is important to the strength of the recovery and the durability of prosperity for two **reasons**. First, expenditure for tools, machines, and factories is an important component of aggregate demand. Second, new plant and equipment adds to the stock of capital and hence to the productive potential of the economy. It is the second of these reasons that is the focus of this chapter. Fears have been expressed that the current weakness in investment may forebode a revival of capacity bottlenecks and materials shortages in the near term and a decline in productivity and living standards over a longer period. This chapter assesses the likelihood that these fears will materialize.

A very small probability is assigned to the recurrence, within the next eighteen **months**, of shortages and capacity constraints equal in severity to those of 1973. Although capacity in pulp and paper and textiles could be tested by the end of 1977, widespread shortages are unlikely, principally because the 1974-75 recession reduced output so far below capacity that the present pace of recovery could be maintained well beyond the six-quarter horizon without approaching the high industrial utilization rates of 1973. In fact, continuous real output growth in excess of 7 percent per year would be required to produce generalized shortages within eighteen **months**. Given baseline

forecast growth rates of real output in the 4.5 to 6.5 percent **range**, a repeat of the 1973 scramble does not seem to be in the offing.

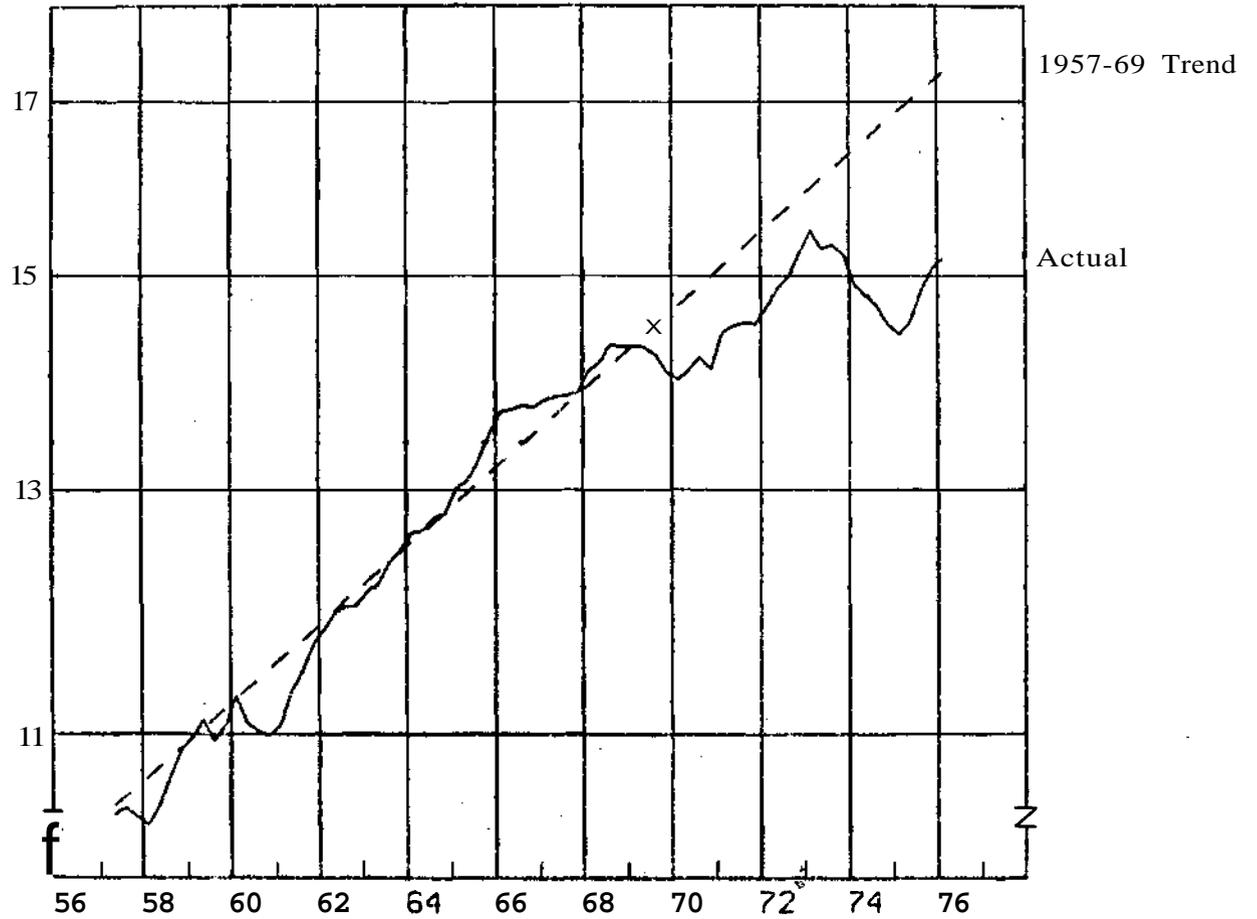
A verdict on the implications of the decline in plant and equipment expenditures for long-term growth in productivity and living standards cannot be reached with the same confidence as the outlook for **shortages**. Certainly, growth in the capital stock of the economy plays an important role in increasing labor **productivity**, and per capita living standards are unlikely to rise without increasing productivity or output per worker. **Thus**, the recent weakness in investment and in productivity (see Chart 9) is a matter of some concern. Moreover, an increasing fraction of investment in the 1970s has gone to replace equipment rendered obsolete by the dramatic change in energy prices, to meet environmental protection standards, and to enhance the safety of the work force. Investment for these purposes is of value, but it does not increase the potential output of the economy beyond what it was before the increase in energy prices, before clean air and water became costly to obtain, or before the imposition of occupational health and safety standards.

Nonetheless, it is not certain that the outlook for investment and productivity requires an immediate policy response. First, weakness in capital spending and the decline in productivity growth may be temporary phenomena. One major source of the productivity **slowdown** has been rapid growth in the **working-age** population arising from the postwar baby boom. Slower rates of growth of the labor force are likely in the late 1970s, and with them some pickup in the growth of capital per worker.

A second reason for resisting a gloomy productivity forecast is that measurement of capital and productivity is incomplete, as well as subject to considerable error. For example, plant and equipment is not the only form of capital. Human **capital--investment** in acquiring knowledge and skills--is another very productive one. Clean air and water resulting from investment in pollution reduction equipment are not measured as output in the national income **accounts**; measured output is lower than it would have been if these investments had been made in other types of capital equipment.

CHART 9
OUTPUT PER WORKER, 1957-1976

Thousands of 1972 Dollars per Person
Ratio Scale



SOURCES: Output--private gross domestic product, U.S. Department of Commerce. Data are before the July 1976 revision. Employment--total private employment, household survey, U.S. Department of Labor.

If it is determined that public policy should be directed toward increasing the rate of growth of productivity, a number of alternative policies are available. These include tax incentives to stimulate private investment, a **fiscal-monetary** policy mix designed to produce low interest rates, and the expansion of subsidies to education or to research and development **activities**. Little is known at present about which approaches would be most effective.

Bottlenecks

In judging whether it is appropriate to stimulate or to restrain the economy, it is important to know how close the economy is to physical limitations on its capacity to produce. The most widely used capacity measures are the unemployment rate and the GNP gap.¹ The gap, because of the method by which it is currently calculated, is highly correlated with the unemployment rate. The association of low unemployment rates and low or negative GNP gaps with accelerating inflation reflects the association of high utilization of labor resources with increasing price pressures.

Yet labor resources are not the only constraint on potential output. Full utilization of capital would put pressure on prices even if unemployment of labor and the GNP gap were large. Some industries may be so strategic to the economy that, even when capacity is ample on average, full utilization of capital in those industries will limit the expansion of output in the economy as a whole. Selective capacity constraints were a serious problem in 1973. As the discussion below explains, they seem less likely to be a problem in 1977.

The problem of strategic output constraints is generally referred to as the "bottleneck" problem. It is

1. The GNP gap is the difference between potential and actual real GNP. Potential GNP is calculated by the Bureau of Economic Analysis of the Commerce Department on the assumption that the economy was operating at 100 percent of potential in mid-1955. Potential GNP is then extrapolated forward from mid-1955 using actual and estimated growth rates of potential labor force, annual hours of work, and trend output per hour worked.

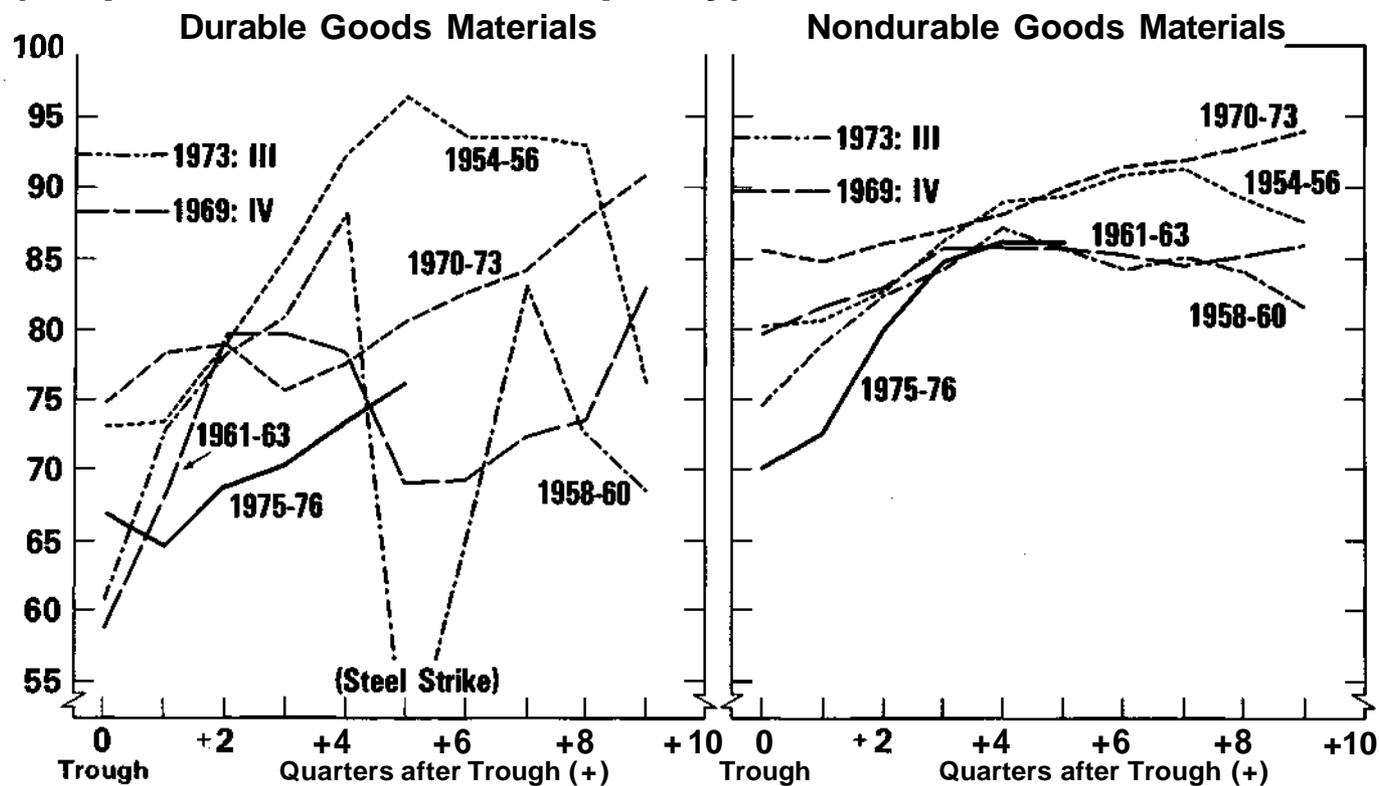
not necessarily a capital problem; a shortage of skilled labor can be a bottleneck, but recent bottleneck problems have been in capital-intensive industries such as steel, aluminum, basic chemicals, and paper. Typically, these industries operate on a 24-hour basis, so that the possibilities are limited for using capital more intensively in the short run by adding **shifts**. Because capital takes a long time to produce and install, next year's capacity in such an industry has already been determined by past investment decisions. **Thus**, the only way to avoid a bottleneck is to lower the demand for the product.

The Federal Reserve Board calculates measures of capacity utilization (output as a percent of capacity) for materials industries, based in part on physical quantity data. Chart 10 shows summary measures of capacity utilization for durable and nondurable goods materials during several recovery periods, and also shows peak utilization rates reached in 1969 and 1973. Durable goods materials include basic **metals**, building materials, and (from 1969 forward) other durable materials components of industrial production. Nondurable goods materials include **textiles**, paper, chemicals, and (from 1969 forward) other nondurable materials components of industrial production.

Utilization rates were at an extremely high level in mid-1973. Although unemployment rates indicated less pressure on the **economy's** capacity in 1973 than in 1969, major materials utilization **rates**, as Chart 10 **shows**, indicated more capacity pressure in 1973. The scramble for materials associated with the 1973 utilization rates played a role in the inflation of 1973-74--antedating the oil embargo and perhaps making the economy more vulnerable to it--and overordering of materials in the shortage period contributed to the huge destabilizing inventory swings of 1974-75.

As the chart also shows, utilization at the bottom of the 1975 recession was a record low for nondurable **goods** materials and near previous lows for durable goods materials. Since that time, however, utilization has recovered quite sharply in the nondurable materials industries, where the average utilization rate is about where it was at the same point in the previous **recoveries**. This increase in production of nondurable materials appears to have been caused by recent strength in consumption expenditures and by a

CHART 10
MATERIALS CAPACITY UTILIZATION IN FIVE RECOVERIES
(Output as a Percent of Capacity)



SOURCE: Data for 1969 to date--new Federal Reserve indexes of capacity utilization in materials industries. Data for earlier recoveries--Federal Reserve indexes of capacity utilization for major materials.

NOTE: The major materials indexes differ significantly in scope from the new materials indexes, but are roughly comparable with respect to the level of capacity utilization in 1969. Trough dates are the business cycle (reference) troughs designated by the National Bureau of Economic Research.

spectacular swing from a record rate of inventory liquidation in the second quarter of 1975 to a record rate of build-up of nondurable goods inventories in the first quarter of 1975. Durable materials utilization has increased somewhat less. The recovery in materials utilization contrasts with a rather modest improvement in the unemployment rate.

While recent utilization rates remain below levels indicating tight **supply--well** below, in the case of durable goods **materials--there** would certainly be reason for concern if capacity utilization increased as fast over the coming year as it has over the past year. In order to evaluate this possibility, CBO estimated future utilization rates implied by the CBO forecast for individual materials **industries**: metals, basic **chemicals**, paper, textiles, and petroleum refining. Output was estimated based on statistical relationships of output of the specific material to GNP final demand components, while future capacity changes were based on estimated additions to capacity reported by McGraw-Hill and other **sources**.

At the end of 1977, according to this forecast, only the paper and pulp industry will have reached the utilization rate of 1973. Textile utilization will approach its 1969 level, but remain below the 1973 level. This outlook is consistent with some shortages of particular materials but does not imply generalized, widespread shortages as in 1973-74.

A tight situation confined to the textile and paper industries is not likely to put a ceiling on general expansion. While the textile projection indicates operation close to capacity, shortages could be alleviated by substitution for the scarcest materials or by permitting increased **imports**. Paper output volume can be increased, at the cost of some relatively minor inconveniences to paper users, by producing fewer varieties of products. It can be expected that prices and profits will be above average for industries where output is pressing on capacity, and this would provide funds and incentives for further expansion of capacity in the longer run. Price increases of this nature--selective rather than **general--perform** the traditional task of guiding economic activity toward optimal resource allocation, and help stretch out the expansion rather than threatening to end it. Given the narrow range of materials industries where a tight capacity situation is forecast, it does not appear likely that these price

increases would set off a general inflation of materials prices (over and above the usual cyclical recovery of such prices). These price increases are consistent with CBO's overall price forecast.

A 7 percent rate of growth over the next year and a half, if produced by a more expansive fiscal and monetary policy than in CBO's baseline forecast, would increase the likelihood of metals shortages, since a principal estimated impact of the easier monetary policy would be to stimulate construction and other fixed investment. Increases in utilization rates would be relatively minor for the nondurable materials industries. If the same growth rate of 7 percent were composed of more inventory investment and less fixed investment, there might be a little less pressure on metals than in the high fixed investment path, but textiles would be pushed up to 1973 capacity utilization rates. In any case, to produce the generalized shortages of 1973 by the end of 1977 evidently would probably require growth in excess of 7 percent.

Potential bottlenecks are not confined to the major materials manufacturing sector. Information for most other areas is less precise, but serious constraints are not expected elsewhere during the forecast period. Electric utility capacity is expected to be adequate for recently reduced rates of growth in demand. Mining capacity should expand as a result of high rates of investment. However, industry spokesmen raise the possibility of shortages of iron ore if environmental restrictions result in closing of any major mining operations. According to Federal Reserve production indexes, oil and gas well drilling activity in the United States and offshore has declined in recent months, possibly because of price controls or the reduction in depletion allowances. The United States has become increasingly dependent on imported crude oil as the economy has recovered, raising the possibility of increased vulnerability to a new embargo or OPEC price increase.

Two aspects of the bottleneck problem that were important in 1973 are expected to be absent in 1976 and 1977. Whereas the major industrial countries were in a simultaneous boom in 1973, their recoveries are lagging behind the U.S. recovery now. This means that some shortages of domestic capacity could be met by imports. Iron and steel capacity in Europe and Japan is expected to increase even more than in the United States,

providing a source of supply for any excess **domestic** demand which might build up. Aluminum imports from other Western countries may be necessary to tide the United States over the next few years, when domestic aluminum may be in short supply.

Secondly, some observers believe that the inventory scramble of 1973, which magnified materials demand out of proportion to actual production **requirements**, was mainly a result of the expected end of price controls. With this factor absent, future inventory demand can be expected to be more **moderate**.

The Capital Stock and Labor Productivity

Rising productivity, or output per worker, is the main source of increases in living standards. Consequently, it is a cause for some concern that in recent-years productivity has been growing less rapidly than in the past. The evidence is difficult to interpret, and some part of the slower growth may be a statistical artifact rather than an actual change in trend. Enough of the slower growth is actual, however, to make it important to summarize what is known about causes and possible policy responses. Of special **interest** is the possible relation of investment spending, which determines additions to the stock of physical **capital**, to future productivity gains.

Causes of Lower Productivity Growth

The best statistical measures available indicate a marked slowdown in the growth of output per worker in the 1970s, as compared to the two previous decades. As Table 4 **shows**, average annual rates of productivity growth during the 1950s and 1960s clustered near the 2.5 to 3 percent range (after adjusting for the short-run **influences** of recessions and **recoveries**). For the first half of the 1970s, the estimated rate of growth is only 1 percent. Continued growth at a rate as low as 1 percent would mean less improvement in living standards than the United States has enjoyed during most of the period since World War II.

Some, but not all of the recent change in trend may be due to purely statistical problems. For one thing, the benefits of pollution **control**, to which this country has directed a growing fraction of its labor and capital resources in recent years, are not counted in total output. For another, output in the increasingly important service sector is measured less accurately than output of goods, and its rate of growth may well be **understated**.

Apart from statistical problems, it is difficult even to identify, let alone quantify, the major causes of the slowdown in productivity growth. The most that can be done is to list some of the contributing factors together with broad judgments as to their probable **importance**.

TABLE 4
PRODUCTIVITY GROWTH IN THE PRIVATE ECONOMY^a
(In Percentage Points)

<u>Time Period</u> ^b	<u>Average Annual Growth in Output Per Worker</u>	<u>Growth in Output Per Worker Due To:</u>	
		<u>More Capital Per Worker</u>	<u>Other Factors</u>
1950-55	3.2	1.2	2.0
1955-60	2.7	0.7	2.0
1960-65	2.7	0.7	2.0
1965-70	2.4	0.9	1.5
1970-75	1.0	0.4	0.6
1975-77 ^c	--	0.2	--

a. All figures in the table exclude estimated variations in productivity due to short-run output **fluctuations**.

b. Fourth quarter to fourth quarter.

c. Forecast,

Capital per Worker

One important element in the change of productivity trend is less growth in physical capital per worker, but the figures in Table 4 suggest that this factor is only a partial explanation. Other factors taken **together--** such as the shifting composition of demands, changes in the quality of skills of the labor force, and new **inventions--account** for more of the change than trends in capital per worker.

Nevertheless, capital per worker is an important enough factor to warrant close attention. Once again, a warning about statistical problems is necessary. Problems of measurement complicate discussions of the stock of capital at least as much as they do discussions of output per worker. But as best as can be inferred from available statistics, the slowdown since 1970 in the growth of capital per worker is **not** due to a slowdown in investment or in the growth of the capital stock **itself**, but rather to an acceleration of the growth in the number of **workers**. As Table 5 documents, the rate of private capital growth in the 1970-75 period was similar to the rate of capital accumulation in earlier **periods**. While below the wartime years of 1950-55 and 1965-70, private capital growth was about the same in 1970-75 as in 1955-65.

It is labor force **growth--a** consequence of the baby boom following World War II--**which** is the major source of low growth in capital per worker. The civilian labor force grew by 24 percent from 1965 to 1975, a substantial increase over the 15 percent growth from 1955 to 1965. Relatively rapid labor force increases **and** consequent relatively slow growth in capital per worker are expected to continue through 1977. Toward the end of the 1970s, however, labor force growth is likely to return to a lower trend, as the declining birth rates of past years begin to have an **influence**.

TABLE 5

GROWTH OF THE PRIVATE CAPITAL STOCK, 1950-77
(In Percentage Points)

<u>Time Period^a</u>	<u>Nonresidential Fixed Investment as a Percent of GOT</u>	<u>Annual Rate of Growth</u>	
		<u>Private Effective Capital Stock^b</u>	<u>Capital Per Worker</u>
1950-1955	9.1	4.5	3.6
1955-1960	9.1	3.1	2.1
1960-1965	9.2	3.2	2.2
1965-1970	10.4	4.3	2.6
1970-1975	10.1	3.3	1.6
1975-1977 ^c	9.5	2.5	1.0

SOURCES: Bureau of Economic Analysis; Data Resources, Inc.; and CBO forecasts.

a. Fourth quarter to fourth quarter.

b. Effective private capital stock includes nonresidential plant and equipment and excludes pollution abatement investment.

c. Forecast.

Trends in the capital-labor ratio vary greatly among **industries**. In **manufacturing**, recent growth in the ratio has matched its earlier trend. The growth rate declined in agriculture as **outmigration** from rural areas slowed. The main contributors to the overall change in trend were the service sectors, which have absorbed most of the recent increase in employment.

Investment in Pollution Abatement, Health, and Safety

The growing share of our resources devoted to investment in pollution control equipment and in meeting health and safety requirements has reduced the share devoted to other investment. The capital estimates in Tables 4 and 5 do not include investment devoted to pollution abatement. As mentioned earlier, however, the net effect of pollution requirements on productivity cannot be deduced from available statistics, since pollution abatement is not included in total measured **output**. To some extent, the same uncertainty is true of the effect of health and safety **requirements**.

Capital Replacement Requirements

Another important contributor to the slow projected growth of the capital stock is the rising proportion of investment necessary to replace worn-out or obsolescent plant and equipment. This increase is itself largely a product of the past growth of capital per worker, which has made depreciation a larger percentage of GNP currently than it was in the past. It is also influenced by the quadrupling of oil prices in 1973-75, which probably speeded the obsolescence of many **energy-intensive** production processes.

Low Profits

Also contributing to low growth in the **capital-labor** ratio is the falling share of profits in GNP. Low profits reduce funds available for investment and low **profitability** reduces business incentives to invest. From 1950 to 1970, corporate profits after taxes, adjusted by valuing depreciation at replacement cost and excluding inventory **profits**, were about 5.2 percent of GNP. In 1971-75, the average of this ratio fell to 3.9 percent. In part, the profit ratio declined because of inflation, which causes allowable depreciation for tax purposes to fall below replacement-cost depreciation and hence tends to raise profit taxes. Part of the decline was due to

the recession, and this portion will be remedied by sustained **expansion**.

All of the preceding discussion relates to slow growth in capital per worker, which is only one of the causes of the failure of productivity to grow as fast recently as in earlier decades. While other factors are more difficult to pinpoint, they deserve emphasis in any balanced view of the productivity problem.

Shifts in Output

A significant additional factor is the shift in output between high-productivity and low-productivity industries. Until 1970, a shift in the composition of output away from the agricultural sector was a source of measured productivity growth because productivity in agriculture was well below average (even though the growth rate for this productivity was above **average**). Since 1970, the shift out of agriculture has slowed, reducing this influence for higher productivity growth. To a lesser extent, a shift in demand **toward** the low-productivity service sectors has also held back overall productivity growth.

These shifts in output are typical of expanding, wealthy **nations**. Changes in productivity resulting from them are, in a sense, demanded as a byproduct of rising living standards in contrast to many of the other causes listed in this section.

Shifts in the Labor Force

Since 1966 the composition of the workforce has shifted toward groups with relatively little work **experience**. Teenagers (ages 16-19) were 8.6 percent of the workforce in 1966 and 9.5 percent in 1975. Women (aged 20 and over) comprised 32.2 percent of the workforce in 1966 and 35.6 percent in 1975. If wages for these workers are a reasonable measure of their **productivity**, then an increase in their relative importance in the labor force will lower the growth rate in output per worker, since women and teenagers earn about half as much as adult males. However, adjusting labor inputs for wage differences leads to little change in the overall slow-down of productivity growth. Calculations incorporating wage differences suggest that less than **one-fifth** of the decrease in the factor productivity growth rate is due to changes in composition of the workforce.

Spending on Research

Although it is difficult to make a quantitative estimate of the impact of research and development expenditures on productivity growth, it seems likely that it has been a minor factor in the productivity slowdown. Research and development expenditures did fall as a percent of **GNP**, from 3 percent in 1966 to 2.3 percent in the prerecession year of 1973. Even the 1973 ratio, however, was as high as the 1957 ratio and higher than averages based on the last few **decades**.

Educational Attainment

A final factor in the productivity slowdown is lower growth in educational attainment. Median years of schooling of the workforce (adjusted for age and sex composition) have been rising throughout the last several **decades**; but while educational attainment grew at 0.85 percent per year in the 1950-1966 period, it slowed to a growth rate of 0.71 percent per year between 1966 and 1975. While this reduction probably contributed to the productivity slowdown, it is not a big enough change to have been a major cause.

Policies Affecting Productivity

Improving productivity is not at present a major goal of national policy. There is, furthermore, no general agreement that it should become a major **goal**. To some extent recent trends in productivity are the result of shifting preferences of consumers and of errors in measurement. Few would argue that special steps are warranted to offset these influences.

There are, however, other influences on recent productivity trends whose effects might be offset in policies to improve productivity. These influences include the increasing share of investment required to replace worn-out and obsolescent capital stock, the increasing resources required to meet environmental and safety standards, the fall in the share of GNP going to after-tax profits, and the slowing of growth in educational **attainment**.

If productivity improvement does become a goal of national policies, then there is a wide range of approaches which could be adopted. Some of them would promote more business investment in plant and equipment. Others would

encourage more spending on research and development. Still others would stress improved education and training.

Business Investment

Business investment may revive during the present expansion without additional federal **stimulation**; in fact, projections in this report suggest that it will do so. But even rates of investment that make the ratio of business investment to GNP very high by historical standards will not bring increases in the capital-labor ratio up to levels attained before 1965 when labor force growth was much slower. According to the set of estimates given in Table 6, even a high ratio of nonresidential fixed investment to GNP would lead to a growth of output per worker due to increased capital of only about **0.6** percent per year through 1977, less than the 0.87 percent increase in output per worker due to growth of capital in the 1950-1970 period.

TABLE 6

ESTIMATES OF CONTRIBUTIONS TO OUTPUT PER
WORKER GROWTH FROM TWO DIFFERENT INVESTMENT PATHS
(First Quarter 1975 to Fourth Quarter 1977)

	Ratio of Nonresi- dential Fixed In- vestment to GNP ____(1972 dollars)	Contribution to Per-Worker Pro- ductivity from Capital-Labor Ratio Growth (percent per year)_____
Forecast Path	.095	0.2
High Investment Path	.108^a	0.6

a. This is the historical high for this ratio, attained in 1966.

While steps to encourage business investment cannot be expected to restore earlier growth rates in capital per **worker**, they can probably bring some improvement over recent trends. One aggregate policy for increasing business investment is a change in the "mix" of fiscal and monetary policy. More monetary expansion increases output and, through its immediate effect in lowering interest rates, at least temporarily increases the share of output devoted to investment. Tighter fiscal policy reduces output and, to the extent that it is accomplished through reductions in **federal purchases**, reduces the share of output absorbed by government. A combination of easier money and a tighter budget can be devised so as to keep output on the same expansion path but shift the composition of output in favor of investment and away from government spending and consumption.

However, evidence from econometric models of the economy indicates that moves toward tighter fiscal and easier monetary policy are relatively weak in affecting nonresidential fixed investment. Total investment will benefit, but much of the overall investment stimulus produced by these changes goes to housing rather than plant and **equipment**.

Tax incentives designed to reduce the cost of capital to businesses can be targeted more narrowly toward business investment than aggregate fiscal or monetary policies. Two tax incentives that are currently in place are the investment tax credit (**ITC**) and asset depreciation range (**ADR**), both designed to decrease the tax liability of businesses that engage in more investment. In fiscal year 1977, tax expenditures on (*i.e.*, revenue lost because of) the ITC as it is currently enacted are estimated to be \$7.6 billion, while tax expenditures on the ADR are estimated at \$1.6 billion. Although it is clear that increased tax expenditures for the ITC and ADR would increase rather than decrease **investment**, it is hard to know how much additional investment would be obtained per dollar of revenue lost.

Research and Development

Research and development spending is probably not a major cause of the recent productivity **slowdown**. Nevertheless, steps to encourage more research, such as the granting of broader patent rights or changes in the tax treatment of research, could offset some of the other factors at work and lead to improvement in productivity.

Education and Training

Similarly, even if slower growth in educational attainment is not a major cause of low productivity growth, steps to encourage the development of specific, scarce skills could help to **offset** other forces which have been retarding productivity **growth**. Programs to reverse the downward trend in **reading** and calculation attainment levels of high school graduates might also make the workforce more productive.

These alternative **approaches**, of course, are not mutually exclusive. A joint approach to increase both human and physical capital might be an effective strategy for increasing **productivity**. Investments in physical capital, human capital, and technological improvements must all be considered when determining the most **efficient** way to increase further output.

O