I. NOTE ON ECONOMIC ASSUMPTIONS AND SENSITIVITIES

ECONOMIC OUTLOOK

Introduction

November marked the seventh anniversary of this expansion—the longest peacetime period of continuous growth in our Nation's history and the second longest of all time. The only longer expansion ran for just under nine years, but it was prolonged by the Vietnam War. As it begins its eighth year, this expansion has the potential to become the longest.

Monetary and fiscal policies are focused on the goal of promoting economic growth while progressively reducing inflation. On the fiscal side, this budget emphasizes policies that promote long-term growth through higher productivity. As the title of Part III in Section One states, the Administration is committed to "Investing in the Future" through policies that will boost saving, increase investment in a broad sense that includes research and development, human capital and physical capital, and—most importantly—bring the deficit down.

Table I-1. **ECONOMIC ASSUMPTIONS**

(Calendar years; dollar amounts in billions)

	Actual 1988	Assumptions						
		1989 [5]	1990	1991	1992	1993	1994	1995
Major economic indicators:								
Gross national product, percent change, fourth quarter over fourth quarter:								
Current dollars	7.5	6.7	7.0	7.6	7.1	6.7	6.3	6.0
Constant (1982) dollars	3.4	2.7	2.6	3.3	3.2	3.1	3.0	3.0
GNP deflator (percent change, fourth quarter over fourth quarter)	4.0	4.0	4.2	4.1	3.8	3.5	3.2	2.9
Consumer Price Index (percent change, fourth quarter over fourth quarter) [1]	4.2	4.4	4.1	4.0	3.8	3.5	3.2	2.9
Unemployment rate (percent, fourth quarter) [2]	5.3	5.3	5.4	5.2	5.2	5.1	5.0	5.0
Annual economic assumptions:								
Gross national product:								
Current dollars:								
Amount	4,881	5,236	5,583	6,002	6,439	6,881	7,324	7,771
Percent change, year over year	7.9	7.3	6.6	7.5	7.3	6.9	6.4	6.1
Constant (1982) dollars:								
Amount	4,024	4,144	4,244	4,379	4,521	4,662	4,804	4,948
Percent change, year over year	4.4	3.0	2.4	3.2	3.2	3.1	3.0	3.0
Incomes:								
Personal income	4,064	4,424	4,701	5,039	5,384	5,730	6,079	6,429
Wages and salaries	2,429	2,626	2,805	3,022	3,246	3,469	3,686	3,904
Corporate profits before tax	307	303	360	421	472	515	548	579
Price level:								
GNP deflator:								
Level (1982 = 100), annual average	121.3	126.4	131.6	137.1	142.4	147.6	152.5	157.1
Percent change, year over year	3.3	4.2	4.1	4.2	3.9	3.6	3.3	3.0
Consumer Price Index: [1]								
Level (1982–84 = 100), annual average	117.0	122.6	127.3	132.5	137.6	142.6	147.3	151.7
Percent change, year over year	4.0	4.8	3.9	4.0	3.9	3.6	3.3	3.0
Unemployment rates:								
Total, annual average [2]	5.4	5.2	5.4	5.3	5.2	5.1	5.0	5.0
Insured, annual average [3]	2.1	2.1	2.2	2.1	2.0	1.9	1.9	1.8
Federal pay raises, January (percent)	2.0	4.1	3.6	3.5	4.0	3.7	3.4	3.1
Interest rates (percent):								
91-day Treasury bills [4]	6.7	8.1	6.7	5.4	5.3	5.0	4.7	4.4
10-year Treasury notes	8.8	8.5	7.7	6.8	6.3	6.0	5.7	5.4

[1] CPI for urban wage earners and clerical workers. Two versions of the CPI are now published. The index shown here is that currently used, as required by law, in calculating automatic cost-of-living increases for indexed Federal programs.
[2] Percent of total labor force, including armed forces residing in the U.S.
[3] Unemployment under State regular unemployment insurance as a percentage of covered employment under that program; does not include recipients of extended benefits under that program.
[4] Average rate on new issues within period, on a bank discount basis. These projections assume, by convention, that interest rates decline with the rate of inflation.
[5] Based on data available as of mid-November 1989.

Recent Developments

Although the economy continued to expand during 1989, creating more new jobs in each month, the pace of expansion was considerably slower than during the prior two years. By late spring it became evident that inflationary pressures were abating and that the slowdown might become more pronounced. Accordingly, the Federal Reserve began easing monetary policy. By year-end, Treasury bill rates had fallen by 2 percentage points from their peaks in March, slightly more than long-term rates, and the yield curve had resumed a slightly positive slope indicating an easier monetary policy.

There is, of course, a considerable time lag between shifts in policy and their effects on economic activity. As a result, real growth remained subdued during the second half of 1989 with job creation in the service sector offsetting weakness in manufacturing. The unemployment rate in the fourth quarter, 5.3 percent, was not much different than that during the prior nine months. For the year as a whole, the rate was the lowest in 16 years.

Economic Assumptions

The July Mid-Session Review contained the Administration's first systematic assessment of the economic outlook. It projected continued moderate growth in the second half of the year accompanied by declining inflation and lower interest rates. That forecast was more optimistic than those of most private forecasters. As events unfolded, the Administration's projection turned out to be very close to the actual outcome.

The Administration's economic assumptions, developed jointly by the Council of Economic Advisers, the Treasury and the Office of Management and Budget, show real growth and inflation in 1990 continuing at about the same rates as during 1989. Strengthening consumer spending and an upturn in residential construction are expected to provide most of the impetus to growth, offsetting a smaller improvement in foreign trade, a slower growth of business fixed investment and restraint in Federal purchases of goods and services.

In the following years, real growth is assumed to rise at slightly above 3 percent on average, which would lower the unemployment rate to 5 percent by 1994. Inflation and interest rates are also projected to decline progressively during the next five years so that real interest rates return to near their historical levels. This combination of growth, inflation, and interest rate developments is predicated upon the assumption that the Federal deficit is reduced in line with the Gramm-Rudman-Hollings targets, and that the Federal Reserve pursues a policy of promoting economic growth while continuing toward its long-term goal of price stability.

Impact of Changes on the Deficit

Recent economic developments and changes in the economic assumptions for 1990–94 have a noticeable impact on the budget deficit. As shown in the following table, on balance changes from the Mid-Session assumptions raise the 1990 deficit by $11.3 billion but lower it beginning in 1991. By 1994, these changes reduce the deficit by $11.7 billion. Estimated 1990 receipts are adversely affected by the recent shortfall in corporate profits, exacerbated by write-offs of damage from Hurricane Hugo and the California earthquake. In 1992–1994, slightly higher inflation adds to receipts without adding commensurately to outlays, because discretionary program outlays (on a policy basis) are not adjusted for the slight difference in inflation.

Table I–2. **COMPARISON OF MID-SESSION REVIEW AND CURRENT ECONOMIC ASSUMPTIONS**

(Calendar years; dollar amounts in billions)

	1989	1990	1991	1992	1993	1994
Nominal GNP:						
Mid-Session assumptions [1]	5,241	5,589	5,990	6,408	6,828	7,248
1991 budget assumptions	5,236	5,583	6,002	6,439	6,881	7,324
Real GNP (percent change): [2]						
Mid-Session assumptions [1]	2.6	2.6	3.3	3.2	3.1	3.0
1991 budget assumptions	2.7	2.6	3.3	3.2	3.1	3.0
GNP deflator (percent change): [2]						
Mid-Session assumptions [1]	4.3	4.1	3.8	3.5	3.2	2.9
1991 budget assumptions	4.0	4.2	4.1	3.8	3.5	3.2
Interest rate on 91-day Treasury bills (percent):						
Mid-Session assumptions	8.0	6.7	5.3	5.0	4.7	4.4
1991 budget assumptions	8.1	6.7	5.4	5.3	5.0	4.7
Unemployment rate (percent):						
Mid-Session assumptions	5.2	5.4	5.3	5.2	5.1	5.0
1991 budget assumptions	5.2	5.4	5.3	5.2	5.1	5.0

[1] Adjusted for July 1989 revisions. [2] Fourth quarter to fourth quarter.

Table I–3. **EFFECTS ON THE BUDGET OF CHANGES IN ECONOMIC ASSUMPTIONS SINCE THE MID-SESSION REVIEW**

(In billions of dollars)

	1990	1991	1992	1993	1994
Budget totals under Mid-Session economic assumptions and 1991 budget policies:					
Receipts	1,085.1	1,169.6	1,237.5	1,315.4	1,393.0
Outlays	1,197.4	1,233.5	1,270.7	1,319.6	1,394.1
Deficit (−)	−112.3	−63.9	−33.2	−4.2	−1.1
Changes due to economic assumptions:					
Receipts	−11.6	0.6	8.9	12.2	15.6
Outlays:					
Inflation	−0.7	−1.4	−1.1	−0.4	1.1
Unemployment	0.0	0.0	0.0	0.0	0.0
Interest rates	0.1	0.2	1.3	2.7	3.6
Interest on changes in borrowing	0.4	1.0	0.5	−0.1	−0.8
Total, outlays	−0.2	−0.2	0.7	2.2	3.9
Decrease in deficit (−)	11.3	−0.8	−8.2	−10.1	−11.7
Budget totals under 1991 budget economic assumptions and policies:					
Receipts	1,073.5	1,170.2	1,246.4	1,327.6	1,408.6
Outlays	1,197.2	1,233.3	1,271.4	1,321.8	1,398.0
Deficit (−)	−123.8	−63.1	−25.1	5.7	10.7

Impact of the Budget on Competitiveness

As required by the Omnibus Trade and Competitiveness Act of 1988, the following table shows a range of estimates for a number of important economic variables related to saving, investment and foreign trade. In contrast to the past few years when the foreign sector made a signficant contribution to real growth, the merchandise trade and current account deficits are expected to improve much less over the next 2 years. The rise

of the dollar during 1988–89, following three years of sharp decline, suggests that it will take some time before the foreign sector again becomes the leading edge of the expansion.

Table I-4. **PROJECTIONS OF SAVING, INVESTMENT, AND TRADE**

(In billions of dollars)

	1989 actual	1991 estimates
Net domestic saving (excluding Federal saving) [1]	297	300 to 330
Net private domestic investment	228	305 to 335
Net foreign investment	−104	−110 to −80
Merchandise trade balance	−115	−120 to −90
Current account balance	−114	−125 to −95

[1] Defined for purposes of Public Law 100–418 as the sum of private saving and the surpluses of State and local governments. All series are based on National Income and Product Accounts except for the current account.

It is difficult to gauge the effect of Federal Government borrowing from the public on interest rates and exchange rates. Both are influenced by many factors besides Government borrowing in a complicated process involving supply and demand of credit and public perceptions of fiscal and monetary policy here and abroad. Nonetheless, the projected decline in interest rates is consistent with the reduction in Government borrowing proposed in the budget and the Federal Reserve's commitment to achieve a gradual reduction in the rate of inflation. The proposals in this budget are not expected to exert a substantial independent influence on exchange rates.

Budget Outlook Under Alternative Assumptions

Because there is considerable uncertainty surrounding any economic projection, it is useful to consider how the budget deficit would be affected if economic performance differed—as it almost certainly will—from that underlying the budget. Two such alternatives are examined in this section.

Table I-5. **ALTERNATIVE ECONOMIC ASSUMPTIONS**

(Calendar years)

	1990	1991	1992	1993	1994	1995
Percent increase, fourth quarter over fourth quarter:						
Real GNP:						
Budget assumptions	2.6	3.3	3.2	3.1	3.0	3.0
Higher growth	3.0	3.4	3.2	3.2	3.2	3.2
Lower growth	1.9	3.0	2.7	2.7	2.7	2.7
GNP deflator:						
Budget assumptions	4.2	4.1	3.8	3.5	3.2	2.9
Higher growth	4.4	4.3	4.1	4.0	3.9	3.8
Lower growth	4.0	4.1	4.0	3.8	3.6	3.5
Total unemployment rate: [1]						
Budget assumptions	5.4	5.3	5.2	5.1	5.0	5.0
Higher growth	5.1	5.0	5.0	5.0	5.0	5.0
Lower growth	5.6	5.4	5.3	5.2	5.2	5.1
91-day Treasury bill rate: [1]						
Budget assumptions	6.7	5.4	5.3	5.0	4.7	4.4
Higher growth	6.9	5.7	5.6	5.5	5.4	5.3
Lower growth	6.5	5.5	5.5	5.3	5.1	5.0

[1] Annual average, percent.

The "higher growth" alternative assumes an average annual rise in real GNP of 3.2 percent through 1995. Inflation and interest rates are also assumed to be higher than in the budget assumptions. The "lower growth" alternative assumes an annual average growth rate of 2.6 percent. Inflation and interest rates are above those in the budget during much of the forecast period but are below those in the high growth scenario.

The high growth path results in a 1991 deficit that is $8.5 billion lower than that produced with the Administration's economic assumptions. By 1995, the difference widens to $22.2 billion. Faster real growth and higher inflation raise receipts considerably more than the increase in outlays due to higher inflation and interest rates.

The lower growth path results in a 1991 deficit that is $14.4 billion larger than the Administration's, rising to $51.8 billion by 1995. Lower growth reduces receipts substantially, more than offsetting the boost to receipts from higher inflation. By 1995, receipts in this scenario are estimated to be $29.3 billion below those in the budget. Outlays by that time would be $22.5 billion higher than in the budget due to the higher inflation and interest rates.

Table I-6. **BUDGET EFFECTS OF ALTERNATIVE ASSUMPTIONS**

(Differences from budget; in billions of dollars)

	1990	1991	1992	1993	1994	1995
Higher growth:						
Receipts	4.3	9.3	12.3	18.3	30.2	47.6
Outlays	−1.0	0.8	4.1	8.9	16.2	25.4
Deficit reduction (−)	−5.3	−8.5	−8.2	−9.4	−14.0	−22.2
Lower growth:						
Receipts	−5.3	−14.9	−21.5	−26.4	−29.4	−29.3
Outlays	0.0	−0.5	1.8	6.5	14.2	22.5
Deficit increase (+)	5.3	14.4	23.3	32.9	43.6	51.8

Sensitivity of the Budget to Economic Assumptions

Both receipts and outlays are powerfully affected by changes in economic conditions. This sensitivity seriously complicates budget planning because errors in economic forecasting lead to errors in the budget forecast. The budgetary effects of changes in economic assumptions are fairly predictable, however, and a set of rules of thumb embodying these relationships can be used to estimate how various changes in the economic forecast would alter outlays, receipts, and the deficit. The following table summarizes these rules of thumb.

Economic variables that affect the budget do not change independently of one another. Output and employment tend to move together in the short run: a higher rate of real GNP growth is associated with a declining rate of unemployment; weak or negative growth is associated with rising unemployment. In the long run, however, changes in the average rate of growth in real GNP result largely from changes in the rate of growth of productivity and population, and are not necessarily associated with changes in the average rate of unemployment. Inflation and interest rates are also closely interrelated: a higher expected rate of inflation increases interest rates while lower expected inflation reduces rates. Changes in real GNP growth or inflation have a much greater cumulative effect on the budget over time if they are sustained for several years than if they occur for only one year.

The table shows that if real GNP growth is lower by one percentage point in calendar 1990 only, and the unemployment rate rises by one-half percentage point, 1990 receipts will be lower by $4.9 billion, and 1990 outlays will be higher by $0.7 billion, primarily for unemployment-sensitive programs. In 1991, receipts would decline further, by $10.7 billion, and outlays would increase by $3.5 billion, compared with the base, even though the growth rate in calendar year 1991 followed the path originally assumed. This is because the level of real (and nominal) GNP would be permanently lower, and unemployment higher. The budget effects would grow slightly in future years.

The budget effects are much larger if the real growth rate is assumed to be one percentage point less in each year and the unemployment rate rises one-half point in each year. The levels of real and nominal GNP then are below the base case by a cumulatively growing percentage and the unemployment rate steadily rises compared with the base case. The deficit is $111 billion higher than under the base case by 1995.

The effects of slower productivity growth are shown in a third example where real growth is one percentage point lower per year, while the unemployment rate is unchanged. In this case, the estimated budget effects mount steadily over the years, but more slowly, reaching a $98 billion deficit add-on by 1995.

Joint changes in interest rates and inflation have a smaller effect on the deficit than equal percentage point changes in real GNP, because their effects on receipts and outlays are substantially offsetting. An example is the effect of a one percentage point higher rate of inflation and one percentage point higher interest rates during calendar year 1990 only. In subsequent years, the price level and nominal GNP are one percent higher than in the base case, but interest rates return to their base levels. Outlays for 1990 would rise by $3.5 billion and receipts by $5.4 billion, for a net decrease of $1.9 billion in the 1990 deficit. In 1991, outlays would

Table I–7. **SENSITIVITY OF THE BUDGET TO ECONOMIC ASSUMPTIONS**

(In billions of dollars)

Budget effect	1990	1991	1992	1993	1994	1995
REAL GROWTH AND EMPLOYMENT						
Effects of 1 percent lower real GNP growth in calendar year 1990 only, including higher unemployment: [1]						
Receipts	−4.9	−10.7	−12.9	−13.5	−14.2	−14.8
Outlays	0.7	3.5	4.4	5.4	6.7	7.9
Deficit increase (+)	5.6	14.2	17.3	18.9	20.9	22.7
Effects of a sustained 1 percent lower annual real GNP growth rate during 1990–1995, including higher unemployment: [1]						
Receipts	−4.9	−16.1	−29.6	−44.5	−61.0	−78.5
Outlays	0.7	6.5	10.9	16.8	24.1	32.5
Deficit increase (+)	5.6	22.6	40.5	61.3	85.1	111.0
Effects of a sustained 1 percent lower annual real GNP growth rate during 1990–1995, with no change in unemployment:						
Receipts	−4.9	−16.5	−31.0	−47.1	−65.1	−84.4
Outlays	0.2	1.1	2.8	5.4	9.2	13.8
Deficit increase (+)	5.1	17.6	33.8	52.5	74.3	98.2
INFLATION AND INTEREST RATES						
Effects of 1 percentage point higher rate of inflation and interest rates during calendar year 1990 only:						
Receipts	5.4	11.3	12.0	12.2	12.9	13.4
Outlays	3.5	10.9	10.9	10.7	10.9	10.0
Deficit increase (+)	−1.9	−0.4	−1.1	−1.5	−2.0	−3.4
Effects of a sustained 1 percentage point higher rate of inflation and interest rates during 1990–1995:						
Receipts	5.4	17.5	31.0	45.2	61.4	79.3
Outlays	3.5	14.9	26.4	38.0	49.3	60.4
Deficit increase (+)	−1.9	−2.6	−4.6	−7.2	−12.1	−18.9
Effects of a sustained 1 percentage point higher interest rate during 1990–1995 (no inflation change):						
Receipts	0.7	1.6	2.0	2.2	2.4	2.6
Outlays	3.3	9.2	12.7	15.0	16.7	17.4
Deficit increase (+)	2.6	7.6	10.7	12.8	14.3	14.8
Effects of a sustained 1 percentage point higher rate of inflation during 1990–1995 (no interest rate change):						
Receipts	4.7	15.9	29.0	43.0	59.0	76.7
Outlays	0.2	5.7	13.7	23.0	32.6	43.0
Deficit increase (+)	−4.5	−10.2	−15.3	−20.0	−26.4	−33.7
INTEREST COST OF HIGHER FEDERAL BORROWING						
Effect of $100 billion additional borrowing during 1990	3.5	8.0	8.3	8.5	8.8	8.9
FEDERAL PAY RAISES						
Outlay effect of a 1 percentage point increase in January 1991	0.0	0.8	1.1	1.2	1.3	1.3

[1] The unemployment rate is assumed to be 0.5 percentage point higher per 1 percent shortfall in the level of real GNP.

increase further above the base, by $10.9 billion, due in part to lagged cost-of-living adjustments: the increase in receipts would rise to $11.3 billion, for a net $0.4 billion decrease in the deficit. In subsequent years, the amounts added to receipts would be slightly larger than the additions to outlays. The annual add-on to receipts would rise slightly over time, while the add-on to outlays would decline.

If the rate of inflation and the level of interest rates are higher by one percentage point in all years, the price level and nominal GNP rise by a cumulatively growing percentage above their base levels. In this case, the effects on receipts and outlays mount steadily in successive years, adding $60.4 billion to outlays and $79.3 billion to receipts in 1995, for a net reduction in the deficit of $18.9 billion. These estimates assume that budget authority for discretionary programs and Federal pay are adjusted for the rising price level.

The table also shows the interest rate and the inflation effects separately, and rules of thumb for the added interest cost associated with higher or lower deficits (increased or reduced borrowing) and changes in Federal pay rates.

The effects of changes in economic assumptions in the opposite direction are approximately symmetric to those shown in the table. The impact of a one percentage point lower rate of inflation or higher real growth would be of about the same magnitude, but with the opposite sign.

These rules of thumb hold the income share composition of GNP constant. Because different income components are subject to different taxes and tax rates, estimates of total receipts can be affected significantly by changing income shares. These relationships are too complex, however, to reduce to simple rules.