

**THE FEDERAL DEFICIT  
IN THE LONGER RUN**

Robert E. Hall

Hoover Institution and Department of Economics  
Stanford University

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## SUMMARY

Current policy will not bring a federal deficit of unlimited size in later years. Rather, if tax rates are kept at their current levels and spending continues on expected paths, the deficit will reach its peak in terms of current dollars in 1989. During the 1990s, it will gradually subside.

A more relevant measure is the ratio of the deficit to GNP. That ratio is at its maximum value of 4.6 percent in the current fiscal year. It will decline toward 1.5 percent during the 1990s. The decline will occur because income tax revenue tends to grow faster than GNP while federal spending grows less than GNP. The projected rise in interest spending will not be large enough to offset the basic growth in income tax revenue.

Continuing deficits will raise the national debt. As a percent of GNP, the debt will rise from its current level of 36 percent to 47 percent in 1993. Thereafter, it will decline to 41 percent in the year 2000. The debt will always remain far below its level just after World War II when it was over 100 percent of GNP.

## THE FEDERAL DEFICIT IN THE LONGER RUN

Realistic projections of the federal budget show a deficit growing from about \$175 billion in fiscal year 1985 to at least \$250 billion in FY 1989. Most economists believe that something has to be done to move toward balance, even if they do not subscribe to theories that attribute great immediate harm to the economy from large deficits. At a minimum, most would agree, federal solvency is threatened because the deficit will grow without bound unless taxes are increased or spending cut. Deficits feed on themselves because the interest cost of the growing national debt widens the deficit each year. Without corrective action, the deficit in FY 1995 will be \$500 billion or more, most economists probably believe.

My point here is that under present policies the deficit will not grow without bound. On the contrary, it will probably reach its worst level in 1989 and then begin to subside. By the 1990s, the deficit will be small enough so that the federal debt will be shrinking as a fraction of GNP. The economy will not be swallowed by federal debt in the interim. The ratio of debt to GNP will rise from its current level of 36 percent to almost 47

percent in 1993, and then will decline back to 41 percent by 2000. For comparison, the debt was over 100 percent of GNP in 1946.

The basic reason that the deficit will not overwhelm the economy is that income tax revenue tends to grow faster than federal spending. This fact, which used to be a matter of concern to economists who spoke of "fiscal drag," has generally been overlooked in discussions of the future of the deficit. Even with partial inflation indexation of the income tax, its progressivity will bring revenue growth in excess of income growth. And a review of spending plans as they currently exist, based on the conservative projections of the Congressional Budget Office, suggest that the next fifteen years will not depart from the general rule that spending grows no faster than GNP.

I do not take a stand here on the question of the optimality of a fiscal policy that spends now and taxes later. Probably a more efficient policy would raise tax rates today and then gradually lower them over future years; this would be a continuation of long-standing historical policy. Gradual reduction of statutory rates keeps effective marginal rates close to constant over time. Constancy of marginal rates is probably a characteristic of an optimal fiscal policy, although this conclusion depends on some subtle considerations.

This paper is purely a descriptive exercise in economics and politics. With respect to spending, I am not recommending any package of spending controls; rather, I am guessing about what decisions would actually be made by Congress and the President under a general policy of steady-as-you-go. On revenue, I am not making forecasts conditional on my beliefs about how the tax system should be reformed. In both cases, I am making unconditional forecasts about policy actions as well as economic performance. In this respect, my projections differ both from those of the Congressional Budget Office, which assumes the continuation of existing legislation, and the Office of Management and Budget, which assumes the adoption of the President's recommendations. However, in order not to confuse the message of the paper, I have adopted the conservative economic projections of the CBO exactly. Except for small differences in excise tax revenue, my projections of the deficit agree with those of the CBO through the last year of its projection, 1989.

My first step is to break down the unified budget into two parts: social security and everything else. I treat social security on a net basis; its own surplus of contributions over benefits goes directly into the estimated surplus. Decisions about social security taxes and benefits are made jointly and

typically have aimed for a surplus. However, my realistic projection is that the entire social security system, including Medicare, will run on a pay-as-you-go basis through the year 2000.

For spending other than social security benefits, I look at three categories: Defense, interest, and all other spending. For revenue other than social insurance contributions, I look at the personal income tax, the corporate income tax, customs, excise taxes, estate and gift taxes, and miscellaneous revenue.

#### Defense spending

The concept of defense spending I will use includes veterans' benefits as well as the standard defense category. I should note that the budget now treats military retirement on an accrual basis, which differs a little from earlier data on a cash basis. Figure 1 shows the history of U.S. defense spending since 1948. Spending reached its overall peak of almost 16 percent of GNP in the last year of the Korean War. It reached a lower peak of 10.7 percent at the height of the Viet Nam war in 1968. As a general matter, defense spending rose rapidly during the two wars and declined slowly after each of them. The past four years constitute a slight exception; defense spending has risen by about one percentage point of GNP since 1980.

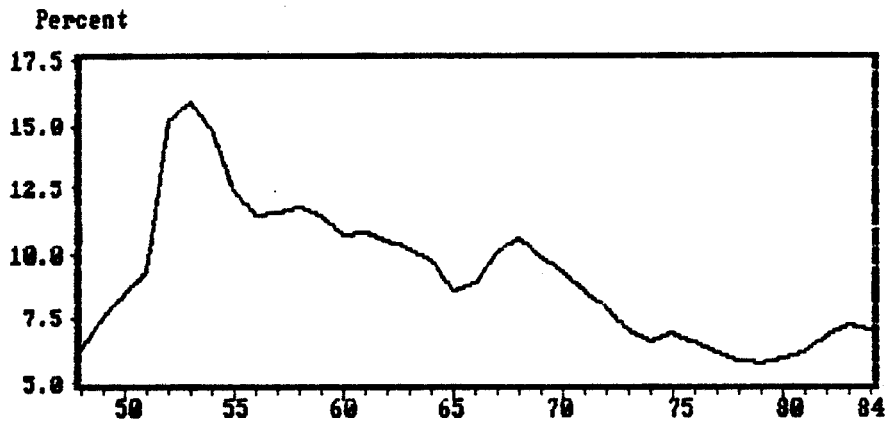


Figure 1. Defense spending as a percentage of GNP

The CBO foresees a continuation of the modest increase in defense spending, to about 7.9 percent of GNP in 1989. Though there is no historical precedent for such a long peacetime rise in military spending, I have adopted the CBO projection through 1989. However, I see no basis for projecting a continuation of the upward trend; in fact, I have assumed a slight slippage to 7.5 percent of GNP as a permanent level starting in 1990. Obviously I am assuming the absence of any military activities of the Viet Nam scale, much less a major war.



## Interest

Interest on the national debt will be a growing fraction of the budget for the next five years, as large deficits make the debt grow relative to GNP. Computation of the interest on the debt is a complicated task if done in complete detail. I have adopted the following approach to reproducing and extending the CBO calculations (which treat the problem in full detail): First, I computed the effective interest rate implicit in the CBO projections for 1985 through 1989, as the ratio of net interest to debt in the hands of the public. This calculation takes account of projected interest rates on federal debt, of the term structure of the debt, and of certain details concerning the operation of the Federal Financing Bank. The effective interest rate is in the narrow range from 9.7 to 10.2 percent over the years from 1985 through 1989. I assume that it will remain at 9.7 percent from 1990 through 2000.

The second step in computing interest is to project the debt arising from the off-budget deficit, as the interest on this debt is included in the budget. According to the CBO, the off-budget deficit will run very close to 0.3 percent of GNP for 1985-89, so I assumed it would remain at that level through 2000. The off-budget deficit results from the expansion of the lending of the Federal Financing Bank and from the accumulation of the Strategic

## Petroleum Reserve.

Net interest cost in the budget is then computed by updating the amount of the national debt by the amount of the deficit in the preceding year and multiplying the result by the effective interest rate. This procedure reproduces the interest calculation in the CBO projections exactly for the years 1985-89 and extends the calculation on the same conceptual basis for the later years.

## Other spending

Figure 2 shows the history of non-defense, non-interest, non-social security spending as a percent of GNP since 1948. From around 3 percent of GNP after the Korean War, it rose steadily to about 6.5 percent in the early 1970s. Then it spurted upward during the deep recession of 1975 to around 8 percent of GNP. In the early 1980s, it fell a little, to about 7.5 percent of GNP, as the resolution of the conflicting forces of sharp budget-cutting and another deep recession. With the recovery in 1984, it fell sharply to 6.6 percent of GNP.

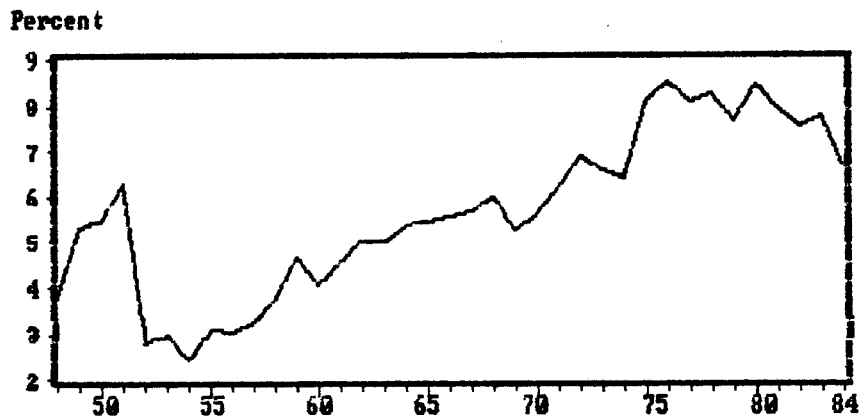


Figure 2. Non-defense, non-interest, non-social security spending as a percent of GNP.

The CBO foresees a continuation of the decline of non-defense, non-interest, non-social security outlays to 5.9 percent of GNP in 1989. This would restore it to its level at the beginning of the 1970s and would represent modest growth in real, per capita terms. I project the continuation of low real growth and shrinkage as a fraction of GNP, to 4.75 percent in 1995. I assume that it will remain at that level for the rest of the decade.

## Social security

Official projections for the retirement and disability programs of social security call for the accumulation of a large surplus in the late 1980s and 1990s. Such a surplus would contribute to a reduction in the unified budget deficit. However, Medicare is not included in those projections and, under current policy, will probably generate a deficit about equal to the retirement-disability surplus. According to experts, it is a reasonable forecast that Medicare will borrow from the retirement-disability trust fund, and the social security system as a whole will run on a pay-as-you-go basis. Both the level of benefits and the amount of revenue for social security are hard to estimate, but the difference seems very likely to be small. Accordingly, I have removed social security from both spending and revenue, except for a minor adjustment for the reporting conventions of the CBO.

The CBO lumps together all social insurance taxes in a single category. In order to keep the unemployment tax revenue in my projections, I have entered the difference between all social insurance taxes and social security benefits as a revenue item. In the CBO projections for 1985-89, the revenue is between 0.27 and 0.45 percent of GNP. For the later years, I have assumed that it will be constant at 0.35 percent of GNP. Note

that the inclusion of this item makes my projections numerically identical to the CBO's for the years 1985-89, so far as social security is concerned. I have simply subtracted their spending projection from both outlays and revenue, leaving the deficit unchanged.

### The personal income tax

Figure 3 shows the history of the revenue of the personal income tax since 1948 and includes the CBO's projections through 1989. In general, revenue from the tax rises gradually during periods of no important changes in tax rates. Such periods include 1955-63, 1965-68, 1971-80, and 1984-89. Overall growth has been lower because of occasional, discrete tax rate cuts. My notion of steady-as-you-go excludes another major cut, just as it excludes a tax rate increase. Therefore, I project a continuation of the rising revenue from the personal income tax during the 1990s. I assume that the partial inflation indexation of the tax will continue to operate throughout the period, so the rate of increase projected by the CBO should continue to occur. Repeal of indexation would make the revenue rise faster as a fraction of GNP. I foresee an increase in revenue from 9.4 percent of GNP in 1990 to 10.8 percent in 2000.

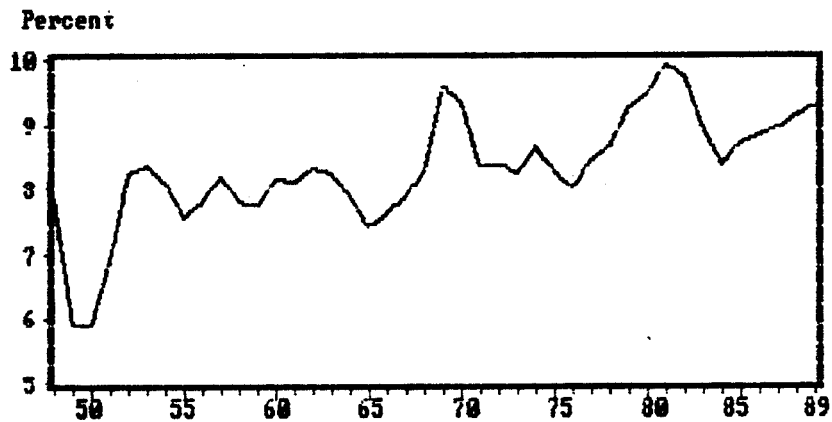


Figure 3. Revenue from the personal income tax as a percent of GNP.

The corporation income tax

The investment incentives added to the corporation tax in the 1960s and in 1981 have depressed its revenue to well under 2 percent of GNP. The CBO foresees a slight increase in corporate tax revenue to 1.8 percent of GNP. My projections hold revenue at this level for the 1990s.

## Excise taxes

The history of excise revenue is just the opposite of the personal income tax. Because of specific taxes fixed in dollar terms, revenue tends to decline over time unless new legislation takes effect. There has also been a general pattern of decline in spite of occasional upticks. In 1948, excises were over 3 percent of GNP as against 1 percent in 1984. The CBO projects sharp declines in excise revenue in the next five years as temporary excises are allowed to expire. The conceptual basis of the CBO projection requires the assumption that excises will not be extended by Congress. However, recent history, the popularity of the concept of consumption taxation, and the perceived need to raise more revenue all make it seem more realistic that excise revenue will be stabilized at its current level. My notion of the continuation of current policy seems most consistent with holding excise revenue at 1 percent of GNP. My treatment of excise revenue is the only important difference between my projections and the CBO's for the period 1985-89, and it only becomes important in the last two years.

### Other revenue

The CBO projects that customs revenue will be roughly 0.3 percent of GNP from 1985-89, and I have extended their projection to the 1990s at that level.

Non-tax revenue, mainly the earnings of the Federal Reserve, will decline from 0.43 percent of GNP in 1985 to 0.37 in 1989, according to the CBO. I foresee a continuation of that decline, thanks to lower interest rates and higher velocity of money, to 0.20 percent in 2000.

The CBO puts estate and gift tax revenue at 0.15 percent of GNP in 1985, declining to 0.09 percent in 1989. I project a further decline to 0.07 percent in 2000.

I have already mentioned that I include the difference between social insurance taxes and social security benefits as revenue, at 0.35 percent of GNP.

### The Deficit and the Debt

Figure 4 shows my projections through 2000 of the dollar amount of the deficit. For 1985 and 1986, my numbers are essentially exactly the same as the CBO's. For 1987-89, I am a little more optimistic than the CBO, purely because I assume the continuation of excise revenue at 1 percent of GNP after current



laws expire. Nonetheless, I agree with the CBO that the deficit will grow each year through 1989.



Figure 4. The deficit in current dollars.

In the late 1980s, the deficit will worsen because of the interest on the rapidly accumulating national debt. Economic growth, at the modest rate projected by the CBO, has begun to raise revenue above non-interest spending, but the rise is not large enough to offset the growth of interest until 1990. After growth overtakes interest in 1990, the deficit begins to decline. It finally drops below \$200 billion in 2000.

Figure 4 dramatically understates the actual progress against the deficit that will occur under present policies. In 1985, the deficit will be \$179 billion in an economy with a GNP

of \$3.92 trillion, or 4.6 percent. In 2000, the deficit will be \$196 billion in an economy with a GNP of \$12.52 trillion, or only 1.6 percent. Or, to put it another way, the deficit in 2000 would be only \$61 billion in an economy of the scale of 1985. Figure 5 shows the deficit as a percent of GNP for the years 1985-2000. The decline is continuous. Measured as a fraction of the economy, the deficit will be improving each year from the start under a continuation of current policies.

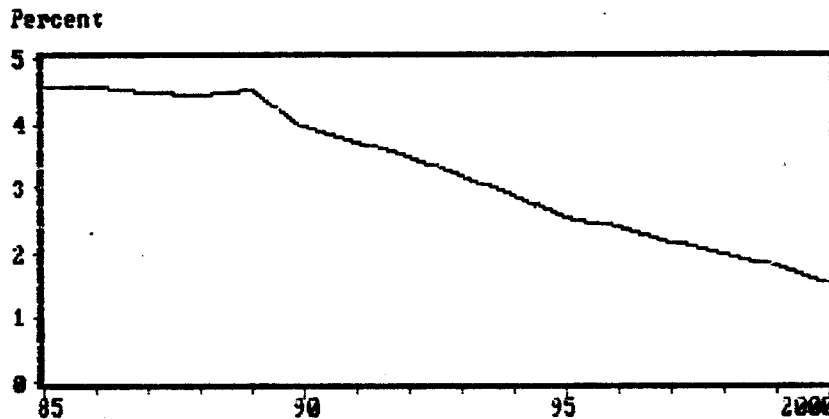


Figure 5. The deficit as a fraction of GNP.

The continuation of deficits means that the national debt will continue to grow. Figure 6 shows the debt as a fraction of GNP. From a level of 36 percent at the outset, the debt will rise to a peak of 47 percent in 1993. Thereafter, it will decline; by 2000, it will be 41 percent of GNP.

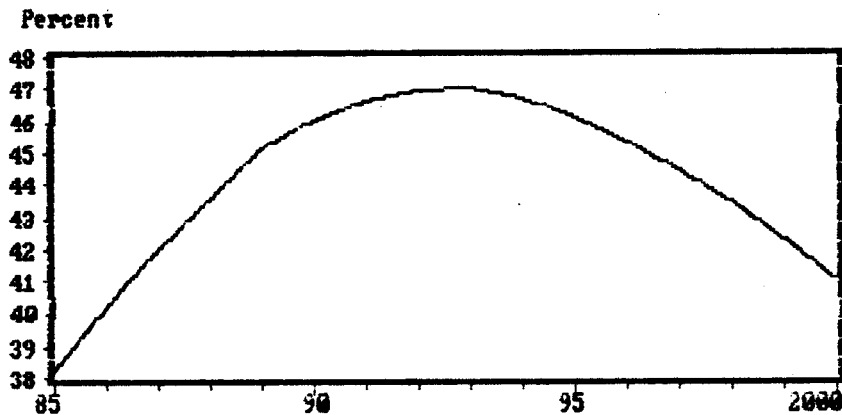


Figure 6. The national debt as a percent of GNP.

Some theories stress the flow aspects of the deficit. If a deficit of 4.5 percent of GNP is harmful, the harm will gradually decline under a continuation of current policy. The harm is at its worst right now. Other theories look at stocks; the adverse effects of current and past deficits are measured by the ratio of the debt (that is, the cumulated deficits) to GNP. On those

theories, the worst is yet to come. As the large deficits of the late 1980s build up, the debt will rise by 11 percent of GNP. But even at its peak, with the national debt at 47 percent of GNP, the debt will not be large by historical standards. The economy performed unusually well in the years just after World War II, which the debt-GNP ratio started at over 100 percent.

#### Interest spending versus growth

In order to see how the conflicting forces of growing interest expense and economic growth are resolved, it is useful to look at the primary deficit, defined as total program spending less total revenue. The total deficit is the primary deficit plus interest expense.

Figure 7 shows the primary deficit (as a fraction of GNP) implied by the CBO projections with my modifications and extensions. It also shows net interest and the total unified budget deficit, again as fractions of GNP. At the outset, the primary deficit is about 1 percent of GNP, net interest is over 3 percent, and the total deficit is over 4 percent. The primary deficit falls quite rapidly and becomes a surplus in 1990. Economic growth raises income tax revenue faster than the government spends it on programs. Because cumulated deficits are raising national debt relative to GNP, interest rises as a

percent of GNP. However, the rise is not nearly as rapid as the decline in the primary deficit. Hence the total deficit falls from the outset.

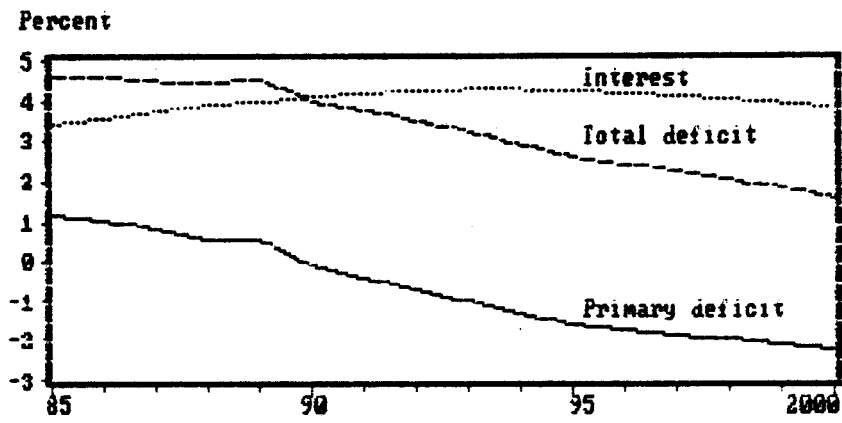


Figure 7. The primary deficit, net interest, and the total deficit, as percents of GNP.

As the total deficit falls relative to GNP, the rate of growth of the debt relative to GNP falls. The growth of net interest falls in proportion. With the continuing growth of the primary surplus, the budget will come into complete balance early in the first decade of the 21st century.

Appendix. Computations

A	B	C	D	E	F	G	H
	Revenue	Outlays	Primary unified deficit	Off-budg. deficit	Total	Effec. interest rate	GNP growth rate
	See below	See below	C-B	CBO projected	D+E	See below	CBO projected
1984							
1985	12.62%	13.76%	1.14%	0.31%	1.45%	10.24%	9.01%
1986	12.73%	13.75%	1.02%	0.36%	1.38%	10.02%	8.29%
1987	12.89%	13.67%	0.78%	0.33%	1.11%	9.91%	8.13%
1988	13.18%	13.72%	0.54%	0.33%	0.86%	10.02%	8.30%
1989	13.25%	13.81%	0.56%	0.32%	0.88%	9.78%	8.03%
1990	13.29%	13.19%	-0.10%	0.30%	0.20%	9.70%	8.00%
1991	13.41%	13.00%	-0.41%	0.30%	-0.11%	9.70%	8.00%
1992	13.52%	12.81%	-0.71%	0.30%	-0.41%	9.70%	8.00%
1993	13.65%	12.62%	-1.03%	0.30%	-0.73%	9.70%	8.00%
1994	13.77%	12.43%	-1.34%	0.30%	-1.04%	9.70%	8.00%
1995	13.88%	12.25%	-1.63%	0.30%	-1.33%	9.70%	8.00%
1996	14.00%	12.25%	-1.75%	0.30%	-1.45%	9.70%	8.00%
1997	14.13%	12.25%	-1.88%	0.30%	-1.58%	9.70%	8.00%
1998	14.25%	12.25%	-2.00%	0.30%	-1.70%	9.70%	8.00%
1999	14.36%	12.25%	-2.11%	0.30%	-1.81%	9.70%	8.00%
2000	14.49%	12.25%	-2.24%	0.30%	-1.94%	9.70%	8.00%

Notes:

The debt-GNP ratio evolves according to the formula:

$$(1+G) \times I(-1) / (1+H) + F$$

That is, it grows on account of interest (G), shrinks on account of GNP growth (H), and grows on account of the primary deficit, F.

A	I	J	K	L	M
	Debt/ GNP ratio	Interest GNP ratio	Unified deficit ratio	GNP	Deficit
	See note	See note	D+J	CBO proj- ected	K x L
1984	36.40%				
1985	38.26%	3.42%	4.56%	3920	179
1986	40.25%	3.54%	4.56%	4245	194
1987	42.02%	3.69%	4.46%	4590	205
1988	43.55%	3.89%	4.42%	4971	220
1989	45.13%	3.94%	4.50%	5370	241
1990	46.05%	4.05%	3.96%	5800	229
1991	46.66%	4.14%	3.72%	6264	233
1992	46.98%	4.19%	3.48%	6765	235
1993	46.99%	4.22%	3.19%	7306	233
1994	46.69%	4.22%	2.88%	7890	227
1995	46.09%	4.19%	2.56%	8522	218
1996	45.36%	4.14%	2.39%	9203	220
1997	44.50%	4.07%	2.19%	9939	218
1998	43.50%	4.00%	2.00%	10735	215
1999	42.37%	3.91%	1.79%	11593	208
2000	41.09%	3.81%	1.56%	12521	196

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 Details on effective interest rate and off-budget deficit.

A	B	C	D	E	F	G
	Interest	Debt held by public	Effec. rate	GNP	Off-budg. deficit	%
	CBO	CBO	B/C	CBO	CBO	F/E
1984	111	1142	9.72%	3596	11	0.31%
1985	134	1308	10.24%	3920	14	0.36%
1986	150	1497	10.02%	4245	14	0.33%
1987	169	1706	9.91%	4590	15	0.33%
1988	194	1936	10.02%	4971	16	0.32%
1989	214	2189	9.78%	5370	15	0.28%

Tax projections

A	B	C	D	E	F	G	H
	Personal income tax	Corp. income tax	Customs	Excises	Federal Reserve	Estate + Gift	Social ins.
	CBO pro- jected	CBO pro- jected	CBO pro- jected	CBO pro- jected	CBO pro- jected	CBO pro- jected	CBO
1985	8.72	1.68	0.33	1.00	0.43	0.15	6.84
1986	8.83	1.72	0.31	1.00	0.42	0.12	6.83
1987	8.95	1.87	0.30	1.00	0.39	0.11	6.76
1988	9.13	1.83	0.30	1.00	0.38	0.10	6.94
1989	9.27	1.79	0.28	1.00	0.37	0.09	6.93
1990	9.41	1.79	0.30	1.00	0.35	0.09	
1991	9.54	1.79	0.30	1.00	0.34	0.09	
1992	9.68	1.79	0.30	1.00	0.32	0.08	
1993	9.82	1.79	0.30	1.00	0.31	0.08	
1994	9.96	1.79	0.30	1.00	0.29	0.08	
1995	10.09	1.79	0.30	1.00	0.28	0.07	
1996	10.23	1.79	0.30	1.00	0.26	0.07	
1997	10.37	1.79	0.30	1.00	0.25	0.07	
1998	10.51	1.79	0.30	1.00	0.23	0.07	
1999	10.64	1.79	0.30	1.00	0.21	0.07	
2000	10.78	1.79	0.30	1.00	0.20	0.07	

Note:

Social security net of benefits is column H less column H from the spending detail below.



A	I	J	K	L	M
	SI net of SS benefits	Total			
	See note	B+C+D+E+ F+G+I			
1985	0.31	12.62			
1986	0.33	12.73			
1987	0.27	12.89			
1988	0.44	13.18			
1989	0.45	13.25			
1990	0.35	13.29			
1991	0.35	13.41			
1992	0.35	13.52			
1993	0.35	13.65			
1994	0.35	13.77			
1995	0.35	13.88			
1996	0.35	14.00			
1997	0.35	14.13			
1998	0.35	14.25			
1999	0.35	14.36			
2000	0.35	14.49			

Spending

A	B	C	D	E	F	G	H
	GNP	Total outlays	Defense	% D/B	Vets	Total % (D+F)/B	% SS bens.
CBO projections							
1984	3596	845	230	6.40%	26	7.12%	239.2
1985	3920	929	262	6.68%	26	7.35%	255.9
1986	4245	1006	293	6.90%	27	7.54%	275.9
1987	4590	1097	327	7.12%	27	7.71%	298.4
1988	4971	1203	366	7.36%	28	7.93%	322.7
1989	5370	1305	406	7.56%	29	8.10%	347.9

A	I	J	K	L
	% Interest		Other	%
	H/B			K/B
1984	6.65%	111	239	6.64%
1985	6.53%	134	251	6.41%
1986	6.50%	150	260	6.13%
1987	6.50%	169	276	6.00%
1988	6.49%	194	292	5.88%
1989	6.48%	214	308	5.74%

REH projections

	Defense	Other	Total
1985	7.12%	6.64%	13.76%
1986	7.35%	6.41%	13.75%
1987	7.54%	6.13%	13.67%
1988	7.71%	6.00%	13.72%
1989	7.93%	5.88%	13.81%
1990	7.50%	5.69%	13.19%
1991	7.50%	5.50%	13.00%
1992	7.50%	5.31%	12.81%
1993	7.50%	5.12%	12.62%
1994	7.50%	4.93%	12.43%
1995	7.50%	4.75%	12.25%
1996	7.50%	4.75%	12.25%
1997	7.50%	4.75%	12.25%
1998	7.50%	4.75%	12.25%
1999	7.50%	4.75%	12.25%
2000	7.50%	4.75%	12.25%

Source for CBO projections: *The Economic and Budget Outlook: An Update August 1984*