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Reaganomics

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# Reaganomics

Olivier Jean Blanchard

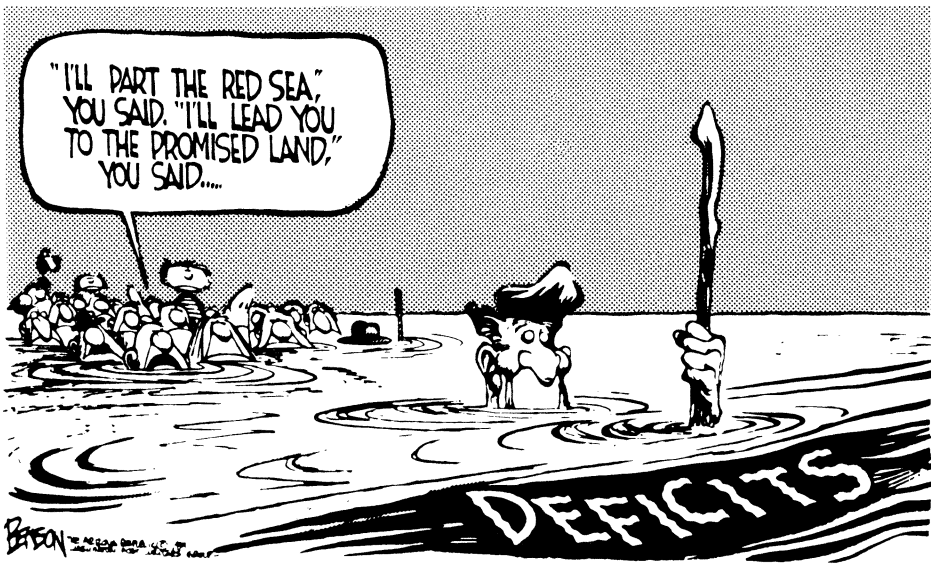
## Summary

*President Reagan came to the White House promising a major shift to conservative economic policies. His program included a supply-side revolution, a scaling down of wasteful government activity, lower taxes and less interference with the market economy. As a result, it was expected, the US economy would become more efficient, with faster growth and minimal inflation. Tax reductions would pay for themselves so that the budget would soon return to balance. Fiscal expansion did help bring down unemployment, but the administration soon learned that tax cuts led to trade and budget deficits. Though early dreams remain unfulfilled, the Reagan period represents a turning point in US economic policy making. Inflation has been much reduced, and the credibility of tight monetary policy enhanced. More importantly, there are signs that Reagan has won his political bet: early tax cuts generated budget deficits which exerted the pressure required to turn the tide of rising government spending, and change its composition.*

*The verdict on supply-side policies is not yet clear. Two major tax reforms (in 1981–83 and 1986) have profoundly modified the landscape. Investment has been shielded from the effects of a tight anti-inflationary monetary policy and many distortions have been reduced. So far, however, there is little evidence either of any increase in private savings or of a boost to productivity.*

*On the liability side, the US now faces a larger public debt and has become indebted to the rest of the world. Corrective actions will have to be taken, and some are already under way. They will have significant but not dramatic costs. With all its shortcomings, Reaganomics has achieved more than most conservative policies in Europe.*

# The prophet



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# Reaganomics

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## 1. Introduction

In a country suffering from low growth, inflation and the Carter malaise, the Reagan administration began with promises of a supply-side revolution. Lower inflation, lower taxes and a smaller government were going to boost productivity and growth. Thanks to the Laffer curve, cuts in taxes were going to generate increased revenues and help balance the budget.

The dreams did not last long. As it became clear that tax cuts would lead to deficits rather than to cuts in spending or a balanced budget supply-side boom, the strategy was abruptly changed. The centerpiece of the policy became and has remained a political bet, the bet that cuts in taxes would create, via deficits, the political pressure to reduce government spending. It is this bet which, more than anything else, distinguishes the Reagan conservative strategy from its European counterparts and their strategy of fiscal austerity. Tax-cut induced deficits, with their supply and demand-side effects have determined the strength and the shape of the recovery; and they will affect the future for a long time. If successful, they will lead to lower taxation and lower spending. Successful or unsuccessful, they will have permanently modified the structure of taxation and will leave a legacy of higher internal and external debt. Was it all worth it? That is the question that this paper attempts to answer.

The dynamics of policy were set in motion during 1981–83. The monetary contraction started under Carter was followed by large tax cuts from 1981 to 1983, leading to the tight-money loose-fiscal mix

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which has characterized the last six years. From 1981 to 1985, as inflation decreased and deficits mounted, the economy went successively through a recession and a sustained expansion. In 1985, a process to achieve the required spending cuts was put in place tentatively, and in 1986 tax cuts were consolidated and modified through a tax reform that is now being implemented. The speed at which spending cuts will be achieved is still highly uncertain. Section 1 gives a factual account of those policies, setting the stage for the analysis of the rest of the paper.

Section 2 studies the effects of policy on the macroeconomy since 1981. It first looks at the initial disinflation. It then shows the role of tax cuts and deficits in shaping the subsequent recovery. Finally it speculates as to what would have happened had the administration followed a no-deficit strategy. The evidence suggests that tax cuts and deficits deserve a good part of the credit for the prolonged recovery. The rest of the paper looks at the implications of the policy for the future.

Section 3 assesses the likely outcome of the political bet. It concludes that even if, as now seems likely, future deficit reductions come both from tax increases and spending cuts, the size and composition of government spending will have been affected by Reagan policies. Those effects however pale in significance when compared to the build-up in social entitlement programs of the post-war period. They show the stringent limits faced by conservative policies, for better or for worse, in changing the role of government in the economy.

Section 4 examines the potential medium and long-run effects of deficits and debt. It concludes that there is little justification for the belief that debt accumulation will eventually prove disastrous. But debts, both internal and external, carry a cost. US fiscal deficits have reduced and will reduce world saving, capital accumulation and future output, and have imposed a burden not only on the US but also on the rest of the world. Higher internal debt also implies higher taxation and larger distortions in the future. Finally, induced US trade deficits have led to a transfer of wealth, which must be either reversed or permanently financed, through a trade surplus and real dollar depreciation. Those costs are hard to quantify; back-of-the-envelope computations suggest that they are neither very large nor insignificant.

Section 5 returns to the supply-side effects which were the focus of the initial strategy. To date the most obvious effects are those on investment, through the tax-shielding of capital accumulation from high interest rates. But the investment incentives of 1981 were largely removed by the 1986 tax reform. Other supply-side effects have been hard to detect, harder indeed than even many skeptics expected. Despite deficits, higher real interest rates and tax incentives, private saving has

not increased. There is at this stage little or no hard evidence of a current or impending productivity boom.

The concluding section gives a brief summary of the findings. Whether one judges the policy a success depends ultimately on one's values. The policy has not led to a supply-side explosion, which would be applauded from all quarters. But it has reduced inflation and redefined the role of the government, two of the main items on the conservative agenda. And it has done so without wreaking major havoc on the economy, a feat unmatched in Europe.

## **2. Monetary and fiscal policy**

The first two years of the Reagan administration largely set the stage for what was to follow. Monetary disinflation had been set in motion under Carter; the role of Reagan was to give it more credibility. The drastic change in fiscal policy was however the administration's own doing. The tax cuts voted in 1981, and implemented over the following three years, were to trigger increasingly larger deficits over time. Tight money and increasingly expansionary fiscal policy were to lead first to recession and disinflation, then to a sustained expansion. The basic mix remained the same until 1985–86, when tax changes were consolidated and modified in a tax reform, and when, because of the mounting political pressure from large deficits, new rules of the budget game and a tentative schedule of spending cuts were agreed.

### **2.1. Fighting inflation: monetary contraction**

The decision to fight inflation through monetary contraction had been taken in October 1979, more than a year before the election. Nevertheless, there had been considerable uncertainty during 1980 as to the Federal Reserve's resolve. Fears had been fueled, in particular in the spring and summer of 1980, by the decrease in short nominal rates in the face of a recession. The election of the new administration was important in increasing the credibility of tight monetary policy. Credibility was further strengthened when, in June 1981, nominal rates were sharply increased in the face of a new impending recession.

Table 1 gives nominal and real short interest rates for the period 1979–86. It also gives both the target ranges and the actual values of the rates of growth of the main monetary aggregates. Focusing first on the disinflation period 1981–83, two aspects of the table are striking. The first is the large increase in real interest rates starting in 1981. The second is the absence of any slowdown in the rate of growth of measured monetary aggregates. Target ranges for M1, M2 and M3 were rarely

**Table 1. Monetary policy, 1979–86. Short real interest rates and monetary aggregates (% per year)**

	1979	1980	1981	1982	1983	1984	1985	1986
Nominal interest rate	10.0	11.5	14.0	10.6	8.6	9.5	7.5	5.9
Expected inflation	8.4	9.0	9.5	6.0	4.0	3.9	3.0	3.0
Real interest rate	1.6	2.5	4.5	4.6	4.6	5.6	4.5	2.9
Growth rate of M1b								
Target	1.5/4.5	4.0/6.5	3.5/6.0	2.5/5.5	4.0/8.0	4.0/8.0	4.0/7.0	3.0/8.0
Actual	5.0	7.3	5.7	8.5	7.2	5.2	11.9	15.3
Growth rate of M2								
Target	5.0/8.0	6.0/9.0	6.0/9.0	6.0/9.0	7.0/10.0	6.0/9.0	6.0/9.0	6.0/9.0
Actual	9.0	9.8	9.4	9.8	8.3	7.7	8.6	9.1
Growth rate of M3								
Target	6.0/9.0	6.5/9.5	6.5/9.5	6.5/9.5	6.5/9.5	6.0/9.0	6.0/9.5	6.0/9.0
Actual	9.8	9.9	11.4	10.3	9.7	10.5	7.4	9.0

*Source:* DRI Database.

*Note:* Nominal interest rate: yearly average of the values of the 3 month Treasury Bill rates for January, April, July and October. Expected inflation: yearly average of the December, March, June and September DRI forecasts of inflation over the following three months. Real interest rate: difference between the nominal rate and expected inflation. Monetary aggregates: Target ranges: targets published in February of year  $t$ , for the percentage change from the 4th quarter of year  $t-1$  to the 4th quarter of year  $t$  (source: Modigliani, 1987); actual values: percentage change from 4th quarter of year  $t-1$  to 4th quarter of year  $t$ .

achieved in any of the years 1979 to 1982; credibility was clearly achieved without strict adherence to any particular growth rate for M1, M2 or M3. The Volcker disinflation was surely one of the most pragmatic of recent disinflations.

By 1983, inflation was down to 4%, the recession was over and the economy was growing. Deficits had swollen and monetary policy was no longer center-stage, but it still played an important role. Table 1 shows that the Fed, faced with high fiscal deficits, decided to maintain high real interest rates, and in the process to accept high and fluctuating growth rates of the monetary aggregates. Real interest rates were, until the end of 1985, high and roughly constant; they have since declined. Neither the systematic failure to achieve monetary targets, nor the move towards interest rate targets, nor even the decline in real interest rates as activity slowed down in 1986 seem to have undermined the credibility of the anti-inflation commitment of the Fed.

## 2.2. Putting on the pressure: the tax cuts of 1981–83

The rest of the action has been in fiscal policy. Table 2 gives data for spending, taxes and deficits as a percentage of GNP for 1964, 1970

**Table 2. Government spending, receipts and deficits (% of GNP)**

Fiscal Years	1964	1970	1980	1981	1982	1983	1984	1985	1986
Spending	18.8	20.0	22.0	22.8	24.0	25.0	23.7	24.4	24.6
Interest	1.2	1.4	1.9	2.0	2.6	2.7	3.0	3.3	3.2
Non-interest purchases	17.6	18.6	20.1	20.6	21.4	22.3	20.7	21.1	21.3
Defense	8.2	7.9	5.1	5.4	6.0	6.3	6.2	6.5	6.5
Non-defense	2.5	2.2	2.4	2.4	2.4	2.3	1.9	2.2	2.2
Transfers	4.4	5.6	8.8	9.2	9.7	10.2	9.3	9.1	9.4
Others	2.5	2.9	3.8	3.6	3.3	3.5	3.3	3.3	3.3
Receipts	18.6	20.0	20.2	20.8	20.5	19.4	19.2	19.6	19.8
Personal taxes	8.1	9.5	9.4	9.6	9.9	8.8	8.2	8.7	8.6
Corporate taxes	4.1	3.3	2.6	2.3	1.6	1.6	2.0	1.7	2.1
Social insurance	4.0	5.3	6.8	7.1	7.3	7.4	7.5	7.7	7.8
Others	2.4	1.9	1.4	1.8	1.7	1.6	1.5	1.5	1.3
Balance	-0.2	0.0	-1.8	-2.0	-3.5	-5.6	-4.5	-4.8	-4.8
Inflation-adjusted	0.4	1.2	0.2	0.3	-1.8	-4.3	-2.7	-3.7	-3.8
Primary	1.0	1.4	0.1	-0.2	-0.9	-2.9	-1.3	-1.5	-1.6

Source: *Historical Tables*, Office of Management and Budget, Washington.

Notes: Numbers are for fiscal year. Inflation-adjusted deficits are computed by taking out of nominal interest payments the product of the inflation rate for the fiscal year times the level of debt at the beginning of the fiscal year.

and 1980–86.<sup>1</sup> Deficits rose because of all three components: non-interest spending, interest payments and tax cuts. Tax cuts can be traced in turn to the very first tax change, the ‘Economic Recovery Act’ (ERTA, or less formally Kemp-Roth) of August 1981.

Kemp-Roth had three main components: the first was a cut in personal taxes, coming from decreases in income tax rates phased over three years, and from tax breaks on savings. Income tax rates were decreased in three instalments, (5%, 10% and 8%) over the following three fiscal years. Table 3 shows the effects of those cuts on marginal and average tax rates for families with different incomes. The proportional decrease in average tax rates for 1984 is similar across income levels. Other tax breaks were targeted at savings. Of those, the most significant was a \$2,000 income deduction per worker for contributions to an individual retirement account (IRA).<sup>2</sup>

The second component of Kemp-Roth was a cut in business taxes. The main element was an acceleration of depreciation for tax purposes.

<sup>1</sup> Whenever they exist, I report numbers on a national income accounts basis. The government and the budgetary process however use and report numbers on a ‘unified budget’ basis, which uses slightly different accounting conventions. For example, asset sales are counted as revenues in the unified budget accounts, but not in the national income accounts. Some of the numbers below, such as CBO projections, or Gramm-Rudman targets, are ‘unified budget’ numbers.

<sup>2</sup> Income from those accounts is untaxed as it accrues, and taxed as ordinary income when withdrawn. There is a penalty for withdrawals before age 59.5.



**Table 3. Effects of the 1981–84 income tax cuts on marginal and average tax rates (%)**

	Marginal tax rates	Average tax rates	
		Excluding social insurance	Including social insurance
Families with:			
$\frac{1}{2}$ median income			
with ERTA	16	6.7	13.4
without ERTA	21	8.7	15.5
median income			
with ERTA	25	10.3	17.0
without ERTA	32	13.4	20.1
twice median income			
with ERTA	38	16.7	20.8
without ERTA	49	21.7	25.8

*Source:* Hulten and O'Neill (1982).

*Notes:* Rates computed on the basis of 1983 projections for 1984 incomes.

Assets were grouped in four categories and given write-off periods of 3, 5, 10 and 15 years. For most assets, this implied much faster write-off and larger depreciation deductions. The rate of investment tax credit was also increased. To a large extent, these tax breaks were offset by the increase in real interest rates stemming from tight money. To think about the relative effects of tight money versus tax breaks I use in Table 4 a procedure developed by Auerbach (1987). The user cost of capital (the implicit cost of capital services) is directly proportional to the sum of the required real rate of return and the rate of depreciation. The coefficient of proportionality is related to the corporate income tax, the investment tax credit and the present value of depreciation deductions. The required real rate of return itself is the weighted average of the real after-tax interest rate on debt and the real rate of return on equity, with weights proportional to the relative shares of debt and equity financing. The effect of tight money is to increase the user cost of capital roughly one-for-one with the increase of the required real rate of return, as both rates on debt and equity rise. The effect of tax reform is to increase the present value of depreciation deductions by shortening the write-off period. Simple calculations (see Appendix) suggest that the tax measures reduced the user cost by 1.5 to 3 percentage points, only partially offsetting the tight money effect which added 3 to 5 percentage points to the user cost.

The results of a more detailed computation are given in Table 4, which gives user costs and effective tax rates for equipment and structures, under the 1980, 1981 and 1986 tax laws, and under three different

**Table 4. User costs and effective tax rates under the 1980, 1981 and 1986 laws and alternative inflation and real rates of return (%)**

	1980 legislation		1981 legislation		1986 legislation	
	User Cost	Effective tax rates	User Cost	Effective tax rates	User cost	Effective tax rates
(1)						
$p=10\%$ , $r=1.5\%$						
structures	7.6	63.5	6.9	56.1	6.5	51.5
equipment	11.8	54.5	11.3	45.5	11.8	54.3
(2)						
$p=5\%$ , $r=3.75\%$						
structures	10.6	47.8	9.6	38.8	9.3	35.5
equipment	13.9	30.7	13.2	21.0	14.1	32.9
(3)						
$p=5\%$ , $r=5\%$						
structures	12.7	58.2	11.5	47.4	11.0	45.2
equipment	15.6	37.5	14.9	20.5	15.7	44.8

*Source:* Author's computations following a program adapted from Auerbach (1987). User costs, effective user costs and effective tax rates for 34 types of investment goods are computed and then aggregated into two classes, equipment and structures.

*Notes:*  $p$  is the inflation rate;  $r$  is the required after tax of return. The effective tax rate is  $T=1-(r/(c-d))$ , where  $c$  is the user cost and  $d$  the rate of depreciation. For details see Appendix.

assumptions about inflation and the required rate of return. The effective tax rate is defined as that rate which, if imposed on the true income from a new investment, would have created the same incentive to invest as the existing combination of corporate taxes, depreciation deductions and investment tax credits. It measures the effect of taxation on the incentive to invest. The table gives results in line with the above rough computation. Effective tax rates decreased by 25% on average as a result of the 1981 tax changes. But the decrease was probably insufficient to cancel the effect of the increase in the real interest rate.

The third part of Kemp-Roth, which was delayed until 1985, was the indexation of tax brackets and minimum taxable income. To a large extent, the decrease in inflation has made indexation less important, at least for the time being. But together, through the elimination of fiscal drag, this decrease has affected the dynamics of the budget process in an important way. This can be seen by looking at 'baseline projections' constructed by the Congressional Budget Office before and after Reagan's action. These baseline projections are not forecasts, but projections assuming roughly no change in the current tax structure and in the level of real spending. Previously, those projections always showed

very large surpluses over the long run. For fiscal year 1980 for example, while the current surplus was projected at  $-1.6\%$ , the five-year-ahead projection had surpluses of  $6.6\%$ . For fiscal year 1981, the numbers were respectively  $-1.7\%$  and  $4.3\%$ . To a large extent, what was left to Congress was then to decide how much of this fiscal drag to offset through lower nominal tax brackets, and how much to use for increased spending. Since 1981 however, the projections for each year show no improvement as the horizon increases. For fiscal year 1984 for example, the current surplus was projected at  $-5.3\%$ , the five-year-ahead surplus at  $-6.1\%$ . The issue is no longer how much of the fiscal drag to redistribute.

After Kemp-Roth, there was little fiscal policy action until 1986. Some of the decrease in corporate taxation was undone by the 1982 Tax Equity and Fiscal Responsibility Act (TEFRA). Minor adjustments were made in the Deficit Reduction Act of 1984. These were quantitatively much less important. The main effects were to decrease personal and corporate income taxes, which if there had been no further change in legislation, would have led to shortfalls in revenues respectively of \$225b and \$54b for fiscal year 1986, larger than the actual deficit for that year, \$216b.

The increase in deficits also had little to do with changes in the level of spending; this is apparent in Table 2. Total non-interest spending, as a percentage of GNP, increased from 1981 to 1983, in large part due to the recession, but subsequently decreased. By 1986 it was approximately back to its 1981 value; (changes in composition however were important; I shall look at them later). From 1981 to 1985 (fiscal years), deficits increased from  $2.0\%$  to  $4.8\%$  of GNP.<sup>3</sup> As real interest rates increased, inflation-adjusted deficits increased even more, from a surplus of  $0.3\%$  to a deficit of  $3.7\%$ . Primary deficits (that is, deficits excluding interest payments) increased from  $0.2\%$  to  $1.5\%$ . By 1985–86 the administration moved again, to push for a more comprehensive tax reform and a progressive reduction in spending.

### **2.3. Overhauling the tax system: the 1986 tax reform**

The stated purpose of the tax reform, signed in October 1986, was not to reduce taxes further or to reduce deficits, but to reduce distortions. The reform, not surprisingly, did not go as far as the initial proposals, known as ‘Treasury I’ and ‘Treasury II’. In particular, it did not take

<sup>3</sup> When the architects of the policy realized that tax cuts were going to lead to deficits is an interesting question, but of more relevance to historians than to economists. Stockman's autobiography (1986) suggests that he understood it very soon, as early as February 1981.

the tax system in the direction of a consumption tax, as had initially been considered, nor did it solve the problem of double taxation of corporate earnings. But it was a wide-ranging reform, with effects on both personal and corporate taxation.

The personal tax rate schedule that ran from 11% to 50% will, when the reform is fully implemented, include only two rates, 15% and 28%. Because of phase-out provisions for deductions and exemptions however, taxpayers with incomes between approximately 2 to 4 times the median income will face marginal rates of 33%. At the same time, and partly offsetting the effect of higher marginal tax rates at low income levels, the reform has raised both personal exemptions and standard deductions. Partly offsetting the effects of lower marginal tax rates at higher levels of income, the reform has eliminated a number of tax shelters and the favorable treatment of long-term capital gains. In doing so, it has cancelled some of the earlier tax changes. In particular, it has decreased the extent to which individual retirement contributions (IRA) are deductible. The \$2,000 dollar income deduction passed in 1981 remains available only to those with approximately median income, and decreases as the income level increases. The net effect of those changes, when the reform is fully implemented, will be to reduce marginal tax rates for most taxpayers. Yet, computations by Hausman and Poterba (1987) suggest that, except for the approximately 6 million taxpayers who will no longer pay taxes, the effects on marginal tax rates will not be very large: only 7% of taxpayers will see a change of more than 10%, up or down, in marginal tax rates.

Corporate taxation has been substantially affected. The corporate income tax rate has been reduced from 46% to 34%. At the same time, the investment tax credit on equipment has been eliminated. In sharp contrast to the 1981 changes, write-off periods have been lengthened to get depreciation for tax purposes closer to economic depreciation. The decrease in the corporate income tax reduces the user cost of capital. The elimination of the investment tax credit and the longer write-off periods, which imply a lower value of depreciation deductions, increase user cost. Table 4 shows the changes in user costs and effective tax rates which result from the tax reform. Effective tax rates on equipment which, under the 1981 legislation, were lower than those on structures are now approximately the same and there is a small increase in the overall effective tax rate.

The tax reform is expected to be approximately revenue-neutral. Current projections by the Treasury are of an implied cumulative decrease in revenues from personal taxation of \$130b for 1987 to 1991 together with a cumulative increase in revenues from corporate taxation of \$129b over the same period.

#### 2.4. Reducing spending: Gramm-Rudman

Political pressure on spending from the large deficits led in August 1985 to the 'Balanced Budget and Emergency Control Act', better known as the Gramm-Rudman-Hollings bill. It stipulates a ceiling for the deficit for each fiscal year: \$172b for fiscal year 1986, \$144b for 1987, decreasing to zero by 1991. Starting with fiscal year 1987 (special rules applied to 1986, in effect allowing the deficit to exceed the target for that year), the process should be the following. By August, the Congressional Budget Office and the Office of Management and Budget estimate the deficits implied by the current budget plans for the following fiscal year. If the amount exceeds the limit set by the act, automatic cuts bring it within the limits.<sup>4</sup> The cuts in spending should fall in equal amounts on defense and non-defense spending. Some programs, such as Social Security, are exempt and some programs are protected: cuts in retirement programs are limited to cost-of-living adjustments, cuts in Medicare are limited to 2% per year. This implies for example that, of the \$1,000b in outlays for fiscal year 1986, only \$100b could be subject to across-the-board cuts. The act, as voted, has few escape clauses. One of them is that the act will be suspended should growth be negative for two successive quarters.

Just like the introduction of indexation, Gramm-Rudman changes the rules of the game. Indexation and the decrease in inflation eliminated automatic tax increases. Gramm-Rudman introduces automatic spending decreases. Both alter the nature of the *status quo*. It takes explicit action, and the associated political risks, either to increase taxes, or not to reduce spending.

What have we learned from the first round of Gramm-Rudman? In August 1986, the Office of Management and Budget and the Congressional Budget Office estimated the (unified budget basis) deficit implied by decisions of Congress to total \$164b for fiscal year 1987, \$20b above the target. The cuts for the most part were illusory: \$8b from the sale of assets, such as Conrail, a federally owned railroad, and a \$11b windfall from a reform on the timing of taxes which will be reversed in the next fiscal year. While this appears to be bad news, it may well underestimate the self-restraint effect of Gramm-Rudman: as we shall see when we look at forecasts of spending below, many cuts were made before August in order to avoid the automatic cuts. Thus, the message of the first round of Gramm-Rudman is ambiguous. I

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<sup>4</sup> In the original act, those cuts were to be made by the Comptroller General. After this provision was declared unconstitutional in 1986, it was decided that the decisions would be made by a joint committee of Congress.

return to forecasts and guesses about the future course of deficits and spending in Section 4.

### 3. Policy and the macroeconomy: 1981–86

After briefly reviewing the main macroeconomic events of the last five years, I concentrate on two issues. The first concerns the cost of disinflation, the other the contribution of the deficits to the recovery.

#### 3.1. The effects of the tight-money loose-fiscal mix

From 1981 to 1986, the US economy went through three phases. The first was dominated by monetary contraction, the second by fiscal expansion. Anticipations of changes in the money-fiscal mix have characterized the recent past.<sup>5</sup> The behavior of the main macroeconomic variables is given in Table 5. Until 1982, the macroeconomy was dominated by the effects of monetary policy. Deficits were still not large and the main event was the increase in short real rates of interest. Once financial markets believed that the Fed was committed to disinflation, and thus to high real rates for some time, long real rates also increased. Examination of the yield curve suggests that this happened in mid-1981 (see Blanchard, 1984). Distinguishing these credibility effects from anticipations of high real rates due to anticipated higher deficits is not easy, so that there is room for disagreement as to the precise timing.

By 1982 the increase in real interest rates had led to a sharp recession, with unemployment reaching nearly 11% by the end of the year. As the increase in real interest rates was not fully matched by foreign central banks, real actual and expected interest rate differentials also led to a sharp dollar appreciation. The recession and the dollar appreciation both contributed to the decrease in inflation, from 9.7% in 1981 to 3.8% in 1983.

By the end of 1982, budget deficits had become the dominant macroeconomic force. Large deficits were strongly increasing aggregate demand and putting pressure on interest rates. The policy of the Fed was to only partially accommodate; the policy of foreign central banks was to only partially respond to the US interest rates. The result was an increase in US interest rates, a smaller increase in foreign interest rates and further dollar appreciation. (See for example Blanchard and Dornbusch; 1986; Feldstein, 1986). For the next three years, short and

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<sup>5</sup> The relation of monetary and fiscal policy to interest rates, exchange rates and activity is remarkably well captured by the Mundell-Fleming model, spiced with expectational effects. See for example the various essays in Dornbusch (1986).

Table 5. Basic macroeconomic statistics

	1980	1981	1982	1983	1984	1985	1986
Unemployment rate (%)	7.0	7.5	9.5	9.5	7.4	7.1	7.0
GNP growth (%)	-0.2	1.9	-2.5	3.5	6.5	2.7	2.6
Inflation (%)	9.0	9.7	6.4	3.8	4.1	3.3	2.7
Real short rates (%)	2.5	4.5	4.6	4.6	5.6	4.5	2.9
Real long rates (%)	2.5	4.9	6.0	5.1	5.9	6.6	3.9
Dividend-price ratio (%)	5.2	5.2	5.8	4.0	4.2	4.2	3.4
S & P index, (in 82 dollars)	138.5	136.1	119.7	154.1	148.1	167.2	208.5
Real exchange rates	84.8	100.8	111.7	117.3	128.5	132.0	109.5
Trade balance (\$b)	33.2	34.4	26.3	-5.3	-59.2	-74.4	-105.7
Current acct balance (\$b)	13.0	10.6	-1.0	-32.7	-91.0	-111.0	-142.0

Source: DRI Database.

Notes: Inflation is the % change in the GNP deflator; Short real interest rates are computed by subtracting from the three-month nominal rate DRI's forecast of inflation in the month preceding the quarter, and taking yearly averages; Long real interest rates are constructed using the following formula:

$$R_t = I_t - (1 - a^{t-1}) / (1 - a) \sum_{i=0}^{T-1} a^{-i} E(p_{t+i} | t-1)$$

where  $I$  is the 10 year bond rate,  $T$  is equal to 40 quarters,  $a$  is equal to 1.025, and  $E(p_{t+i} | t-1)$  is DRI's forecast of inflation at  $t+i$  as of  $t-1$ ; Dividend price ratio: ratio of dividends to prices for the S & P index of 500 common stocks; S & P index: Standard and Poor index of 500 common stocks; Trade balance: goods and services balance.

long real rates remained close to their 1982 values. Dollar appreciation and higher real interest rates were not enough to offset the increase in aggregate demand and there was sustained growth starting in 1983. Dollar appreciation and growth combined to turn a trade surplus of \$26b in 1982 into a trade deficit of \$75b in 1985, and to increase the current account deficit from \$1b in 1982 to \$111b in 1985.

By 1985 it had become clear that a shift in the money-fiscal mix was required and might indeed be forthcoming. Anticipations of a decrease in deficits, and the assumption that the Fed would again partly accommodate any fiscal contraction, this time by a decrease in interest rates, led to (or at least coincided with) a dollar depreciation starting in early 1985. By 1987 signs of an actual shift in the mix are more apparent. As a result of Gramm-Rudman, deficits are expected to decrease from their 1986 high. Real short and long rates have decreased by 2-3%. Dollar depreciation has not yet translated into trade balance improvement: the trade deficit for 1986 was \$106b, and the current account deficit was \$142b.



This overview is in many ways too cut and dried. Various pieces of the puzzle do not fit well.<sup>6</sup> Two of them are relevant here. The first is the behavior of the dollar exchange rate. While its movements are broadly consistent with economic theory, the magnitudes and the timing of the changes are more difficult to explain. (For a review of dynamic effects of a fiscal expansion on the exchange rate, see for example Sachs and Wyplosz, 1984. For a development of the view that the exchange rate in 1985 was higher than could be explained by fundamentals, see Krugman, 1985). In particular, the steady increase between 1983 and 1985 is not clearly related either to international interest rate differentials or changes in the underlying value of the zero current account equilibrium exchange rate. This is important because one of the legacies of the deficits will be their effect on the exchange rate; I therefore return to it in Section 5. The second issue is the behavior of the stock market throughout the period (see Blanchard and Summers, 1984). The stock market has increased in real terms by 84% since 1981, the dividend-price ratio has decreased from 5.2% in 1981 to 3.4% in 1986. This is not easy to reconcile with the behavior of long real interest rates: one possibility is that the stock market anticipates faster growth of dividends in the future. I return to this issue when discussing long-run supply-side effects in Section 6.

### 3.2. The cost of disinflation

One question which was much debated in the early 1980s was whether the cost of disinflation in terms of foregone output, the 'sacrifice ratio', would be lower if disinflation were more credible. There is little question that, despite its lack of adherence to target ranges, the commitment of the Fed to disinflation, backed by the support of the administration, had become credible by the end of 1981.<sup>7</sup> Did credibility decrease the sacrifice ratio?

To answer this question, I concentrate on the behavior of the Phillips curve during the period. It is clear that monetary contraction, to the extent that it led to high interest rates, a large dollar appreciation, and thus to a decrease in the relative price of imported goods, brought a faster decrease in inflation than it would have in the absence of such an appreciation. This effect has been emphasized by Buiter and Miller (1983) in their analysis of the Thatcher disinflation. By looking only at

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<sup>6</sup> And not everybody has the same reading of the evidence. Barro (1987), reviewing the same set of events, concludes instead that there is no evidence against the 'Ricardian equivalence' proposition that tax cut-induced deficits have no effect on economic activity.

<sup>7</sup> The credibility effect was dubbed the PATCO effect for the President's firing in 1981 of air controllers belonging to the PATCO union when they refused to go back to work.



the wage equation – rather than at the price and wage equations, or the reduced form relation between inflation and unemployment – I exclude this effect from consideration. I adopt a fairly standard specification of the Phillips curve, relating quarterly wage inflation to price inflation (measured by the consumption deflator) observed over the previous period, ‘expected’ inflation as of the previous period, and (the log of) the male unemployment rate. Expected inflation is expressed as a geometric distributed lag of current and past inflation, with a decay coefficient of 15% per quarter.

I first estimate the relation over 1964Q2 to 1979Q3. I then reestimate it adding one year at a time, until the sample ends in 1985Q3. The first part of Table 6 presents the estimated coefficients. I also use the relation estimated over 1964Q2 to 1979Q3 to generate forecasts of wage inflation given actual values of price inflation and unemployment for the period 1980Q1 to 1986Q1. The forecast errors are reported in the lower half of Table 6. Both parts of the table lead to roughly the same conclusion. The Phillips curve is stable until the end of 1982; thereafter the rate of wage inflation becomes steadily more sensitive to the level of unemployment. Forecast errors turn negative in 1981Q2 and remain consistently and significantly so throughout, even after unemployment has decreased. There is therefore evidence of a shift in the relation between unemployment and wages. While this is evidence in favor of a credibility effect, it is obviously not a proof. Alternative explanations, such as a direct effect of foreign prices and import penetration on wages, have been suggested. Microeconomic evidence however does not seem to support this last hypothesis (Abowd, 1986).

### 3.3. Deficits and the recovery

Deficits have clearly shaped the recovery. But before attributing the recovery to fiscal policy, one would want to know what would have happened if the US had followed a policy of fiscal orthodoxy as in Europe. Would there have been a recovery and how would it have differed? This is obviously an important question to answer.<sup>8</sup> Still, some progress can be made by comparing this recovery with previous ones. Table 7 presents the rate of growth of GNP, domestic spending and its main components for the last four expansions. The current recovery

<sup>8</sup> The main difficulty resides in the need to define what monetary policy would have been in the absence of deficits. Blinder (1984) makes a courageous attempt to answer the question, using three econometric models and comparing the behavior of the economy with and without the fiscal changes. He assumes that the growth of M2 would have been the same. Doing his simulations in 1982, Blinder however underestimated the size of the coming deficits and his simulations end up shedding little light on the question at hand.

**Table 6. The changing cost of disinflation**

Quarterly equation for wage inflation (Phillips curve)				
Sample period	Estimated coefficient on:			
	Constant	Price inflation last quarter	Expected price inflation	Unemployment
1964Q2-79Q3	0.05	0.05	0.79	-1.9
-80Q3	0.05	0.05	0.79	-1.9
-81Q3	0.05	0.07	0.74	-1.8
-82Q3	0.06	0.11	0.67	-1.9
-83Q3	0.06	0.09	0.79	-2.8
-84Q3	0.07	0.09	0.87	-3.3
-85Q3	0.07	0.06	0.95	-3.8
Forecast errors				
1980Q1	0.15		1983Q1	-1.11
Q2	0.09		Q2	-2.16
Q3	0.01		Q3	-2.70
Q4	0.72		Q4	-1.38
1981Q1	0.32		1984Q1	-3.07
Q2	-1.61		Q2	-2.74
Q3	-0.71		Q3	-2.53
Q4	-1.51		Q4	-2.35
1982Q1	-0.64		1985Q1	-1.90
Q2	-1.63		Q2	-2.09
Q3	-0.12		Q3	-2.55
Q4	-2.08		Q4	-1.78

*Source:* Author's estimates using DRI Database.

*Notes:* Unemployment in logarithms. For all sample periods in top part of the table, standard errors on coefficient estimates are approximately: constant (0.006), lagged inflation (0.09), expected inflation (0.15) and log unemployment (0.6). The bottom part of the table shows forecast errors from the equation estimated over 1964Q2-79Q3.

has not ended yet (DRI does not currently predict a recession for the next three years: the table also reports the DRI forecasts for 1987-89, and what they would imply for the 1983-89 recovery).

Through 1986 the rate of growth of output has not been higher than in previous recoveries. The rate of growth of domestic spending has exceeded the rate of growth of GNP, hence the deterioration in the trade balance, but it is not particularly high in comparison to previous recoveries. The comparison with the long expansion of the 1960s must take into account the fact that trend growth was higher then than now. The recovery has not been abnormally strong by historical standards.

The other components of spending grew at rates surprisingly similar to those of previous recoveries. In particular, investment, both

Table 7. Comparing recoveries

Period	Length (quarters)	% annual change in						
		GNP	Domestic spending	Consumption	Non- residential investment	Residential investment	Federal spending	State and Local spending
1961Q1–1969Q4	36	4.2	4.3	4.0	6.2	3.1	3.1	4.8
1971Q1–1973Q1	9	5.7	5.8	5.5	7.5	19.2	-3.5	3.1
1975Q2–1978Q4	15	5.1	5.3	4.7	7.6	14.7	1.3	1.6
1983Q1–1986Q3	15	4.2	5.5	4.5	7.2	15.1	3.5	3.4
1986Q4–1989Q4*	13	2.6	1.6	1.7	1.6	0.7	-0.1	1.4
1983Q1–1989Q4*	28	3.5	3.5	3.1	4.4	7.9	1.7	2.4

Sources: *Historical Statistics*, Department of commerce, peak and trough dates from NBER business cycle dating.  
 Note: \*DRI forecasts, February 1987.

residential and non-residential, has grown at the same rate during this tight-money loose-fiscal recovery as during previous ones, so that the effects of higher real interest rates must have been offset by other factors. One factor is the decrease in corporate taxation, although from the numbers in the previous section, it is not clear that it has fully offset the effects of higher interest rates.

Given the fact that GNP growth has not been abnormally strong, one is tempted to conclude that the recovery would not have been much weaker had fiscal policy been tighter. Indeed, there is no reason to doubt that there exists some rate of growth of money which could have decreased real interest rates sufficiently to achieve the same growth in output, with the accompanying depreciation producing both a smaller trade deficit and inflationary pressures. But there are good reasons to doubt that such a monetary policy would have been adopted. Table 1 earlier showed that growth rates of money have been high. More expansionary monetary policy would have required even higher growth rates, and it is far from clear that after a successful disinflation the Fed would have been ready to accept such rates. The experience of Europe must be relevant here. After disinflation, European central banks have been very reluctant to expand monetary aggregates; and in the absence of fiscal and monetary expansion, European economies have not had a recovery. The European experience makes a strong case for the proposition that, without demand expansion, forces which lead to recovery and a return to full employment are slow or simply non-existent.

To summarize, disinflation was less costly than would have been predicted. The recovery, while not exceptionally strong, must be partly credited to the fiscal expansion. Apart from the excess of spending over

output, the shape of the recovery has not been very different from previous ones. In particular, investment has not suffered from the money-fiscal mix.

#### 3.4. The political bet

The political bet has not yet been won: the reduction in taxes has not yet led to drastic cuts in overall spending; thus one must rely on guesses and forecasts as to what will happen over the next few years.

Table 8 gives DRI forecasts, as of February 1987, for spending and taxes over the next three fiscal years. DRI does not expect that the Gramm-Rudman targets will be met and assumes that, under some guise, they will be revised upwards. This assessment is based on the fact that the (non-binding) targets for fiscal year 1987 were exceeded by \$45b, and on the assessment that the budget presented by the administration for fiscal year 1988, which formally satisfies the Gramm-Rudman target, is politically infeasible. DRI also assumes that, because of the proximity of the last tax reform and the next presidential election, there will be no major tax increase. Nevertheless, they forecast a steady decrease in deficits through reduced spending. Official deficits decrease from 4.8% of GNP in 1986 to 3.1% in 1989, implying a decrease in inflation-adjusted deficits from 3.8% in 1986 to 1.8% in 1989. An inflation-adjusted deficit of 1.8% in 1989, together with a DRI forecast of GNP growth of 2%, implies that the debt/GNP ratio will still be growing at approximately 1% per year by the end of the decade.

How much confidence should we have in these forecasts? Table 9 provides indirect evidence by presenting the evolution of projections and forecasts over time since mid-1985. One can see how quickly projections have changed. Congressional Budget Office projections of the 1990 deficit which were \$285b in August 1985, decreased to \$97b by August 1986 and increased again to \$134b by January 1987.<sup>9</sup> Private forecasts have fluctuated, although less widely: DRI has revised upwards its estimates of future deficits over the last 9 months.

Assuming that by 1989 no further cuts in spending are politically feasible and the budget is balanced, then or later, by a tax increase, what will have been the results of the policy on spending? Table 8 suggests two conclusions. First, non-interest government spending as a share of GNP will be the same in 1989 as it was in 1980. This may not look like much of an achievement, but it is in fact a change from the trend of increasing spending in the 1960s and 1970s (see numbers for

<sup>9</sup> As explained above, CBO projections are not forecasts of fiscal policy, but rather projections based on current legislation and CBO's forecasts of economic variables.

**Table 8. Forecasts 1987–89: spending, receipts and deficits (% of GNP)**

Fiscal year	1986	1987*	1988*	1989*
Spending:	24.6	24.1	23.4	23.1
Interest	3.2	2.9	3.0	2.9
Non-interest purchases	21.3	21.2	20.5	20.3
defense	6.5	6.5	6.4	6.2
non-defense	2.2	2.1	2.1	2.0
Transfers	9.4	9.1	9.0	9.1
Other	3.3	3.5	3.0	3.0
Receipts	19.8	19.9	20.1	20.1
Personal taxes	8.6	8.4	8.0	8.1
Corporate taxes	2.1	2.4	2.7	2.5
Social insurance	7.8	7.8	8.1	8.3
Other	1.3	1.3	1.3	1.2
Budget				
Balance	-4.8	-4.4	-3.4	-3.1
Inflation adjusted surplus	-3.8	-3.6	-2.3	-1.8
Primary surplus	-1.6	-1.3	-0.4	-0.2

Source: DRI Economic Review, February 1987.

Note: DRI forecasts. The inflation adjusted deficit is computed using DRI forecasts of inflation.

1964 and 1970 in Table 2). If one assumes that, in the absence of Reagan, the trend would have remained the same, non-interest spending will be approximately 1 to 2% lower as a share of GNP. Second, the composition of spending will have substantially changed as well. Defense spending, which had decreased by 2.5% per year through the 1970s, has grown by more than 6% per year between 1980 and 1986, so that its share in GNP has increased from 5.1% to 6.5%. DRI however expects some of the main spending cuts in the future to come from defense, and its share to decrease to 6.2% by 1989. Transfers, which had increased at 6.5% per year through the 1970s, have grown instead at 3.5% between 1980 and 1986. By 1989, their share in GNP will be the same as it was in 1981, a clear change in trend. Also, many programs have been modified in important ways, for example the rules of health care reimbursement. Other transfer programs have not changed: for example the administration has been unable or unwilling to implement major changes in farm policy so that payments to farmers have increased from \$8b in 1980 to \$25b in 1986 as a result both of programs put in place in the late 1970s and of various events of the 1980s (good crops, bad export markets). Finally, non-defense purchases have decreased. For example spending on education has decreased from \$31b in 1980 to \$28b in 1986, and spending on energy has decreased from \$11b in 1980 to \$5b in 1986.

**Table 9. Projections, forecasts and dreams: future deficits (billion US dollars)**

Fiscal year	1986	1987	1988	1989	1990
CBO August 1985 Baseline projections	212	229	243	264	285
CBO February 1986 Baseline projections	208	181	165	144	120
CBO August 1986 Baseline projections	224	184	150	127	96
CBO February 1987 Baseline projections		174	169	162	134
DRI forecasts, June 1986	208	150	141		
DRI forecasts, November 1986	220	176	161	143	
DRI forecasts, February 1987		187	161	154	
Gramm-Rudman-Hollings targets	144	108	72	36	0

*Source:* CBO: *Baseline projections* (various issues), Congressional Budget Office; DRI Economic Review, various issues.

*Note:* Data on a unified budget basis.

There is thus little question that, even if deficits are ultimately eliminated by an increase in taxation, both the level and the composition of government spending will be different as a result of the actions of the Reagan administration. In addition to changes in spending, deregulation will also have modified parts of the private economy. In large part, deregulation was started in the late 1970s before Reagan: deregulation of the airline industry began in 1978 and was completed in 1985, deregulation of the trucking industry started in 1980. A few new programs were started after 1981, such as natural gas deregulation and limited deregulation of financial institutions. Contrary to European conservative experiments, there has been little privatization, as there was little to privatize. The sale of Conrail, in the first Gramm-Rudman compromise, was at least as much a way of closing the reported deficit through the sale of assets as a way of improving the efficiency of the railroad system.

While non-interest spending will be lower than it would have been, the same is not obviously true for total spending. One of the effects of the long sequence of deficits will have been to increase the level of debt, and thus future taxes required to pay the interest on the debt. This is one of the long-run effects of deficits, to which I now turn.

#### 4. The legacy of deficits

The US economy is now close to full employment. But fiscal and trade deficits are still high, with implications for both the near and the distant future. In the near future, the economy faces the transition problem of maintaining full employment while reducing the twin deficits. If and when this is done, the effects of the deficits will not disappear; they will

still affect both the US and the rest of the world through higher US internal and external debts.

#### 4.1. The transition problem

The unemployment rate for 1987Q1 is 6.9% which is thought to be close to the full-employment unemployment rate. (See for example Summers, 1986). The budget deficit is \$200b, the current account deficit is \$131b. Can the budget and current account deficits be reduced without either inflation or a major recession? The issue is conceptually simple. At a given exchange rate, a reduction in fiscal deficits leads to a recession, and through the decrease in activity, reduces imports and improves the trade balance. Given no change in fiscal policy, a dollar depreciation improves the trade account and increases activity. The answer is therefore also conceptually straightforward: what is needed is a combination of fiscal contraction and dollar depreciation.

If we believe the DRI forecasts, inflation-adjusted fiscal deficits will decrease by 2% over the next three years. Thus the issue is whether the trade balance will improve sufficiently to offset the fiscal contraction, i.e. whether the exchange rate will depreciate sufficiently. The real dollar exchange rate has already depreciated by close to 30% since early 1985. But there is no reason to think that efficient exchange rate markets will choose that path of the exchange rate which decreases the trade deficit at the desired speed. (For a recent discussion, see Dornbusch, 1987). The exchange rate depends, among many things, on the course of monetary policy through interest rate differentials: whether or not the transition will be successful depends on whether monetary policy can induce the appropriate response in exchange rates. At this stage forecasters believe that the transition can be accomplished smoothly. Forecasts from DRI for the major macroeconomic variables over the next three years are given in Table 10. They show a \$40b decrease in the trade deficit, which offsets most of the decrease in the fiscal deficit: GNP grows at 2.6% over the period with a small reduction in unemployment. This is accomplished through low real interest rates, and a further 22% real depreciation of the dollar.<sup>10</sup> Whilst GNP is expected to grow at 2.6% per annum, domestic spending is expected to grow at an annual rate of 1.6% (see Table 7), hence the improvement of the trade balance.

There are major uncertainties in this scenario. The main one concerns the relation of the exchange rate to the trade deficit. Despite the 30%

<sup>10</sup> There are good reasons for believers in rational expectations to have doubts about some aspects of the forecast. The forecasts imply similar real interest rates in the US and abroad so that the expected excess return from holding foreign bonds over the three years is equal to the expected real depreciation, namely 22%. This appears very large.



Table 10. Forecasts 1986–89

	1986	1987	1988	1989
Budget balance (\$b)	-204	-183	-156	-153
Unemployment (%)	7.0	6.7	6.3	6.3
GNP growth (%)	2.5	2.5	3.1	2.0
Inflation (%)	2.6	2.5	3.4	3.7
Short nominal interest rate (%)	6.0	5.5	5.6	5.1
Short real interest rate (%)	3.3	3.0	2.2	1.4
Long nominal interest rate (%)	7.9	7.3	7.9	7.7
Long real interest rate (%)	3.9	3.3	3.9	3.7
Real exchange rate (% change)	-17.0	-10.0	-6.0	-6.0
Trade balance (\$b)	-105	-102	-86	-68
Current account (\$b)	-142	-140	-125	-108

Source: DRI February 1987.

Notes: The short real interest rate is constructed using DRI forecasts. The long real interest rate is constructed using expected inflation equal to 4% throughout.

dollar depreciation, the trade deficit has not yet improved. This has led some (Baldwin and Krugman, 1986) to argue that the large appreciation has led to the loss of markets for US firms, a loss which, to be undone, will require a large depreciation. It is traditionally expected that, when the exchange rate returns to its initial value, the economy returns to the same trade position; the Baldwin-Krugman analysis implies that in this case the US would still face a trade deficit. Recent empirical work by Krugman (1987) fails however to find such effects in the data (at least until mid-1986) and leads him to conclude that the lack of improvement is due to the traditional J-curve dynamics and a secular trend decrease of the real exchange rate needed to balance the current account. The other related uncertainty concerns the behavior of the Fed: will it be willing to move real interest rates sufficiently, for example if a large reduction in interest rates is required to achieve the required depreciation?

What these forecasts suggest is that both external and internal deficits will be brought under control slowly, without any drastic effect on the economy. Some of the worst fears which have been expressed about deficits and debt are clearly unfounded. There is for example little likelihood that deficits will require repudiation or even monetization and inflation. There are two reasons. The first is that the ratio of public debt to GNP, according to DRI forecasts, will be 41% by 1989,<sup>11</sup> and will then be increasing at roughly 1% per year; this implies levels of

<sup>11</sup> The DRI forecast only gives the ratio of gross debt to GNP. The ratio reported in the text is that of debt held by the public excluding the Federal Reserve, and assumes that the ratio of that portion of debt to gross debt is the same, 63%, in 1989 as in 1986.



debt for the 1990s far below those at which such drastic measures as repudiation or monetization have historically been taken. The second reason is that, given the current dislike of inflation, the inflation tax is too small a source of revenue to be an attractive possibility: given a ratio of monetary base to GNP of 4%, a sharp increase in inflation is unlikely to significantly reduce the real burden of servicing the debt when the average maturity of the public debt is under 5 years, as is now the case in the US. Even if these worst-case scenarios are unlikely, this does not imply that the effects of deficits will disappear when the deficits themselves disappear: deficits have long-run effects.

#### 4.2. The long-run effects of deficits

The mechanism through which deficits have long-run effects is a simple one.<sup>12</sup> They lead to a build-up of public debt which remains even after deficits have disappeared, once taxes have been increased to pay for the interest on the higher debt. Higher public debt leads consumers to feel wealthier, and thus to save less at any level of income. In an economy which does not have access to international capital markets, lower savings lead to lower investment and a lower level of capital and output. But if the economy has access to such markets, two things happen. First, lower domestic savings do not necessarily translate into lower domestic investment. Indeed, if the economy is small, so that it does not affect the world interest rate, domestic investment is unaffected and the difference is entirely made up by borrowing from abroad. If the economy is large, the decrease in savings leads partly to borrowing, and partly to a decrease in both domestic and foreign investment through an increase in world interest rates. Borrowing from abroad leads over time to a steady transfer of wealth abroad which, by increasing consumption abroad and decreasing it at home, ultimately restores current account balance.

These effects, hidden by short-run disequilibria, have been at work in the case of the US deficits. Deficits have led to a build-up of public and foreign debts. When fiscal and external deficits eventually stop, or at least when the ratios of internal and external debt to GNP are stabilized, higher public debt in the US will mean lower US savings at any level of income, lower world savings and lower world capital accumulation. Higher US debt vis a vis the rest of the world will require a trade surplus to finance the interest on the debt.

□

<sup>12</sup> A more formal treatment is given in Blanchard (1985) for the case of one country with or without access to international capital markets, and by Frenkel and Razin (1986) for the case of two countries linked by perfect capital markets. The analysis which follows assumes that debt is partly net wealth, so that Ricardian equivalence does not hold.

**4.2.1. The increase in public and foreign debts.** How large are these long run effects likely to be? The place to start is to ask what will be the ratios of internal and external debt to GNP as a result of the deficit strategy? This is another impossible question to answer as, in addition to specifying what fiscal policy would have been, it requires assumptions as to what would have happened to interest rates and growth through the 1980s and the 1990s; but back-of-the-envelope computations are again useful. The ratio of government debt (held by the public excluding the Fed) to GNP was 23.1% in 1980, 37.2% in 1986 and is forecast to be 41% by 1989. What would it have been in the absence of the deficit strategy? In the 1970s, primary deficits and inflation-adjusted deficits were on average both equal to zero (the equality between the two reflects the fact that real rates of interest were close to zero). This suggests two alternative assumptions, which yield upper and lower bounds on the increase in debt.

A first assumption is that primary deficits would have been equal to zero from 1980 on, so that debt to GNP would have increased by the difference between the real rate of interest and the growth rate of GNP. Assuming this difference to average 3%, the ratio of debt to GNP would have been equal to 31% by 1989. Thus, under that assumption, the ratio of debt to GNP will be 10% higher than it would have been. An alternative assumption is that inflation-adjusted deficits would have been equal to zero, so that the debt to GNP ratio would have decreased at the rate of GNP growth. Assuming a growth rate of 2.5%, the debt to GNP ratio would have been 12% by 1989, 29% lower than the current forecast. This suggests that, by 1989, the ratio of debt to GNP will be between 10 and 30% higher than it would have been. By 1989 however, it will still be growing: forecasts of 2% growth and inflation-adjusted deficits of 1.8% imply that the ratio of debt to GNP, which will by then be equal to 41%, will still be growing at a rate of 1% per year.

Similarly, if we use DRI's current account forecasts, the ratio of foreign debt to GNP will be 17.5% higher by 1989 than if the current account had remained balanced through the 1980s, as it was for most of the 1970s (this number assumes the same 3% difference between the real rate of interest and the growth rate of GNP). While the level of net external debt is not known with precision, it is thought that it was close to zero in 1985; this implies that by 1989, the foreign debt to GNP ratio will still be growing by between 1% and 2% a year.

**4.2.2. The effects of higher debts.** The next step is to assess the effects of the increase in US public debt on capital accumulation. This question is even more difficult to answer than the previous one, as the answer depends on the effect of public debt on savings, and the long-run

elasticity of savings with respect to interest rates, about which we know very little. Because of high capital mobility, I consider the effects on world accumulation (where 'world' refers to the set of countries with high capital mobility), without distinguishing between the US and the rest of the world. Theory suggests that the long-run decrease in the capital stock is likely to be less than the increase in debt, that displacement is likely to be less than one for one.<sup>13</sup> Taking the upper bound for the increase in the US public debt to GNP ratio to be 35%, assuming one-for-one displacement, assuming that the capital-output ratio is equal to 2, and that the US capital stock is one-third of the world's capital stock, the upper bound on the decrease in the world's capital stock is 6%.<sup>14</sup> This is a large number, but it is only an upper bound, and is based on too many tenuous assumptions to command much confidence.

How do these changes in the world's capital stock and in the level of US external debt finally translate into changes in consumption? Lower asset holdings reduce income proportionately to the net rate of return. On the other side, less saving is required to maintain a lower asset to GNP ratio while the economy is growing, the reduction being proportional to the growth rate. All in all, a lower ratio of assets to GNP implies a decrease in consumption in proportion to the difference between the real rate of return and the growth rate. At the world level, if we take the net marginal product of capital to be between 5 and 10% and the growth rate to be 2.5%, this implies an upper bound on the decrease in world consumption of 0.15% to 0.45%. The external debt raises similar questions. The issue is what trade surplus will be required to service the US debt once it has stabilized. As a trade surplus requires a reduction in domestic spending (relative to the no-debt situation), the question then is ultimately one of spending restraint. Here again, we need to consider the difference between the real interest rate and the growth rate of GNP. When the real interest rate is lower than the GNP growth rate, there is no burden of the debt as the debt grows less fast than GNP and the debt to GNP ratio eventually stabilizes, even with a trade deficit. DRI forecasts the short real interest rate to average 2% throughout the 1990s. If we assume the US GNP to grow at an

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<sup>13</sup> In the analyses of Blanchard or Frenkel and Razin, given wage income and the interest rate, the effect of debt on steady-state capital is equal to minus one if the interest rate is equal to the subjective discount rate and debt is not neutral. The effect is smaller when the effect of capital on the interest rate, and the effect of the interest rate on savings are taken into account.

<sup>14</sup> It is interesting to note that such a change in the capital stock would, under plausible assumptions, have little effect on marginal products and thus on steady-state world interest rates (this point was already made by Blanchard and Summers, 1984). For example, if the technology was Cobb-Douglas, with share of capital equal to 0.25, a 6% decrease of the capital stock would increase its marginal product by 4.5% and the real interest rate by 60 basis points if the marginal product was initially equal to 15%.

annual rate of 2.5%, the US will grow out of its higher debt level at no cost.

The experience of Latin American countries in the 1970s and 1980s which, based on the similar computations, borrowed heavily only to see the real interest rate later exceed their growth rates, warns us that the relevant rate is not necessarily the expected rate.<sup>15</sup> However this does not tell us what rate we should use. Assuming, for example as above that the difference between the real interest rate and the growth rate is between 2.5% and 7.5%, a 20% increase in the ratio of foreign debt to GNP implies the need for a permanent trade surplus, and thus a permanent decrease in US consumption, of 0.5% to 2.5% of GNP. The lower end seems the more plausible. To the extent that this trade surplus requires real depreciation, the decrease in the terms of trade will further affect welfare.

To summarize, higher US public debt will decrease capital accumulation and consumption not only in the US but in the world. Higher US foreign debt will imply lower US consumption. Putting numbers on those effects is a perilous exercise; the numbers I have derived suggest that the effects may not be negligible. This analysis has assumed that the taxes needed to service the interest on debt do not create distortions. To the extent however that they do, higher US public debt will have one additional effect. An increase of 35% in public debt, and a 5% difference between the real interest rate and the growth rate imply an increase in the ratio of taxes to GNP of 1.7%. Given the analysis of non-interest spending trends in the previous section, this implies that the level of taxation will not be very different after Reagan from what it would have been in the absence of Reagan. If taxes were non-distortionary, there would be no further effects beyond those we have just studied. But to the extent that taxes are distortionary, the higher level of debt will imply higher taxes and higher distortions. This provides the transition to the last section, which deals with the supply-side effects of the policy.

## 5. The supply-side effects

Freeing the forces of the supply side was the ultimate goal of the Reagan program. Behind short-term developments and the adverse effects of

<sup>15</sup> Comparisons of real interest rates and GNP growth rates arise in many contexts in macroeconomics: dynamic inefficiency, burden of the debt, bubbles. It is a vexing problem that the sign of their difference often depends empirically on what interest rate we use, on whether for example we use the rate of return on equities or on bonds, or on short versus long bonds. As these rates presumably differ because of uncertainty and risk, the question of what rate to use must be analysed treating uncertainty explicitly. For a recent paper on that subject, see Abel, Mankiw, Summers and Zeckhauser (1986).

deficits on capital accumulation, can one discern signs of shifts in savings, labor supply, investment and productivity growth in response to those changes? This last section reviews both what has happened and what is likely to happen. In assessing the future, one should take into account the fact that taxes may eventually have to be raised to balance the budget. Not knowing what form this increase in taxation will take, I simply ignore that issue here; it is nevertheless relevant.

### 5.1. Changes in income distribution

As Solow points out elsewhere in this volume, the first-order effect of changes in taxes and transfers is to redistribute income. These income redistribution effects are there, whether or not they lead to supply-side effects. Thus, a natural starting point is to ask how Reagan policies have affected income distribution. Pechman (1986a, b) and Browning (1986) have studied the change in effective tax rates by income level from 1966 to 1985. (These effective tax rates reflect Federal, state and local taxes, and personal taxes as well as indirect and corporate taxes). They reach different conclusions about the degree of progressivity of the tax system and the tax rate for low-income families. They agree that the trend towards lower tax rates for the highest income group has continued under the Reagan administration. Pechman finds for example that the effective tax rate for families in the upper decile of the income distribution, which had declined from 30.7% in 1970 to 27.1% in 1980, further declined to 25.3% in 1985. This is a definite decrease, although hardly a dramatic one, which comes on top of an apparent trend increase in income inequality, which started long before 1980 and is largely unrelated to the Reagan policies.

Focusing on the effects of the Reagan policies on the income of the poor, a relevant measure is the proportion of persons below the poverty level, the poverty index.<sup>16</sup> It has the advantage of taking both transfers and taxes into account; it has the disadvantage of being strongly affected by economic conditions such as the 1981–82 recession, quite apart from changes in policy. The poverty index stood at 13.0% in 1980; it increased steadily from 1980 to 1983, to reach 15.2% in 1983 but has decreased since. The value of the index for 1985, which is the last available, was 14%. As unemployment rates were roughly equal in 1980 and in 1985, these numbers suggest some deterioration, although again not a dramatic one, in the standard of living at the lower end of the income scale. Weicher (1986), looking at the changes in the specific programs

<sup>16</sup> This measure is reported in the Census Population Report, series P60. The nominal amount defining the poverty level has increased with the CPI since 1980.

for the poor, reaches a similar conclusion. These numbers suggest that, overall, the Reagan policies have increased income inequality, although not by very much. I now turn to their incentive effects.

## 5.2. Savings and labor supply

The 1981 and 1986 tax changes changed the incentives to save and to supply labor. By decreasing tax rates across the board in 1981, and by reducing top marginal tax rates in 1986, they increased the after-tax return to both savings and labor supply. The 1981 tax changes further increased the return to retirement savings; these initial tax breaks have been partly but not fully offset by the 1986 tax reform.

Starting with savings, the evidence is that retirement plans for which contributions were partly tax deductible have been very successful. The amount contributed to these plans in 1985 was equal to half of personal saving (Hausman and Poterba, 1987. This includes contributions to IRAs and '401K' plans, which are profit-sharing plans operated by employers). But those contributions could well have come initially from portfolio reallocations, and even from inframarginal savings contributions later. A study by Venti and Wise (1986) concludes that 20% of the IRA contributions have come from portfolio reallocation, 30% from amounts which would have been saved anyway, and 50% from reduced consumption. One would expect the first effect to disappear after a few years, so that these numbers are suggestive of some effect on savings.

The aggregate evidence on savings is however much less impressive. Table 11 gives for 1980 to 1985 the net national and private savings rates, with and without inflation adjustment. Because the adjustment for depreciation has been criticized, the table also presents the gross private savings rate. Finally, it gives the sum of private inflation-adjusted net savings and purchases of durables, which are in part savings. The results reported in Table 11 assume that corporate and property taxes are borne by capital, payroll taxes by labor, consumption taxes by consumers and personal taxes by those who pay them. Many other factors, probably more important quantitatively than tax changes, have affected savings during that period; we would expect most of these factors to have increased the private savings rate. Unless taxpayers either refused to consider the possibility that taxes would eventually be increased, or assumed that deficits would be reduced entirely by lower spending, private saving should have increased somewhat in response to public dissaving. Higher real interest rates during the period should also have led to higher saving. The evidence from the table however is simply that the savings rate, no matter how defined, has not increased in the eighties.



**Table 11. Savings rates (% of GNP)**

Year	1970	1980	1981	1982	1983	1984	1985
Net national savings	6.5	5.2	5.7	2.0	2.0	4.2	2.9
Net private savings	7.4	6.4	6.6	5.5	5.7	6.9	6.3
Gross private savings	16.1	17.4	18.0	17.6	17.6	18.3	17.5
Net private savings inflation-adjusted	6.3	4.4	4.9	4.4	4.9	6.0	5.3
Net private savings inflation-adjusted+purchases of durables	14.8	12.4	12.8	12.4	13.4	14.7	14.3

Source: *Economic Report of the President* (1987).

This is not good news for believers in an impending savings boom. Can the view that tax incentives will eventually increase savings be rescued? The best defense, and not an absurd one, is that tax incentives may take a long time before they lead to a higher supply of capital. (If for example, consumers have a very low intertemporal elasticity of substitution, they may in response to a higher rate of return initially increase consumption and decrease savings). But wealth will accumulate at a higher rate of return, so that wealth may end up larger than before the change in rates. In this case, an increase in the rate of return initially decreases the savings rate, only to increase it eventually. While this is a possibility, there is no hard evidence of a change in saving behavior.

Effects on labor supply have been studied both by looking at the actual effects of the 1981 changes, and by predicting the effects of these changes using estimated models of labor supply. Lindsey (1986), comparing tax returns for 1982–84 to a baseline projection based on pre-1981 tax return data, has found taxable income to have been roughly 2% higher than would have been predicted in the absence of tax changes. His results may however partly capture changes in reporting. Using estimates of labor supply from Hausman (1981), Hausman and Poterba (1987) conclude that labor supply by married men has increased by 0.4% as a result of the 1981 tax changes, and will increase another 0.9% as a result of 1986 tax reform. They also estimate that the labor supply of married women will increase by 2.6% as a result of the 1986 tax bill, largely as a result of increased participation. These are positive, but not very large effects. Hausman and Poterba find however that the changes in taxation will have substantially decreased the inefficiency (deadweight) losses associated with taxation: for example, if the inefficiency losses are measured in units of income, the ratio of these losses to taxes on income from married women will have decreased from 0.58 before 1981 to 0.25 after the 1986 reform.

### 5.3. Investment and productivity

Taxation of business investment was sharply reduced in 1981 and investment has been strong during the recovery despite the higher rates of interest. This suggests that tax cuts have indeed stimulated investment since 1982. Bosworth (1985), looking at disaggregated evidence, confirms the strength of investment given interest rates but finds however that most of the investment has taken place in sectors not particularly affected by tax reductions. The 1986 tax reform has increased taxation again, so that effective corporate tax rates, at given real required rates of return and inflation, are close to what they were before 1981. Thus, whatever effect the lower levels of taxation implied by the 1981 changes may have had on capital accumulation will disappear in the future.

The tax reform of 1986 however does more than increase tax rates. It reduces differences across effective tax rates on business investment. Different effective tax rates across sectors imply that the allocation of the total capital stock among industries is not optimal. As a result, the aggregate stock of capital is larger than optimally needed to produce the aggregate output. How large a gain in efficiency and output has the tax reform achieved? Auerbach (1983) computed the decrease in corporate capital which would be achieved by equalizing tax rates across types of capital and reallocating capital optimally. His answer was that the capital stock could be decreased by 3%; the tax reform has not gone as far as equalizing all tax rates and thus the efficiency gain must be smaller. Furthermore, as Summers (1987) has argued, the tax reform, which has not removed the preferential treatment of owner-occupied housing, in fact increases distortions between corporate and residential capital.

Any effect of policy on the level of productivity growth would eventually dwarf both the effects of debt computed in the previous section and the effects on savings and investment reviewed above. It is not clear how and why policies would have affected productivity but we understand productivity growth so poorly that this possibility should not be discarded *a priori*. Table 12 gives both labor and multifactor productivity growth numbers for the period 1960–85.<sup>17</sup> Labor productivity growth in the non-farm business sector, which had decreased from an average 2.3% in the 1960s to 1.3% in the 1970s, has remained at a low 1.2%

<sup>17</sup> Multifactor productivity growth is that part of productivity growth which is not due to increases in either labor or capital. Equivalently, it is equal to labor productivity growth, adjusted for changes in the capital-labor ratio. The number reported in the table is computed by the Bureau of Labor Statistics as the difference between output growth rate and the average growth rate of capital and labor weighted by their respective shares in value added.



Table 12. Productivity growth (%)

	Labor productivity			Multifactor productivity	
	Non-farm	Manufacturing	Services	Non-farm	Manufacturing
1960-69	2.3	2.7	1.2	3.8	4.0
1970-79	1.0	2.4	0.8	2.8	2.7
1980	-0.3	-0.1	0.5	-1.2	-4.6
1981	1.5	1.9	1.0	1.6	1.5
1982	-0.4	2.3	-3.8	-3.3	-6.3
1983	2.6	6.0	-0.1	4.8	6.2
1984	2.1	4.2	1.4	7.7	10.2
1985	0.3	4.1	-0.7	2.9	3.7
1980-85	1.2	3.6	0.3	1.4	1.5
1986	0.5				
1987*	1.0				
1988*	1.9				
1989*	0.9				

Source: DRI Database and *Monthly Labor Review*, April 1987

Note: \*DRI forecasts, February 1987. Labor productivity growth: rate of growth of GDP per person-hour. Multifactor productivity growth: rate of growth of output per person-hour, adjusted for changes in the capital labor ratio, computed by the Bureau of Labor Statistics.

over the period 1980-85. This poor performance comes largely from poor productivity growth in the service sector, which has experienced little labor productivity improvement since 1980. Even in manufacturing, which has experienced 3.6% labor productivity growth since 1980, numbers for multifactor productivity growth suggest that much of this growth has been the result of capital deepening, with multifactor productivity growth in the 1980s contributing only 1.5%, compared to 2.7% in the 1970s and 4.0% in the 1960s. DRI forecasts do not predict much change in the near future: they predict an average labor productivity growth rate of only 1.3% over the next three years.

This would therefore lead one to be pessimistic about strong supply-side effects on investment and growth. Yet, investment has been stronger than would have been predicted on the basis of past investment behavior, even taking into account the effects of the reduction in effective tax rates. As shown in Table 6, the stock market has also been very strong. While real interest rates on bonds first increased, and then decreased over the last year, dividend-price ratios have consistently decreased over the last five years. Under the assumption that it represents fundamentals rather than bubbles, the price of stocks is the present value of future dividends discounted at a rate including the risk premium on equities over bonds. This in turn implies the following

relation:

$$\begin{aligned} \text{dividend-price ratio} &= (\text{long real rate}) + (\text{risk premium}) \\ &\quad - (\text{expected growth rate of dividends}) \end{aligned}$$

The difference between the dividend price ratio and the long real rate, which was equal to 5% on average in the 1970s, decreased to become negative in 1982–83 and is now approximately equal to zero. Three, not mutually exclusive, explanations are possible: the first is that the market is subject to a speculative bubble or is simply irrational; the second is that the risk premium on equities has decreased; the third is that the market expects more growth and thus higher growth of dividends. The first explanation may well have some relevance.<sup>18</sup> In Blanchard and Summers (1984) we found no evidence that risk factors, the second possible explanation, had changed and concluded that the third explanation was probably partly responsible for the rise in the stock market. The conclusion today is still the same: the stock market appears to have expectations of growth higher than those embodied in current forecasts.

## 6. Conclusions

The Reagan conservative policy and its deficit strategy will have shaped the macroeconomic events of the 1980s. When the dust settles however, the lasting effects may not match the intensity of the action. Inflation will be lower. The role of government will have been questioned and partly redefined. Non-interest government spending will end up lower by a few percentage points than it would have been in the absence of the policy. But because of interest payments on the increased debt, this relative decrease in non-interest spending will not translate into a decrease in overall spending or taxation.

The deficit strategy will have led to a steady recovery in the 1980s at the cost of a decrease in world capital accumulation in the long run and a higher US foreign debt. But despite lower inflation, less government intervention and less distortionary taxation, there are few signs that the 1990s will be a decade of supply-side renaissance.

Thus, lacking the supply-side explosion which would have commanded wide support, whether one judges the outcome as a lot of action and commotion for a meagre result, or instead as a successful attempt

<sup>18</sup> In particular, the Modigliani-Cohn (1979) explanation – which was offered before the increase in the stock market – that the market mistakenly compares nominal rates on bonds to dividend price ratios, does a surprisingly good job of explaining the movement in the stock market since 1981.

to redefine the role of government while maintaining high employment and steady growth, must ultimately depend on one's values. The results certainly look good compared to those of European conservative policies and this raises two sets of questions. As both are discussed at length at various points in this volume, I shall limit myself to a few remarks.

Did the Reagan tight-money loose-fiscal mix work because it was used only by the US? Put another way, did the US performance imply as a counterpart the prolonged European recession? There is very little support for this argument. What we know about transmission mechanisms of policies across countries suggests that the net effect of the US mix, at unchanged European fiscal and monetary policies, was probably not contractionary; even if it was, it could have been offset by a change in the European policy mix: if this had been done, the US recovery would have been stronger, not weaker. At the same time, it is worth noting that the US disinflation (and the European one for that matter) has contributed to the debt crisis, by simultaneously increasing real interest rates, decreasing the demand for LDC exports and turning the terms of trade against LDCs. This is surely a cost of the disinflation which has to be taken into account. But there is no sense in which the poor performance of the debtor countries is the mirror image of the US performance.

Should Europe have adopted a Reagan strategy? Should it have shed fiscal austerity in favor of a more expansionary fiscal policy? Surely, wholesale imitation would have been unwise. Fiscal deficits were much higher in Europe than in the US to start with. The political bet that deficits would lead to decreases in spending was tailored to American political institutions, not necessarily to European ones. But the question remains whether European conservative policies would have worked better, had they relied both on supply-side incentives and demand expansion. My opinion is that they would (see Blanchard and Summers, 1987).

## **Discussion**

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Olivier Blanchard presents a clear and balanced assessment of the performance of the American economy in the Reagan years, and of the connection of this performance to the policies of the Reagan Administration. I agree with most of Blanchard's economic analysis, but disagree on the political analysis. Blanchard characterizes the Reagan policy as a 'political bet'. He argues that by cutting taxes the

Administration 'bet' that it could force Congress to cut spending, thereby shrinking the economic size of the Federal government. The tax cuts would create a deficit that would force Congress to act on spending. On this interpretation, one could argue that the Reagan fiscal policy was a clever attempt to shrink the size of the government, thwarted by a recalcitrant Congress that refused to play its role. This is Blanchard's interpretation.

I disagree. The political bet is revisionism that rationalizes the biggest fiscal policy mistake in the United States since World War II. The Reagan policy was based on the theory that cutting tax *rates* would increase tax *revenue* thereby creating a budget surplus. The Reagan budget projections of 1981 – the rosy scenario – showed rapid growth and rising revenues. The deficit that expanded until 1983 was blamed on the recession and the Federal Reserve. It was not until the deficit refused to shrink as the recovery began in 1983 that the Administration had to recognize the emergence of a 'structural deficit'. Then the political bet interpretation was developed to rationalize the policy mistake of 1981. The Reagan fiscal program has created major structural problems for the US and the world economies. This program was not based on a clever political ploy; its foundation was incorrect economic analysis.

Reagan's fiscal program has changed and will further change the composition of Federal expenditure in ways that have considerable social significance. The main items of expenditure to suffer are the entire array of programs that were expanded in the 1960s and 1970s – urban and regional development, housing, research, etc (many of which originate in Lyndon Johnson's 'Great Society' program). Indeed, Charles Schultze of Brookings points out that this category of spending increased from 6.2 to 9.5% of GNP from 1964 to 1980, but fell back to 7.9% by 1985, and, on present policies, will be down to 6.6% by 1990.

The effects of the Reagan fiscal program on the US macro economy are summarized in Blanchard's Table 5. There we see the rise in the real long-term interest rate from 1.5% in 1980 to 6.0% in 1982. This is extremely unusual for the US economy. Normally the long rate falls in a recession. The real exchange rate in Blanchard's data shows a real dollar appreciation at irregular rates from 1980 to 1985, with an initial jump of 19% from 1980 to 1981. This rise in real interest rates and the dollar was needed to 'crowd out' investment and the current account to make room in full-employment output for the emerging structural deficit.

The increase in interest rates and the dollar contributed to the recession that is shown in the first two rows of Blanchard's Table 5. There we see unemployment rising from 1980 to 1983, with negative

real GNP growth in 1982. The recession was due in part to the financial markets; anticipation of the effects of the budget change in 1981 (see Branson, Fraga, and Johnson, 1986 for details).

Here the *timing* of the fiscal package and the movements in real interest rates and the dollar is important. The fiscal program was announced in 1981, but we see in Blanchard's Table 2 that its effect only began to appear in the budget data in 1982. But the announcement drove up interest rates and the dollar in 1981 in anticipation of the impending budget shifts. These movements depressed demand before the expansionary effect of the actual fiscal expansion was felt. So while I agree completely with Blanchard's view that the tax cuts and spending increases contributed in standard Keynesian fashion to the recovery beginning in 1983, the markets' anticipation of this program contributed to the recession. The Reagan fiscal-led recovery was from a recession of its own creation.

There are several reasons for believing that the performance of the US economy under Reagan has been dismal. Note, for example, that in nominal terms total corporate profits in 1986 were at the same level as 1979, with a major slump in between these years. Unemployment rates never fell below 6.5% from 1981 to 1986. Real before-tax average weekly and hourly earnings have fallen during the Reagan Administration; in 1986 they were below the 1980 level. This is also true of real net farm income, which is still below its 1979–81 level. Real long-term interest rates have remained at record high levels throughout the period since 1981. National and private saving rates have fallen since 1981. The ratio of personal saving to disposable personal income, which fluctuated in the range of 5–7% during most of the post-World War II period was down to 3.8% in 1986. The only major macroeconomic indicator that has shown substantial improvement during the conservative Reagan years is inflation. Even here, it is arguable that this gain is the result of credibly tight monetary policy that had to fight against expansionary fiscal policy. Credit for inflation reduction goes to the Fed and Mr Volcker, not to the Administration.

The shift to a policy mix of fiscal ease and tight money generated the real appreciation of the dollar from 1981 to 1985. Econometric estimates reported by Branson and Love (1987) show that the dollar appreciation reduced manufacturing employment by 5%, or about 1 million jobs. Further, the period of appreciation was long enough to make it possible that new foreign competitors would remain competitive even after the dollar had depreciated back to its 1980 levels, making recovery in these industries difficult. So the policy mix of the Reagan years has undermined US strength in major manufacturing sectors.

The Reagan fiscal program required a substantial current account deficit to finance it. This was achieved by the dollar appreciation. The accumulation of deficits has shifted the US from a position of international creditor to debtor. By 1987 the US net foreign debt was over \$250 billion, and growing by \$100–150 billion a year. As Blanchard notes at the end of his Section 2, this access to foreign borrowing insulated domestic investment from a major crowding-out effect up to 1985. The fall of the dollar since 1985 and the upward movement of real interest rates in the US since 1986 are now shifting the burden of financing the deficit away from the current account and foreign borrowing toward reduced domestic investment, which doesn't bode well for future productivity growth.

To summarize, the macroeconomic record of Reaganomics is not good. Inflation is down. There has been a recovery since 1983, but it was from a recession partly due to the fiscal program. Almost all major macroeconomic indicators other than inflation have shown a deterioration. Manufacturing has lost a million jobs and the US is now an international debtor. Not a good record!

What is the outlook for the dollar and the US economy as the Reagan term comes to an end? As of April 1987, the real depreciation of the dollar had reversed much of the 1981–85 appreciation, but the dollar was still above its 1980 level. To see where the dollar's equilibrium might be, we can ask what is the trade balance going to be relative to 1980 when the US finally reaches current account balance sometime in the 1990s?

In 1980 the US had a trade deficit of about 1% of GNP, financed by an inflow of income on foreign investment. When the US again reaches current account balance, it will have to run a trade surplus to service the debt accumulated during the 1980s. At the end of Section 4, Blanchard calculates that this surplus would be about 0.5% of GNP. So from 1980 to the new equilibrium in the 1990s, the trade balance will have to swing from deficit to surplus by about 1.5% of GNP.

How much of a real dollar depreciation relative to 1980 will achieve this 1.5% of GNP swing? Dornbusch and Frankel (1987) present econometric estimates that show a 13.5% real depreciation would yield a gain in the trade balance of 1% of GNP. This elasticity estimate is close to current conventional wisdom in the US. The implication is that the dollar must in the end depreciate in real terms by about 20% relative to 1980 to obtain the necessary swing in the trade balance. Since we are now (April 1987) above the 1980 level, this means that at least 20% further depreciation is yet to come.

The dollar depreciation can come in two different scenarios. In the one that is now being played out, the budget deficit remains high, and



world investors begin to resist further dollar accumulation. This reduction in the world supply of capital to the US raises US interest rates relative to world rates (via a dollar risk premium) as the dollar depreciates. In this scenario US investment falls and growth slows. Future US taxpayers will have to service the foreign debt from a slower-growing capital base.

In the second scenario, the budget deficit is reduced, and interest rates fall as the dollar depreciates. This reverses the action of 1981, and recovery of the current account is facilitated by a shrinking deficit instead of falling investment. In this more pleasant, but also more remote, scenario, the US economy is left with a debt to service, and adjustment costs to pay as new manufacturing sectors expand to replace those that shrunk in 1981–85. But no reduction in the long-run growth rate would be needed. This seems to be the best available scenario at the end of the experiment with Reaganomics.

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Having read Olivier Blanchard's lucid review of Reaganomics, it is only natural to pose the question as to whether the strategy of a tight-money loose-fiscal policy can or should be adopted by European countries.

One reason why a Reagan strategy might have different effects in Europe is because of the possibility that expansionary fiscal policy (for a given monetary policy) can lead to a depreciation of the exchange rate. Indeed, the OECD model suggests that, for the UK, it does lead to a depreciation. This considerably reduces the attractiveness of a Reagan policy mix, for it no longer improves the inflation-output tradeoff.

It is also worth noting that even if the Reagan policy mix had the same effects in Europe as in the US, we cannot, of course, *all* succeed in securing exchange rate appreciation. Further, since debt-income ratios have been on a rising trend in some European countries, it is not obvious that we should encourage a move towards looser fiscal policy. In addition, one should not ignore the harm that Reaganomics has inflicted on the less developed countries (LDCs hereafter) by inducing a combination of high real interest rates and an appreciating dollar. Were Europe to also adopt similar policies, it might only exacerbate the problems of the LDCs. While on the theme of the international dimensions of Reaganomics, one might also question whether a situation where the US has become a major borrower on international capital markets, while Latin American countries are net exporters of capital,

is consistent with either an efficient or an equitable allocation of capital.

Blanchard argues that, even if the net effect of the US policy mix on Europe was contractionary, it could have been offset by an appropriate change in European policies – specifically, Europe could either have increased real interest rates, or accepted lower exchange rates. However, even higher real interest rates would have further reduced investment in Europe, while lower exchange rates would only have worsened the inflation-output tradeoff.

I am also unconvinced by Blanchard's assertion that the eventual effect of the policy of high budget deficits will be to reduce the capital stock. This claim is based on some long-run model where full employment prevails. However, in the short run, if the US had not run a budget deficit, both US and world economic growth would have been lower, which, through standard 'accelerator-type' effects would have implied lower investment. Now, if one allows the short-run performance of the economy to permanently affect the eventual long-run equilibrium, (through, for example, 'learning by doing', embodied technical progress or hysteresis in the unemployment rate) then one may argue that the overall effect of the policy of budget deficits will be to have *increased* the capital stock.

Finally, I must confess that I am less sanguine than Blanchard about the possibility of a smooth transition to a situation where the budget and current account deficits are eliminated. Given the prospect of deficits for a long time, foreign exchange operators may, rightly or wrongly, begin to fear that monetary policy might be relaxed. We might then be in for a bumpy ride!

### General discussion

Georges de Menil and Patrick Minford felt that Olivier Blanchard had underestimated the adverse effects that the current account deficits induced by Reaganomics might have. It was, for example, possible that we would see the US Congress approving protectionist measures, which could, eventually, lead to a very damaging trade war. In that sense, the fiscal experiment that had been pursued was a dangerous one, and the next few years may be considerably more turbulent than the author appeared to envisage.

Robert Solow sought to question various aspects of the 'political bet' thesis. In the first place, he felt that when reviewing a historical episode, there was always a temptation to impose a semblance of order even though it really wasn't there. It is unlikely that, amidst the chaos, the



Administration was actually operating in the clear and sophisticated way that the ‘political bet’ thesis entailed. It isn’t even obviously true that the Administration approved of the tight-money component of the policy mix – for, in 1981, attacks by members of the Administration on the Fed were commonplace. Solow agreed, though, that the Reagan Administration had won half of its supposed ‘political bet’, in that it was very difficult to envisage any significant tax increases in the future. Blanchard’s attempt to judge the outcome of the ‘political bet’ by comparing the ratio of spending to GNP in 1980 not with its level in 1980, but instead with the level implied by its pre-1986 trend growth was highly misleading. It was likely that a Democratic government would also have reined back government spending and, indeed, this was explicitly stated during the Carter election campaign in 1980. Staying with the ‘political bet’ theme, Roland Vaubel pointed out that it was by no means unique to the US. The present government in Germany also appeared to be following a similar strategy, in that they had agreed on major tax cuts, and were using them to create pressure to cut spending.

William Branson expressed some surprise at the discussion in the paper regarding why the level of share prices was now ‘so high’. One could equally legitimately puzzle over the poor performance of the stock market in the last 20 years – specifically, why was the general level of share prices still lower (in real terms) than it had been in the 1960s?

In his response to his critics, Olivier Blanchard disagreed with David Currie regarding the effects of US policies in Europe. After all, the standard Mundell-Flemming model implied that the effects of US policies were beneficial to Europe. Even if this model were misleading, and the overall effect was to reduce European output, it was difficult to believe that it was other than minor. Moreover, European governments always had the option of taking offsetting actions. However, Blanchard agreed with Currie that the computations of the effects of fiscal expansion on the capital stock could be misleading once one allowed for hysteresis in the unemployment rate. On the ‘political bet’ hypothesis, Blanchard stuck to his guns, arguing that it was scarcely credible that anyone in the Administration seriously believed that the tax cuts would not lead to deficits.

### **Appendix. The arithmetic of the user cost of capital**

Following Auerbach (1983), the user cost  $c$  is:

$$c = (r + d)(1 + t - uz)/(1 - u) \quad (\text{A1})$$

where  $r$  is the required after-tax rate of return,  $d$  the depreciation rate,

$t$  the investment tax credit,  $u$  the corporate income tax rate and  $z$  the present value of depreciation deductions. The rate  $r$  depends in turn on the real rates which have to be paid on equity and debt, according to:

$$r = (1 - b)(1 - u)i + be - p \quad (\text{A2})$$

where  $b$  is the proportion of investment financed by debt,  $i$  the nominal interest rate on debt,  $e$  the nominal rate of return on equity and  $p$  the rate of inflation. Nominal interest payments are deductible from profit for tax purposes so that equal increases in  $i$ ,  $e$  and  $p$  decrease  $r$ .

Tight money increases real rates of return on debt and equity, increasing  $r$ . See for example Auerbach (1983). There is another effect which works through  $z$ . As depreciation deductions are in nominal terms, a decrease in inflation increases  $z$ ; an increase in the rate of return decreases  $z$ . The two effects partly cancel here. If they are small and  $z$  is close to 1, the effect on  $c$  of changes in  $r$  is roughly one-for-one. The numbers for real interest rates in Table 1 suggest that tight money led to an increase in user cost of the order of 3–5%. To go from the numbers in Table 1 to  $r$ , one needs to make assumptions about  $e$ . One assumption is that the premium on equity remains constant, so that  $e$  and  $i$  increase by the same amount. Another assumption, which has some plausibility given the decrease in dividend/price ratios during the period, is that the premium on equity has decreased. This assumption leads to a smaller increase in  $r$  than the first.

Tax reform shortened write-off periods, which increases the present value of depreciation deductions,  $z$ . The effect of  $z$  on  $c$  is  $(r + d)$ , if  $u$  is close to 0.5. Thus assuming  $r + d$  to be equal to 15% for example, an increase in  $z$  of 10 to 20%, which is what was implied by changes in taxation for different types of assets, implies a decrease in user cost of 1.5 to 3%. This suggests that the tax changes only partly cancelled the effects of monetary policy.

The effective tax rate  $T$  shown in Table 4 is the rate which, if applied to corporate income, would lead to the same user cost when there is no investment tax credit ( $t = 0$ ) and when depreciation is computed at its true economic value, i.e. with a present value  $d/(r + d)$ , then:

$$c = (r + d) \left( 1 - T \frac{d}{r + d} \right) / (1 - T) \quad (\text{A3})$$

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