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FUTURE SOCIAL SECURITY FINANCING ALTERNATIVES AND NATIONAL SAVING

by

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ABSTRACT

While the short-run financial status of Social Security is secure, its long-run financial status is very uncertain. The retirement and disability part of the system (OASDI) is projected to be in long-run actuarial deficit under the Social Security Administration's intermediate economic and demographic forecasts. Hospital Insurance (HI) is projected to run a large deficit, beginning in the 1990s. OASDI is projected to accrue a very large surplus over the next thirty years, peaking at almost 30% of GNP. Social Security has never accrued a surplus this large; it may well be dissipated for other purposes, such as to bail out HI, fund other programs, raise benefits, or cut taxes. These alternatives may affect net national saving, directly because Social Security surpluses or deficits are part of government sector saving and indirectly through effects on private saving or the non-Social Security part of the federal government budget.

This paper documents how various systematic deviations from, or return to, pay-as-you-go finance of the Social Security system may affect net national saving. For example, under base case assumptions with respect to the non-Social Security deficit, a constant net private saving rate of 6%, and long-run budget balance in the state and local government sector, the Social Security deficit offsets 40% of other net national saving over the Social Security Administration's 75-year projection period. In the first 25-year sub-period, the Social Security surplus adds one-sixth to other net national saving; in the second, it offsets almost one-half; and in the third, it offsets five-sixths of other net national saving.

Of course, private saving may respond to changes in Social Security's funding as may the non-Social Security balance in the federal budget. The paper presents several alternative scenarios such as benefits increasing or taxes falling during the OASDI surplus period, various stylized rules concerning the non-Social Security budget deficit, and separate balancing of HI via outlay reductions or tax increases. The results indicate that OASDI may effect net national saving substantially. For example, if benefits ratchet up during what would have been the period of the OASDI surplus, the OASDI system may subsequently offset virtually all of remaining net national saving. On the other hand, if HI is brought into balance and the OASDI surplus is allowed to accrue, Social Security will offset only about 4% of other net national saving.

Changes in private saving may accentuate or ameliorate the swings in the net national saving rate generated by the future financing of OASDHI, but the alternative financing options will be important determinant of net national saving, and therefore of private domestic investment and international capital flows.

1. Introduction

While the short-run financial status of Social Security is quite secure, its long-run financial status is very uncertain. First, future economic and demographic trends will heavily affect revenues and outlays. Second, except under the Social Security Administration's optimistic economic and demographic scenario, the retirement and disability part of the system (OASDI) is projected to be in long-run actuarial deficit: small under the intermediate assumptions; large under pessimistic ones. Hospital Insurance (HI) is projected to run a large deficit beginning in the 1990s. Finally, the OASDI system is projected to accrue (under the intermediate assumptions) a very large surplus over the next thirty years. This surplus is projected to cumulate to almost 30% of GNP, close to the current national debt to GNP ratio. This surplus is "designed" to reduce the need for still larger tax increases or benefit reductions during the baby boom generation's retirement. Figure 1 presents estimates of these average annual (not cumulative) surpluses and deficits in Social Security, including and excluding HI, over the next 75 years to highlight this projected movement away from pay-as-you-go finance.

We have never been able to accrue a surplus this large in Social Security; the retirement surplus may well be dissipated for other purposes (to bail out HI, fund other programs, raise benefits, cut taxes, etc.). These possibilities involve major inter-cohort transfers relative to accruing the surplus, as do, of course, the alternative methods of dealing with the long-run deficit (see Boskin (1986)). They also involve potentially major effects on net national saving in the United States, directly because of the role Social Security surpluses or deficits will play in government sector saving or borrowing and indirectly via whatever effects they have on private saving or the non-Social Security part of the federal government budget.

The purpose of this paper is to present calculations of the financial status of Social Security and its impact on net national saving under alternative economic, demographic, and future financing assumptions. Thus, the paper is organized as follows: the next section describes our methodology and data, and briefly discusses related analyses. Section 3 presents estimates under alternative economic and demographic assumptions of the long-run actuarial status of OASI. They indicate how the long-run financial status may vary from very large surpluses to very large deficits. Section 4 estimates the implications of alternative uses of the large surplus which is projected to accrue in OASI's trust fund: what difference it makes in the aggregate if the surplus is used to raise benefits or reduce taxes, or is spent on other programs.

Section 5 turns to the potential implications of these alternative scenarios for the level and time pattern of net national saving. The status of the Social Security system may affect the net national saving rate in several ways. First, the surplus (or deficit) in any year contributes directly to that year's net government saving (or dissaving). Second, a Social Security surplus or deficit may affect the surplus or deficit in the remainder of the federal government budget. Third, the status of Social Security may affect private saving. This paper concentrates on the first two avenues through which Social Security affects national saving. While I believe the weight of the evidence is that Social Security's expected evolution will affect private saving as well, this effect is somewhat more controversial and its magnitude subject to much dispute (while much important work has been done since then, the classic debate on the subject remains Barro and Feldstein (1978)). Thus, the results reported in this paper should be considered a large part of, but not the entire, story. The results are striking: alternative scenarios with respect to accruing or dissipating the surplus have major effects on the net national saving rate. Under the Social Security Administration's intermediate assumptions, Social Security's long-term deficit (including HI) offsets almost 40% of the remaining net national saving. The time pattern is equally interesting: a surplus adding one-sixth to net national saving in the 1986-2010 period, but a deficit offsetting one-half of all other net national saving in 2011-2035 and five-sixths in 2036-2060. With tax increases and/or outlay reductions to cover the HI deficit, the surplus adds one quarter to net national saving in the 1986-2010 period.

Section 6 discusses some of the implications of these results for investment, international capital flows, trade, and productivity growth.

Section 7 presents a brief conclusion which offers a short summary and repeats some caveats concerning interpretation of the results.

2. Data, Method, and Cursory Literature Review

Several studies analyze the long-run financial solvency of Social Security under alternative economic and demographic assumptions. The most important, of course, are the annual Social Security trustees' reports (formally, the Annual Reports of the Board of Trustees of the Old Age and Survivors Insurance and Disability Insurance Trust Funds). They present both short-and long-term actuarial projections of Social Security trust fund finances under alternative assumptions. The reports certainly have valuable information, but these data are presented only as fractions of taxable payroll (except, in one table, as fractions of GNP); dollar figures (whether discounted or not) are not presented for long-term projections. More importantly, the reports do not in fact consider what the state of the retirement (OASI) trust fund might be at the end of the report's 75 year horizon. Rather, it presents the simple average, over 75 years, of each year's surplus or deficit (that is, tax receipts minus benefit payments) as a fraction of that year's taxable payroll. The calculation considers neither the increase over time in taxable payroll nor the interest earned on the cumulated trust fund surplus. Thus, the 1986 report's claim that the OASI trust fund is in "close actuarial balance" because the average annual deficit is only 0.29 percent of taxable payroll is based on a fundamental misunderstanding of what that figure means. The report presents no sufficient basis for evaluating the long-run financial solvency of Old Age and Survivors Insurance.[1]

Boskin's (1986) estimates of the long-run financial solvency of OASI avoid these inadequacies by considering annual flows of dollars and by projecting the actual accumulation and decumulation of the OASI trust fund. He also considers what will happen if the expected cumulative surplus of the next three decades is dissipated (for example, by raising benefits) or if reforms are instituted in retirement age and other features.

The results presented here are based partly on computer simulations of present and future families covered by the Social Security system, and

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1. In fact, if the report were to present the correct calculation, based on the report's own assumptions and methodology, the resulting figures would be more optimistic under each of the four sets of assumptions used. A comparison of Tables 10 and F2 in the 1986 report shows that taxable payroll is projected to rise at a rate slightly below the assumed interest rate (under each alternative set of assumptions). This means that the earlier positive annual balances should be given greater weight than the later negative annual balances. Thus, the long-run actuarial balance should be reported as a little higher.

partly on the SSA projections discussed above. Our main simulation derives figures for annual income to and expenditure from the Social Security Administration's retirement (that is, OASI) trust fund over the next 75 years.[2]

This simulation begins with earnings records and other data concerning Social Security participants who were surveyed in 1973.[3] For subsequent years we estimate participants' earnings based on demographic characteristics, we derive benefits based on legislated benefit formulae, and we determine each participant's year of death through a random process based on mortality tables published by the Social Security Administration.[4]

Cohorts born beginning in 1953 are simulated differently. In considering typical male and female wage earners born each year, we derive their expected tax and benefit futures based on mortality probabilities and the proportion that can be expected to marry. We multiply by the number born each year (plus the number born that year who later immigrate as children) who will enter covered employment and thus derive figures for entire cohorts. To derive income and expenditure for the trust fund as a whole we make a further adjustment for taxes paid and benefits received by adult immigrants.

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2. For further information on this simulation, or rather on an earlier version of it, see Boskin, Avrin, and Cone (1983).

3. The 1975 Social Security Exact Match File merged individual records from the 1973 Current Population Survey with records of covered earnings.

4. Social Security Administration, Actuarial Study No. 92 (1984).

The discussion is based on a version of our simulation which assumes the tax law effective at the time of the Trustees' Report. Results presented below use the recently enacted income-tax law.[5]

In the main simulation we rely on Social Security Administration projections for the proportion of Social Security benefits which are recovered for the trust fund through income taxation. These estimates are that this proportion will rise from less than two percent in 1986 to about five percent in the mid-twenty-first century. Because legislated marginal tax rates have been reduced since the Social Security Administration made its projections we assume that, from 1988 on, 20 percent less will be collected in taxes on benefits. In 1987, the transition year, we assume that 10 percent less will be collected.

This simulation is parameterized by economic, demographic, and legal assumptions. The most important economic assumption is future growth of real wages. The chief demographic assumptions are mortality probabilities by age and fertility rates. The legal assumptions are payroll tax rates and formulae for the calculation of benefits. In the scenarios below we consider the alternative economic and demographic assumptions that the Social Security Administration itself uses for the scenarios in its annual

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5. Our calculation is certainly rougher than that undertaken by the actuarial staff of the Social Security Administration. As a result, we generate projections of aggregate taxes and benefits which vary from those of the 1986 Trustee's Report. Between now and 2010 we derive less in annual and cumulative surpluses (due to deriving less in tax receipts) than what the Trustee's Report suggests is likely. Our figures are close to those of the Trustee's Report in the early 2010s but thereafter until about 2040 we derive greater annual surpluses or lower deficits than those projected in the Trustee's Report. After 2040 we again generate higher annual deficits.

trustees' reports,[6] and we consider fixed multiples of the payroll taxes and and the benefits currently legislated.

3. Long-Run Financial Status of OASI Under Alternative Economic and Demographic Assumptions

Table 1 presents the results of the main simulation using the Trustees' Report's intermediate assumptions about future economic and demographic trends. It shows the basic trends, well known by now, that are expected to develop in the finances of the OASI trust fund. This trust fund will accumulate a substantial surplus over the next 25 years while the baby-boom generation is in its peak earnings years. In the following 25 years (more precisely, in the mid 2020s) when the baby-boom generation retires, benefit payments will begin to exceed payroll-tax revenues. In the third 25-year period there will be a still higher proportion of retirees to workers, and annual deficits will equal a fourth of tax receipts, or a fifth of net benefits.

For the whole 75-year period we project a deficit of nearly $500 billion in 1986 dollars discounted to 1986. This is equal to about 0.44 percent of (discounted) taxable payroll.[7] Thus a rise in the Social

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6. We do not consider alternative assumptions for unemployment, female labor force participation, immigration or real interest rates.

7. This is slightly more than the 0.29 percent long-term actuarial deficit presented in the Trustees' Report. We discussed above how the latter figure is not very meaningful, and how a calculation comparable to ours would yield a deficit that is lower in magnitude. A further difference is that our calculation assumes the new, lower marginal tax rates. Under the old tax law our simulated deficit is about 0.34 percent of taxable payroll. Finally, it should noted that we make no effort to calculate the future deficit in disability insurance (DI). The Social Security Administration

Security payroll tax rate of a little less than 0.44 percent effective now, or substantially more later, would be needed to close the long-run OASI trust fund deficit if the intermediate assumptions prove to be the case.

It is worth noting at this point why we present our figures in discounted terms. First, this enables us to consider the present value of potential futures of the OASI trust fund. This is especially valuable as we compare scenarios with different time paths of surpluses and deficits. Secondly, it obviates the need to give explicit consideration to the interest received (or paid out) by the trust fund on its calculated surplus (or deficit), if we assume that the interest and discount rates are identical. Of course, individual participants might value their benefits at more than the expected present value, as they are paid as inflation-indexed life annuities. The present (1986) value of the surplus or deficit through 2060 will equal the sum of the present values of annual surpluses and deficits until then. As a corollary, it becomes very simple to compute how taxes or benefits can or must be changed to bring the trust fund into actuarial balance.

The system finances are also presented in Figure 2, where the discounted surplus both annually and on a cumulative basis for the system are shown. On a cumulative basis the system starts to run a deficit (assuming the surplus accrues and real interest is 2 percent) around 2048, and on an annual basis, around 2025. We present below some hypothetical

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calculates this deficit as averaging 0.15 percent of taxable payroll, or half as large as the OASI deficit. The Social Security Administration total projected OASDI deficit is thus 0.44 percent of taxable payroll. The projected deficit in Hospital Insurance is another 3.5 percent.

scenarios of the surplus being dissipated or alternative economic and demographic projections which alter these conclusions substantially.

The Social Security Administration's intermediate economic and demographic assumptions are perhaps as reasonable as any, but we can be sure that they will not be realized with great accuracy.[8] It is thus important to consider the impacts of a range of possible futures on the Social Security system's finances.

Table 2 summarizes the effects of using the Social Security Administration's optimistic and pessimistic assumptions for future wage growth, future mortality (and hence, life expectancy), future fertility and various combinations of these parameters. Wide variations exist in results for the financial solvency of the retirement trust fund. The present (1986) value of the trust fund surplus (or deficit) through 2060 ranges from +$3.4 trillion to -$2.6 trillion, for the combined optimistic and pessimistic assumptions respectively.[9] We see in the column headed "year annual deficit begins" that only when the optimistic assumptions are combined do tax receipts exceed benefit expenditures in each year through 2060; otherwise current-flow deficits begin between 2014 and 2030. In the next column we see that the cumulative surplus suffices, however, to cover benefit expenditures until 2024 in the most

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8. For an analysis of the inaccuracy of the economic and demographic assumptions used in the past, see United States General Accounting Office (1986).

9. Undiscounted, but still in 1986 dollars, the respective figures are +$14.7 trillion and -$11.1 trillion. Subsequent figures are also presented in discounted terms. To remove discounting, multiply by 4.33.

pessimistic scenario and beyond 2060 in several of the optimistic scenarios.

The Social Security Administration's intermediate (II-B) assumption for growth in real wages, used in our base case, is that there will be an annual gain of one and one-half percent (with some fluctuation in the very short-run). The optimistic assumption considers a gain of two and one-half percent annually, and the pessimistic assumption considers a gain of one percent.

Interestingly, higher wage growth is better both for the system's finances and for participants in the system. An increase in the trust fund's annual surplus (taxes minus benefits) proves consistent with a higher ratio of benefits received to taxes paid for the participants. The reason for this is that increases in taxes, which vary with total wages, precede the increases in benefits to which wage growth leads. The wage index is used in the formula for determining benefits, and so a faster rise in this index provides a higher rate of return for participants. What "balances the books" is a growth in the unfunded liabilities of the retirement trust fund. These liabilities could become quite burdensome if wage growth slows in the future.

We see in Table 2 that variation in wage growth changes taxes and benefits in the same direction, but that taxes change to a greater extent. High wage growth increases the long-run surplus by $1.37 trillion, more than offsetting the long-run deficit expected under the base case. Low wage growth deepens the long-run deficit by about $450 billion.

In assumptions about mortality, what is "optimistic" for the solvency of the retirement trust is "pessimistic" for participants, and vice versa. The trust fund is more solvent when people die sooner and collect less in benefits. Table 2 shows that under the Social Security Administration's high mortality (low life expectancy) assumption the trust fund is better off by $963 billion over the 75-year horizon, but that under the low mortality assumption, the system is worse off by $1.20 trillion.

Alternative assumptions about fertility matter only for those cohorts not yet born. However, because Social Security participants begin paying taxes some forty years before they receive benefits, fertility rates will have a big impact on trust fund finances in the next century.[10] Indeed, today's low fertility rates are the most widely cited source of probable future problems in Social Security finance. Current fertility rates are about 1.9 children per woman over her child-bearing years. The Social Security Administration's intermediate assumption is that this will rise within the next two decades to 2.0 children per woman. The optimistic and pessimistic assumptions are 2.3 and 1.6 respectively.[11] The results of our simulation, shown in Table 2, are that high fertility would add $694 billion to the trust fund surplus, more than eliminating what is otherwise a deficit, while low fertility would add $837 billion to the deficit.

Under the combined optimistic and pessimistic assumptions for trust fund finances the differences from the intermediate scenario for long-run surplus are +$3.88 trillion and -$2.07 trillion (Table 3). The present

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10. The level of immigration, especially of young people, will have an impact for the same reason. We leave this matter for future investigation.

11. In our simulation we use the Social Security Administration's figures for numbers of births each calendar year, which are derived from these fertility rates. It should be noted that the fertility rates used by the Social Security Administration refer to the "average number of children who would be born to a woman in her lifetime if she were to experience the birth rates by age observed in, or assumed for, the selected year and if she were to survive the entire child-bearing period."

value of taxes differs between these extreme scenarios by a factor of nearly two, while benefits vary by a factor of about 1.3.

Figure 3 shows how the size of the accumulated trust fund varies over the next 75 years for the overall optimistic, intermediate (base case), and pessimistic scenarios. Note that the continuing increase in the trust fund occurs only when all of the optimistic assumptions occur simultaneously. For any one of the optimistic assumptions alone, interest on the trust fund is eventually insufficient to cover the difference between current benefits and current taxes, and the principal itself is exhausted before 2090 (Table 3, last column).

4. Financial Impact of Alternative Uses of the Potential OASDI Trust Fund Surplus

We noted in the previous section that only under the combined optimistic assumptions for wage growth, mortality and fertility can we hope that the retirement trust fund will take in at least as much each year in taxes as it pays out in benefits. In all other cases an accumulation in the trust fund is necessary in order to forestall the time when taxes must be raised or benefits reduced.[12] Under intermediate assumptions, for example, an annual deficit will begin in 2025 but the accumulated surplus will keep the trust fund solvent until 2048.

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12. Of course, the consumption of the economy as a whole is limited by what is produced by those still working. Thus, in some sense Social Security benefits must always be funded at the time they are paid. Still, the method of financing Social Security determines who has what claims, and this has important implications both for equity and efficiency.

It has always proved difficult to accumulate a large trust fund surplus. It is in the interest of each session of Congress, and each administration, to raise benefits (or perhaps to lower taxes, although that has not yet been tried) if possible. Raising benefits conveys transfers to those receiving, or soon to receive, benefits while imposing much of the cost of the action on future generations which do not vote yet. Lowering taxes, similarly, helps a current generation of workers while requiring higher taxes from future generations than would otherwise be necessary.

The situation is now particularly acute for a major demographic reason: in less than 30 years the baby-boom generation will begin to retire. If we do not accumulate a trust fund surplus before then, future adjustments in payroll tax rates or in benefits will have to be much greater than would otherwise be necessary.

Figure 4 depicts the combined (employer and employee) tax rates which would be required each year to fund currently-legislated benefits (given intermediate assumptions) without adding to or drawing upon an accumulated surplus. Until 2025[13] tax rates could be lower than those currently legislated, but thereafter they would rise drastically.

Conversely, Figure 5 shows the level of benefits which could be funded by each year's tax receipts. This level is presented in the form of a ratio to benefits as provided for under current legislation. We see that benefits could be raised intermittently through 2009, to a level 30 percent

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13. The higher tax rate shown for 2022 is a quirk resulting from the way our simulation handles the rise in retirement age, from 66 to 67, which occurs around that time. We simulate the change as occurring all at once rather than phased in over several years.

higher than that now legislated, but that thereafter they must either decline or, perhaps more plausible politically, be maintained through increases in payroll tax rates. The tax rates required to finance these increased benefits are depicted in the broken line of Figure 4.

Table 3 summarizes the financial impacts of several ways of dissipating the trust fund surplus which is projected to grow over the next 35 to 40 years. "Pay-as-you-go tax rates" considers the scenario in which, beginning in 1990, tax rates are set each year at a level which exactly covers that year's benefit payments. Similarly, "pay-as-you-go benefits" considers, also for 1990 on, the adjustment of benefit levels to match projected tax receipts. The tax rates and benefit levels of these scenarios thus follow the heavy lines depicted in Figures 4 and 5 respectively.

The "benefit ratchet" scenarios consider the cases in which benefits rise to their pay-as-you-go peak in 2009 but do not subsequently decline. The first of these scenarios notes the enormous deficit ($3.69 trillion) generated when the higher benefit level is not funded with taxes, while the second considers the case of taxes rising, in a pay-as-you-go fashion, to fund the increased benefits.

The last two of these scenarios consider what will happen if the surplus which would accumulate over the next forty years is dissipated, or directed to other purposes. Two very plausible possibilities for this are that the surplus could be used to cover some of the massive deficit in Social Security's Hospital Insurance fund which (absent a major reform) will develop within a few years,[14] or that the surplus will, in the face of federal budget deficits, be used to fund other expenditures. The first of these scenarios raises taxes in a pay-as-you-go fashion from 2025 on. Thus these scenarios are equivalent to the earlier pay-as-you-go scenarios from 2025 on; they only lack the period in which tax or else benefit levels are more favorable for participants than the levels currently legislated. The chief result for system finances (Table 3) under all these scenarios -- except, of course, the unfunded ratcheting of benefits -- is that the long-run surplus is, by construction, essentially zero.

5. Projections of Net National Saving and Its Components Under Alternative Hypothetical Scenarios

We turn now to estimates of net national saving and its components under alternative hypothetical scenarios concerning the future of Social Security financing and various other factors. Before turning to the results, we reiterate that these are meant only to be simple simulations designed to highlight some emerging national policy issues. They are not meant to be taken as a thorough analysis of the likely evolution of any of the components, let alone all of them. Nor do they exhaust the various interesting alternative scenarios. In these calculations, we use the SSA projections, which differ slightly for OASI from my own, as discussed above.

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14. In practice, it is more likely that a portion of OASDI's payroll tax will be reallocated to HI. The analysis of OASI finances would then be similar to that of the pay-as-you-go tax rate scenario.

Note that net national saving, which we label total saving, TS, is the sum of private saving, PS (gross private saving, net of depreciation, the sum of personal and business saving), state and local government saving, SLS (traditionally measured by the state and local surplus, although the simultaneously accruing liabilities in the pension funds are not properly accounted for nor is net state and local capital formation), and federal government saving, FS (traditionally measured by the federal government surplus, although the simultaneously accruing future pension liabilities and federal government capital formation are not appropriately treated either).[15] Thus,

$$(1) \qquad TS = PS + SLS + FS.$$

We decompose the federal government surplus, FS, into the federal surplus excluding Social Security, FSXS, and the OASDI surplus and HI surplus. Thus,

$$(2) \qquad FS = FSXS + OASDIS + HIS.$$

Before turning to the basic simulation results, it is worth anticipating the discussion in the next section concerning the importance of net national saving for investment and international capital flows by recalling from the national income identity that

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15. See Boskin, Robinson and Huber (1987) for a discussion of federal, state and local government saving when account is taken of capital formation, as well as a number of other factors.

(3) $FS = I - PS - SLS + NFI,$

where I is domestic investment and NFI is net foreign investment. Holding national income constant, changes in FS must be matched by corresponding changes in PS, I, SLS, and/or NFI. Once we establish the likely effects on national saving in this section, we will discuss the implications for investment and net foreign investment in the next section.

We start out with some particular "base case" assumptions. For simplicity, we assume in most, but not all, of the calculations that the net private saving rate is constant at 6% of GNP, close to its historical average. We discuss below cases in which "Denison's Law" holds, in which the gross private saving rate is constant. In that case, the growth of the capital consumption allowance will decrease net private saving. We also discuss a simple conservative calculation of the impact of changing demography on the saving rate through time. But in the remaining cases, the net private saving rate is assumed constant at 6%. The state and local surplus, according to the Commerce Department, has been abnormally high for the last several years, in part due to funding issues in their pension systems. It is presumed to run 1% of GNP for the next five years, then to decline for the following ten years, until it reaches budget balance and remains there from the turn of the century onward. This leaves us with federal government saving, the non-Social Security surplus or deficit, and the OASDI and HI surplus or deficit. We consider several alternatives for the non-Social Security deficit. In the base case, we have the non-Social Security deficit evolve to keep the national debt/GNP ratio constant at current levels. Holding constant the ratio of national debt to GNP, we ignore except in one scenario where we explicitly model a balanced primary budget, the distinction between the primary budget deficit and interest payments.

We consider various alternative scenarios or rules with respect to the remainder of the budget, either explicitly or implicitly, via rules on the overall budget. For example, we examine net national saving under Gramm-Rudman with and without HI balanced, a balanced budget from the year 2000 onward, continuing federal government deficits, the optimistic and pessimistic SSA assumptions, a zero primary deficit, pay-as-you-go OASDI, and benefits ratcheting up in the era of the OASDI surplus.

The results of the simulation are portrayed in Figures 6 - 18. Net national saving and its components are plotted for the 75 year projection period usually employed by the Social Security Administration, in this case, 1986 to 2060. A variety of interesting features emerges from these graphs. For example, consider Figures 6 and 7 which estimate net national saving under Gramm-Rudman plus the remaining assumptions described above. The net national saving rate rises abruptly from its current 2% to about 7% by 1991, due largely to the substantial decrease in the federal government budget deficit. It then gradually declines to 6% around the turn of the century for about a decade, then declines sharply to under 4% after 2026. Importantly, the comparison of Figures 6 and 7 reveals that by moving HI into budget balance we would raise the net national saving rate by about two percentage points in the period after the turn of the century. We do not discuss here what combination of tax increase and/or benefit reduction is used to balance HI; it is assumed that it occurs in a manner that does not affect the other components.

Figure 8 presents net national saving under a balanced federal budget for the year 2000 and thereafter. This might be thought of as simulating a strict balance budget requirement, such as that advocated by a constitutional amendment. As can be seen, net national saving rises substantially, then gradually falls, reflecting the surplus turning to deficit in OASDI and the HI deficit. The budget is required to be in balance for the non-Social Security part of the budget.

In what might be thought of as a base case, with the debt/GNP ratio (excluding Social Security) held constant, Figures 9 and 10 project net national saving with federal and OASDI deficits, and correspondingly, with HI in budget balance. The net national saving rate falls precipitously, beginning about the year 2005, and in the base case, falls to under 1% of GNP by the year 2030. HI budget balance, as can be seen, adds the usual couple of percentage points to the net national saving rate early in the next century.

Figures 11 and 12 use the base case assumptions for PS and SLS, but replace the intermediate SSA assumptions by the optimistic and pessimistic ones, respectively. They also allow the non-Social Security budget deficit to evolve based on the alternative assumptions on GNP growth, etc. Net national saving is substantially higher under the optimistic Social Security assumptions, as the status of the OASDI fund and HI fund improve enormously, as does, to a lesser extent, the non-Social Security deficit. In fact, net national saving not only declines much less to slightly under 4% in the peak of the baby-boom's retirement, but begins to rise above 4% later on. Under the pessimistic assumptions, as expected, net national saving takes a nose dive, turning negative about 2015. This is due to the very large deficits in HI, cumulating by then, and the fact that OASDI will have turned to deficit about five years earlier, thereby offsetting all of private saving.

Figure 13 portrays net national saving under a zero primary deficit, i.e., the federal budget net of interest payments. As can be seen, net national saving falls, but remains positive, if paltry, by the first quarter of the next century.

Figures 14 - 16 highlight some potential reactions to the building of the OASDI surplus. Figure 14 portrays net national saving and its components under pay-as-you-go OASDI, assuming either the tax increase to finance deficits, and the benefit decreases during the period of OASDI surpluses do not affect the other components of net national saving. Dissipating the early surplus, compared to the base case, lowers net national saving substantially in the first three decades of the projection. Net national saving falls to 3% by the turn of the century, and eventually declines still further to about 2% of GNP. Note, however, that net national saving under pay-as-you-go OASDI, while substantially lower for the next thirty years or so, eventually is higher, partially offsetting base case projections of subsequent large OASDI surplus.

Figure 15 presents net national saving under the alternative described in detail in Section 4 concerning the possibility of benefits ratcheting up during the period of the OASDI surplus and remaining at those higher levels thereafter. Net national saving plummets as in the previous case for the next thirty years, and then declines precipitously, becoming negative about 2016, and falling to -5% of GNP by about 2030. Undoubtedly, well before such a national catastrophe occurred, various alternative policies would be adopted. This is the flip side of the $3.7 trillion deficit estimated for this case in Section 4. Note that were we to add a tax increase and/or benefit cuts in the HI system to this case, that net national saving would rise about 2 percentage points, as seen in Figure 16.

Figures 17 and 18 estimate the impact of dissipation of the OASDI surplus (assuming HI is balanced) by using it to finance the general federal deficit and to increase spending, respectively. The impact of the dissipation of the surplus, and how the funds are used, is substantial.

Finally, we present in Figures 19 and 20 two simplistic scenarios where the private saving rate varies: First, because of changes in the age structure of the population and second because of the alleged constancy of the gross private saving rate, "Denison's Law". In Figure 19, we have allowed the net private saving rate to vary with the age structure. We use SSA projections of the fractions of the population in the three age cohorts, 20-44, 45-64, and 65-and-over, in the future, assume that the relative incomes per household of the three groups remain as estimated in 1984 (see Boskin, Kotlikoff and Knetter (1985)), and, for simplicity, that the saving rate of people in their peak earning years is twice that of younger workers, whereas the saving rate of the elderly is -3%. The rates are calibrated so that the overall rate in 1984 is 6%. There is substantial controversy concerning whether the elderly save or dissave during retirement, at what rate, and the implications this may have for a number of important aspects of saving behavior. We remain agnostic on this issue in this particular paper, and merely present this as one hypothetical situation which might result in saving rates changing. As can be seen in Figure 19, however, the saving rate merely varies from 5.8% to 6.2%. We would need either a much more dramatic change in the relative incomes or a substantially greater variation in the saving rates by age for large variations in the private saving rate to occur. Of course, this is possible if the elderly do dissave and/or if relative incomes change so as to change dramatically the relative income weighting underlying Figure 19. In any event, relative to the base case, the variations are quite modest.

Not so modest are the implications of "Denison's Law", which asserts that the gross private saving rate is constant. Ignoring any feedback from changes in the net saving rate to the rate of investment, capital formation, and depreciation, we simulate a simple scenario in which the capital formation process in the economy results in a gradual rise in the capital consumption allowance over the next forty years. We presume this rise is about 2 percentage points. Clearly with the gross private saving rate constant, the net private saving rate must decline by two percentage points in this case. Under the other assumptions of the base case scenario, net national saving, as depicted in Figure 20, declines by 2 percentage points, holding all of the other components constant. In this case, national saving turns negative by 2016, as it falls continuously from 1991 on, the year in which we begin the simulation of the gradual rise in the capital consumption allowance. There is no particular reason other than simplicity why we have chosen this form, nor would we expect the capital consumption allowance necessarily to move at this rate or to remain constant after 2020; we present these results because of the strong belief held by some in "Denison's Law".

Tables 4, 5 and 6 highlight some of the important results on the effects of Social Security on national saving. Table 4 projects net national saving and its components as a percentage of GNP for the 75 year period and for each of the usual 25 year sub-periods for the base case with and without HI balanced. As can be seen, the total national saving rate is a little over 2% for the entire period in the base case, and 3.33% when HI is balanced. These 75 year averages are composed of a small OASDI deficit, a federal deficit of 2.33% of GNP, a very small state and local surplus, a constant 6% private saving rate, and the HI deficit in the base case and HI budget balance from 1991 in the second case. The three sub-periods show interesting variations. The net national saving rate is substantially higher in the first 25 year period, averaging slightly over 4%. In the second period, the net national saving rate falls to 1.7% and 3.1% respectively. In the third 25 year period, the corresponding net national saving rates are 0.5% and 2.8%. Given the other assumptions, the primary difference revolves around the OASDI and HI surplus/deficit pattern.

Table 5 presents estimates of net national saving averaged over each of the three twenty-five periods and the entire seventy-five year period for various alternative future financing scenarios. It reveals the substantial impact alternative Social Security financing alternatives may have on net national saving. For example, consider the period 1986-2010. Moving from the base case with accumulation of the OASDI surplus to pay-as-you-go OASDI (i.e., tax rate cuts to match outlays) reduces net national saving by 20%, from 4.0% to 3.2.% of GNP. Still more dramatic changes occur with other financing scenarios and in the later periods.

Table 6 presents an alternative method of viewing how quantitatively important the Social Security surplus or deficit will be as a percentage of other net national saving over the 75 year horizon and in each of the 25 year periods. For the base case, over the 75 year horizon, the Social Security deficit, including the HI deficit offsets 38% of all other net national saving. This decomposes into adding 17% in the first 25 years, offsetting almost one-half in the second 25 years, and over four-fifths, in the third 25 year period. In the case where HI is balanced, by whatever combination of tax increases and benefit reductions, Social Security offsets substantially less of other net national saving. The Gramm-Rudman cases demonstrate substantially higher other net national saving, and therefore, the Social Security surplus or deficit offsetting a more modest fraction of net national saving. The other cases indicate just how much may be at stake in net national saving in alternative future Social Security financing policies. For example, in the case where benefits rise during the years which otherwise would have had a surplus, and then remain elevated, over three-fourths of all other net national saving will be offset by the OASDI deficit, starting with a small offset the first 25 years and then offsetting all other saving. Clearly, in such a case, there would undoubtedly be some adjustment in taxes and/or the remainder of the budget to compensate.

We have outlined the results not just to present an array of alternative potential scenarios nor to present estimates of net national saving which should be viewed in any way other than hypothetical, but to highlight how important the direct effects of Social Security can be on net national saving. That effect clearly can be enormous in any year, in each of the twenty-five subperiods considered, as well as in the 75 year projection period of the SSA. Assumptions concerning the other components of net national saving will affect the level of net national saving but still leave the situation where the status of the future financing of OASDI will have an enormous direct impact on net national saving in the United States. Of couse, the direct impact may be offset or accentuated by the impact of OASDI on private saving and/or other components of government saving and borrowing.

6. Implications For Investment, International Capital Flows, Trade, Productivity Growth

The results reported above were designed to highlight the potentially significant impact that alternative policy options with respect to accumulation or dissipation of the OASDI surplus will have on the net national saving rate. Net national saving is important for a variety of reasons. Saving is the method by which individual households transfer resources from one part of their lifetime to another, e.g., from their peak earnings years to retirement. Government sector saving or borrowing, among other things, is the method by which the public sector attempts to transfer resources, at least tax burdens, intertemporally. More directly, net national saving is available to finance domestic investment or net foreign investment. A higher net national saving rate may help increase the level of domestic capital formation, or decrease the need for imports of foreign capital. The simplistic analyses we usually teach our graduate students suggest that a high rate of capital formation will temporarily increase the rate of economic growth and will lead permanently to a higher level of income by making labor more productive due to the higher capital labor ratio. In a closed economy, a higher saving rate will be invested in the long-run. In an open economy, a higher saving rate will increase U.S. capital flows abroad and/or decrease foreign capital flows into the United States. As discussed above, in recent years, the United States has been a substantial importer of foreign capital. These imports have become significant enough to make the U.S. a net debtor, at least if the books are taken at face value (U.S. assets overseas are usually treated at historic cost). Thus, each year the United States imports large amounts of foreign capital, despite the short-run benefits, results in an annual stream of claims against that investment in the future as interest, dividends and rents to foreigners. Ultimately, the only way to pay those returns is for the United States to export more than it imports. For example, in 1986 the United States imported $144 billion of net capital from abroad. For simplicity, if we assume a return of 10 percent, this would commit the

United States to an increase of net exports of $14 billion a year.

Thus, a low net national saving rate will either be matched by a low domestic rate of capital formation or if investment in the United States exceeds net national saving, continued foreign capital inflows into the United States.

The extent to which the United States must ultimately finance its domestic capital formation from its own saving is uncertain. While recent declines in net national saving have been substantially offset by importing foreign capital, there is no convincing example in economic history of an <u>advanced</u> economy financing its <u>long-term</u> development by continuing to rely on foreign capital to finance its investment. The success stories of external finance assisted growth have been of less developed countries, whether recently or historically, such as the U.S. and Canada in the 19th Century. Feldstein and Horioka (1980) and Summers (1986) present evidence which suggests that domestic investment at least in the long-run must be financed by domestic saving. While the subject is far from closed, no one can be sure how long foreign investors will be willing to pour several percent of GNP into the United States annually. Eventually foreign portfolios will become less and less diversified as the share of their assets in dollar-denominated securities grows to significant proportions. They would thus demand higher returns to compensate for this increased risk.

Even if we conclude that in the long-run domestic capital formation must be financed by national saving, the contribution of capital formation to economic growth with respect to the magnitude and time frame is a source of some controversy. Recent studies, for example, by Denison (1985) and Jorgenson, Fraumeni, and Gallop (1987), come to quite different conclusions with respect to the quantitative significance of capital formation in post-war economic growth and in the productivity slowdown of the 1970s.

While no precise quantitative estimate can be given detailing the impact of changes in the rate of net national saving upon domestic capital formation and international capital flows, and correspondingly on productivity growth and/or future trade patterns, the qualitative patterns are clear, and the quantitative impact is likely to be important: low rates of net national saving are likely to lead to low rates of domestic investment in the long-run and substantial international capital flows into the United States in the short-run. Thus, the policy options with respect to Social Security have substantial ramifications for the future performance of the economy well beyond the importance that they rightfully deserve in terms of the retirement income security of current and future retired persons.

7. Conclusion

This paper has documented how the systematic deviation from pay-as-you-go finance of the Social Security system is planned to result in signficant surpluses for the next several decades in OASDI. Subsequently, OASDI will run large deficits. HI is projected to run large and growing deficits beginning in the 1990s.

Unless offset by changes in private saving or non-Social Security budget deficits, these deviations from pay-as-you-go finance will cause substantial systematic swings in the net national saving rate. Alternative scenarios with respect to the disposition of the OASDI surplus over the next three decades lead to important changes in the net national saving rate. These swings are likely to be significant enough to cause quantitatively important changes in the level of domestic investment which can be financed internally and/or the patterns of net foreign investment. Thus, future trade patterns and productivity growth will be affected, perhaps substantially.

The paper thus highlights the important role Social Security's future financing patterns will have on the course of the economy quite independent of whether or not they affect private saving behavior. The potential interaction of Social Security and private saving, and the potential interaction of the state of the Social Security surplus (or perhaps more accurately, its expected state) and the federal government's deficit in the remainder of the budget will be important as well. The paper has demonstrated the substantial reduction in the net national saving rate which will occur if the OASDI surplus of the next three decades does not accrue and is used instead to raise benefits, reduce taxes, or fund other government programs (the most likely candidate being the HI deficit). The likely response of private saving to the various alternative scenarios is a source of controversy, partly because there is a major debate concerning the methods by which the Social Security system may affect private saving, as well as concerns about the quantitative magnitudes of any impact that may have occurred historically. Changing demography, patterns of risk and risk-bearing in the economy, household formation and dissolution, and perceptions of the risks involved in "Social Security wealth" as opposed to other types of assets may also make extrapolations from earlier studies somewhat hazardous (see Auerbach and Kotlikoff (1987) for some interesting simulation results with respect to changes in demography).

However, it might generally be thought that if Social Security OASDI surpluses are used to raise benefits substantially, this may well lead to a decrease in saving for those then in their peak earning years, who expect to receive higher benefits without having to pay higher taxes subsequently (netting out any private intrafamily intergenerational transfers offsetting this effect, assuming that they are far less than dollar for dollar). Other methods of dissipating the surplus would have analogous results, depending upon the time pattern of changes in expected benefits and taxes for persons of various ages. There is also the important fact that the growth of Social Security, changing demography and changes in financial markets, along with the deviations from pay-as-you-go finance, alter the perceived risk attached to any potential claims to future Social Security benefits. For example, well-off current prime age earners may believe that Social Security will be means-tested at an income level below their expected other resources when they reach old age in order to finance any deficits that result. One might expect these perceived risks also to affect private saving behavior.

Of course, changes in net national saving may directly affect interest rates which may in turn affect desired private saving, contributions to defined benefit pension plans, the valuation of existing stocks of wealth, etc. While the short-run openness of the economy to international flows of capital might be expected to mitigate any effect on interest rates, all of the advanced economies will be aging rapidly and may experience reductions in private saving and pressure on their public budgets.

Finally, there is an additional important channel by which private saving behavior may be altered. In response to the pressures involved in financing future Social Security benefits for the baby-boom generation, it may well be that the remainder of the federal budget and/or public policy with respect to private saving, such as rules governing pension plans, the taxation of saving, etc., may respond in an attempt to encourage private saving. Of course, the extent to which they would be successful in doing so raises a host of other questions to which only imprecise answers can be given.

In conclusion, this paper should be viewed as highlighting the important role that Social Security's future financing pattern may have on net national saving, directly through the accumulation of a surplus and subsequent larger deficit, and indirectly through the potential interaction of Social Security and private saving, and the potential interaction of the state of the Social Security system's finances and the federal government's deficit in the remainder of the budget. The numerous caveats concerning the direct calculation discussed above, as well as the issues concerning the response of private saving, should be borne in mind in interpreting the results.

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Table 1

<u>Base Case</u> (Intermediate Assumption)

A. FINANCIAL FLOWS OF OASI TRUST FUND
1986 $BILLIONS, DISCOUNTED TO 1986

TIME PERIOD	PAYROLL	TAXES	BENEFITS	BEN TAXES[a]		SURPLUS	SURPLUS/ PAYROLL
1986 TO 2010	39584	4366	3997	114	(141)	483	1.22%
2011 TO 2035	38540	4232	4422	158	(198)	-31	-0.08%
2036 TO 2060	34460	3784	4925	196	(244)	-946	-2.74%
1986 TO 2060	112584	12381	13344	468	(584)	-495	-0.44%

Table 2

System Finances, Various Economic & Demographic Scenarios - 75 Year Totals (1986-2060)
(1986 $billions, discounted to 1986)

Scenarios	Taxes	Benefits	Benefit Taxes	Surplus	Variation of Surplus fr Base Case	Surplus as % of Tax. Payroll	Year Annl Deficit Begins	Year Cumu. Deficit Begins
Base Case	$12,381	$13,344	$468	-$495	0	-0.44%	2025	2048
High Wage Growth	$18,021	$17,781	$639	$878	+$1,373	0.54%	2030	By 2090
Low Wage Growth	$10,170	$11,516	$398	-$948	-$453	-1.03%	2020	2035
High Mortality	$12,306	$12,267	$429	$468	+$963	0.42%	2027	By 2080
Low Mortality	$12,522	$14,743	$521	-$1,700	-$1,205	-1.49%	2018	2035
High Fertility	$13,095	$13,365	$469	$199	+694	0.17%	2026	By 2080
Low Fertility	$11,516	$13,315	$467	-$1,332	-$837	-1.27%	2021	2040
Overall Optimistic for Trust Fund	$19,177	$16,376	$587	$3,389	+$3,884	1.94%	*	*
Overall Pessimistic for Trust Fund	$9,644	$12,653	$441	-$2,567	-$2,072	-2.93	2014	2024

*Remains Positive Indefinitely.

Table 3

Various Scenarios for Trust Fund Surplus - 75 Year Totals (1986-2060)
(1986 $billions, discounted to 1986)

Scenarios	Taxes	Benefits	Benefit Taxes	Surplus	Variation of Surplus fr Base Case	Surplus as % of Tax. Payroll	Year Annl Deficit Begins	Year Cumu. Deficit Begins
Base Case	$12,381	$13,344	$468	-$495	0	-0.44%	2025	2048
Pay-As-You-Go Tax Rates	$12,868	$13,344	$468	-$8	+$487	0.00%	n.a.	n.a.
Pay-As-You-Go Benefits	$12,381	$12,832	$443	-$8	+$487	0.00%	n.a.	n.a.
Benefit Ratchet, Unfunded	$12,381	$16,662	$591	-$3,690	-$3195	-3.28%	2010	2010
Benefit Ratchet, Funded by taxes	$16,064	$16,662	$591	-$8	+$487	0.00%	n.a.	n.a.
Surplus Dissipated Funded by taxes	$13,565	$13,344	$468	0[a]	+$495	0.00%	n.a.	n.a.
Surplus Dissipated Adjusted benefits	$12,381	$12,112	$420	0[a]	+$495	0.00%	n.a.	n.a.

[a] $689 billion surplus through 2025 has been dissipated.

Table 4

Projected Net National Saving & Its Components
As A Percentage of Projected GNP

	1986-2060	1986-2010	2011-2035	2036-2060
<u>Base Case</u>				
Total	2.1	4.0	1.8	0.6
OASDI	-0.1	0.9	-0.3	-1.0
Private	6.0	6.0	6.0	6.0
HI	-1.2	-0.3	-1.3	-1.9
Federal	-2.7	-3.0	-2.5	-2.5
State/Local	0.1	0.4	0.0	0.0
<u>Base Case</u> - HI Balanced				
Total	2.5	4.3	3.1	2.5
OASDI	-0.1	0.9	-0.3	-1.0
Private	6.0	6.0	6.0	6.0
HI	0.0	0.0	0.0	0.0
Federal	-2.7	-3.0	-2.5	-2.5
State/Local	0.1	0.4	0.0	0.0

N.B. Data are simple averages of annual total.

Table 5

Projected Net National Saving
As a Percentage of Projected GNP

Scenario	1986-2060	1986-2010	2011-2035	2036-2060
Gramm-Rudman	4.5	5.9	4.3	3.1
Gramm-Rudman(HI balanced)	5.5	5.9	5.5	5.0
Balanced Federal Budget (2000 and after)	4.2	5.3	4.3	3.1
Base Case	2.1	4.0	1.8	0.6
Base Case, HI Balanced	3.3	4.3	3.1	2.5
Optimistic SSA Assumptions	4.6	5.1	4.5	4.3
Pessimistic SSA Assumptions	-1.3	2.9	-1.7	-5.0
Zero "Primary" Fed. Deficit	2.7	4.5	2.3	1.1
Pay-As-You-Go OASDI	2.3	3.2	2.2	1.6
OASDI Benefit Ratchet	0.8	3.2	0.2	-1.1
OASDI Benefit Ratchet, HI Balanced	1.9	3.5	1.5	0.8
OASDI Surplus Finances Fed. Deficit, HI Balanced	3.3	4.3	3.1	2.5
OASDI Surplus Spent, HI Balanced	3.0	3.5	3.0	2.5
Private Saving Varies With Age Structure	2.0	4.1	1.7	0.1
Denison's Law	-0.1	3.2	-1.0	-2.4

Table 6

Percentage Change In Net National Saving Due to Social Security Surplus or Deficit, By Period, For Alternative Financing Scenarios

Scenario	1986-2060	1986-2010	2011-2035	2036-2060
Gramm-Rudman	-21.4	11.3	-27.8	-47.6
Gramm-Rudman(HI balanced)	-1.0	18.8	-5.4	-16.3
Balanced Federal Budget (2000 and after)	-20.5	14.0	-27.8	-47.6
Base Case	-38.0	17.0	-47.0	-82.0
Base Case, HI Balanced	-3.7	26.8	-9.9	-28.1
Optimistic SSA Assumptions	20.7	37.2	16.0	8.9
Pessimistic SSA Assumptions	-137.9	-10.8	-41.7	-71.4
Zero "Primary" Fed. Deficit	-32.7	15.0	-151.9	-251.0
Pay-As-You-Go OASDI	-32.4	-5.2	-38.1	-53.9
OASDI Benefit Ratchet	-77.5	-6.4	-94.6	-131.4
OASDI Benefit Ratchet, HI Balanced	-43.5	3.4	-56.6	-77.4
OASDI Surplus Finances Fed. Deficit, HI Balanced	-3.7	26.8	-9.9	-28.1
OASDI Surplus Spent, HI Balanced	-12.9	3.9	-14.5	-28.1
Private Saving Varies With Age Structure	-43.4	16.5	-50.5	-96.2
Denison's Law	-302.4	23.5	-335.8	-594.8

N.B. Data are simple averages of annual total.

Figure 1

Projected Social Security Finances

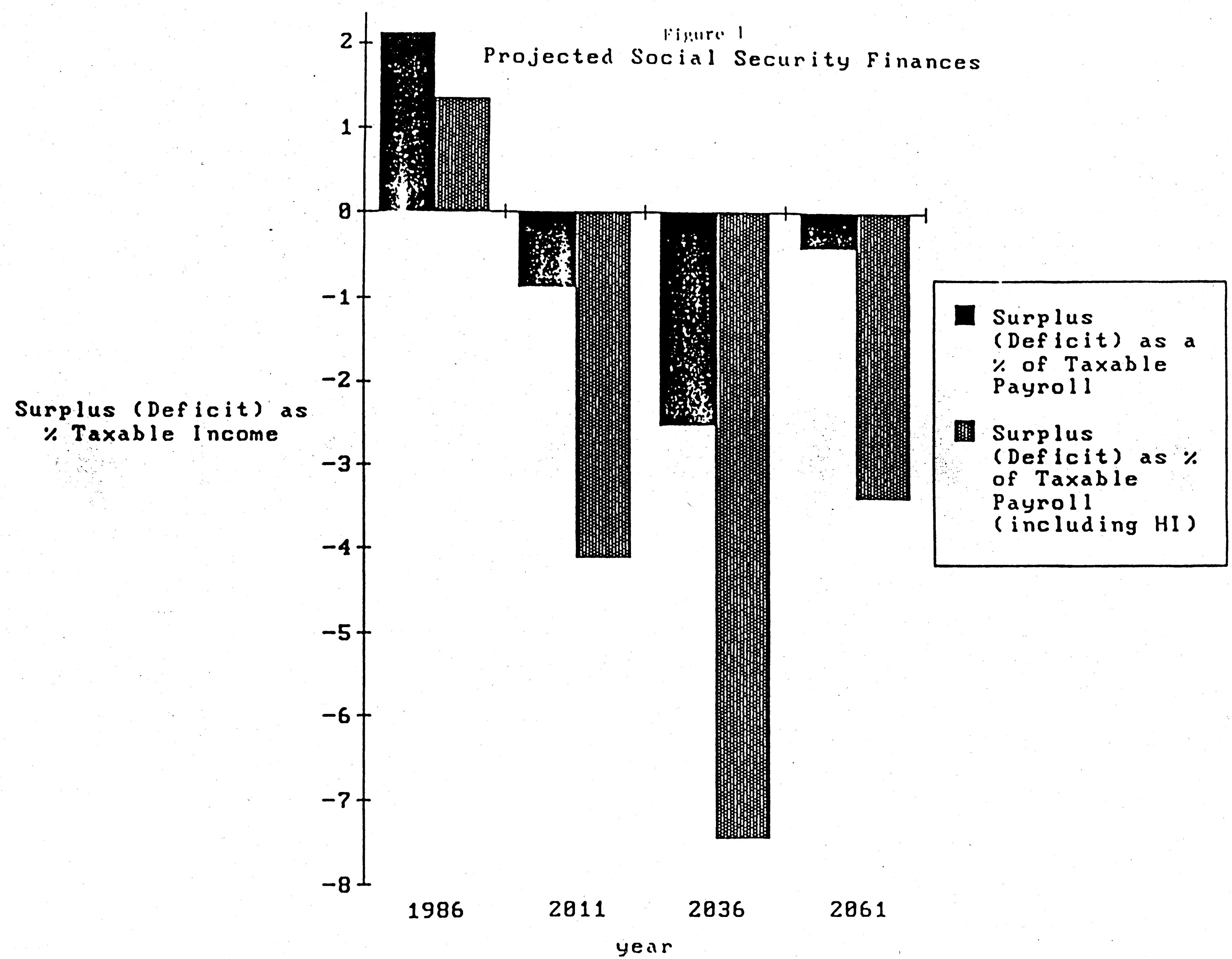


Figure 2
Discounted Surplus - Annual and
Cumulative - Base Case

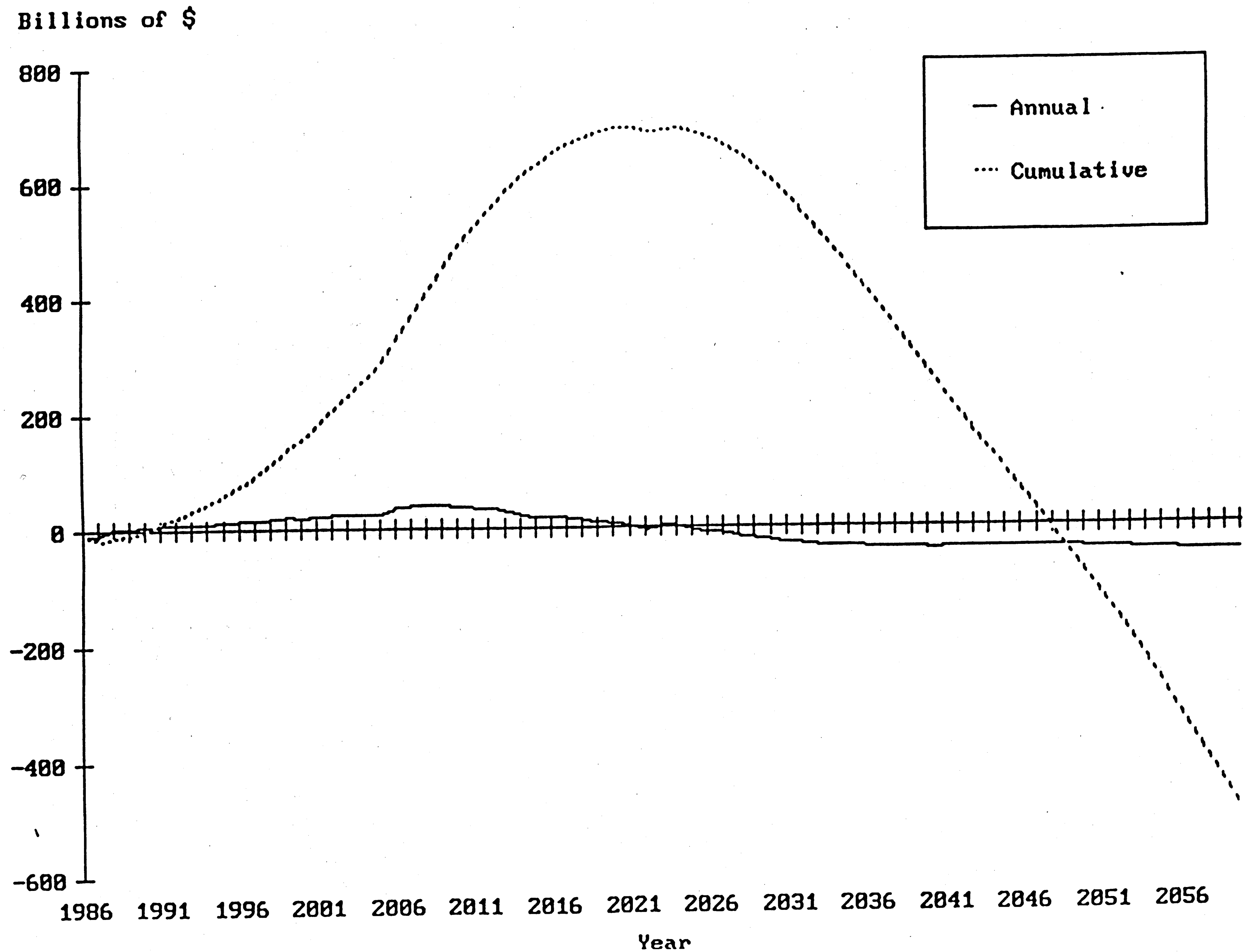


Figure 3

Discounted Cumulative Surplus For Alternative Scenarios

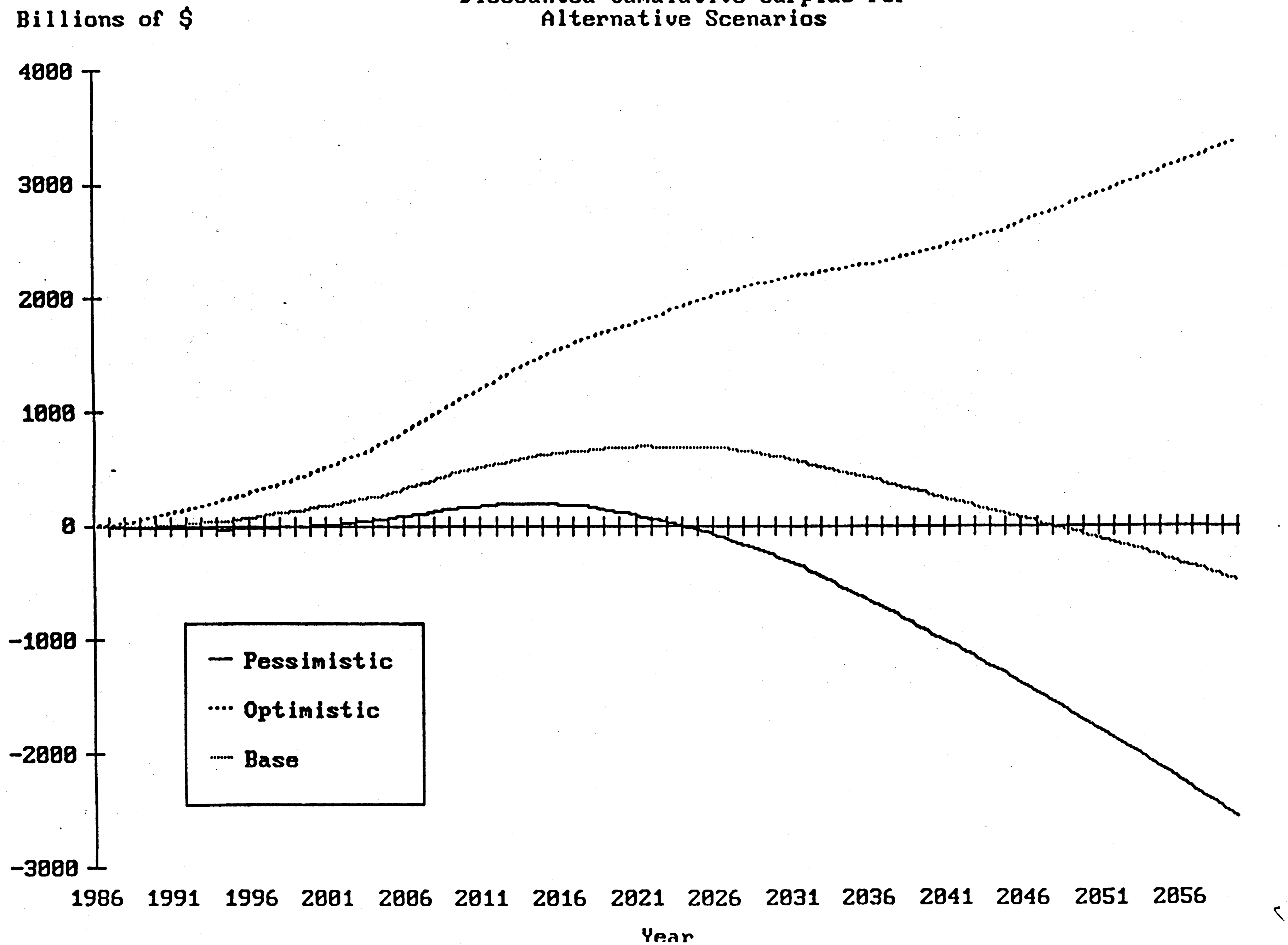


Figure 4

Tax Rates, Current Law and Pay-As-You-Go

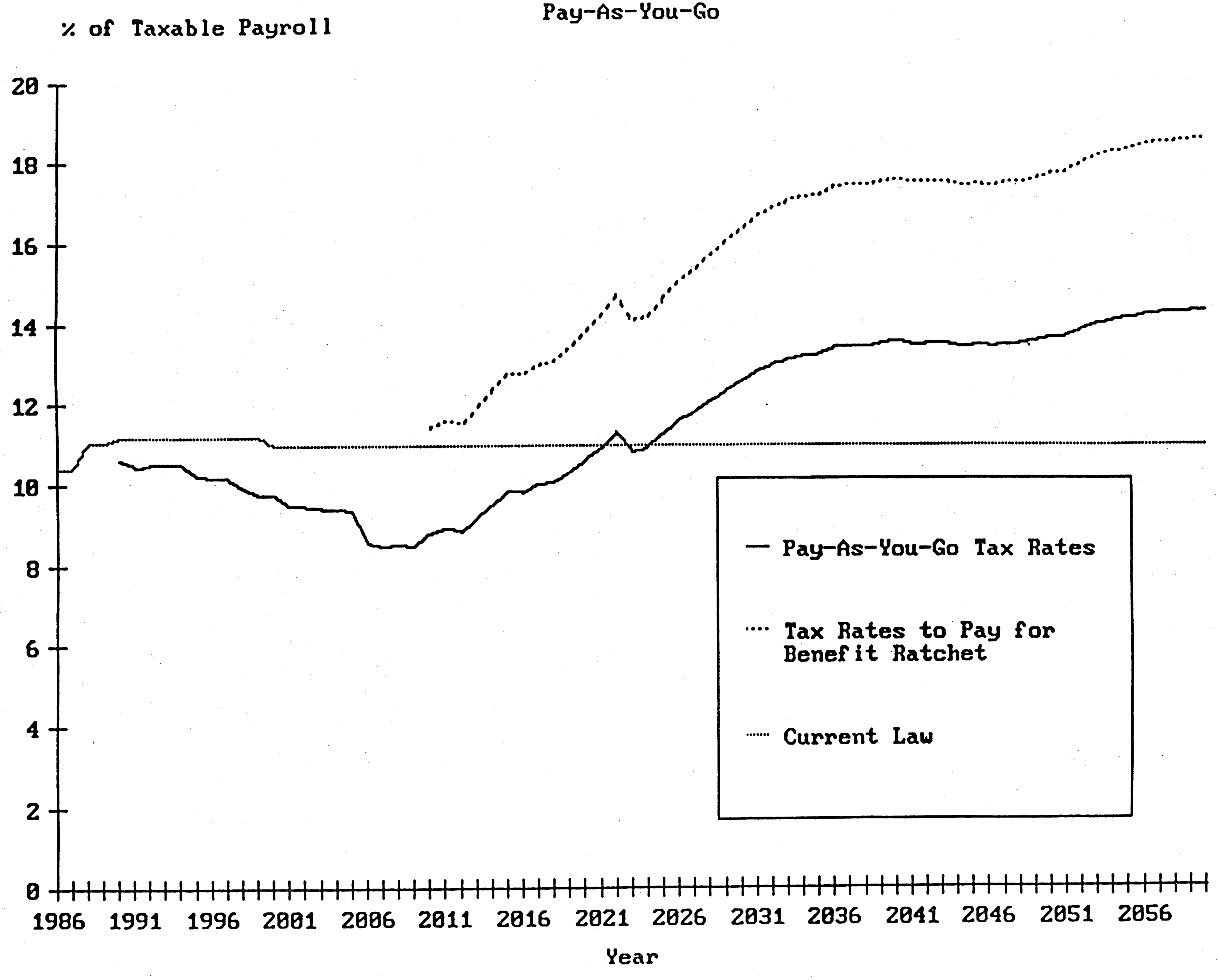


Figure 5

Pay-As-You-Go Benefit Ratio, Given Taxes, To Maintain Annual Balance

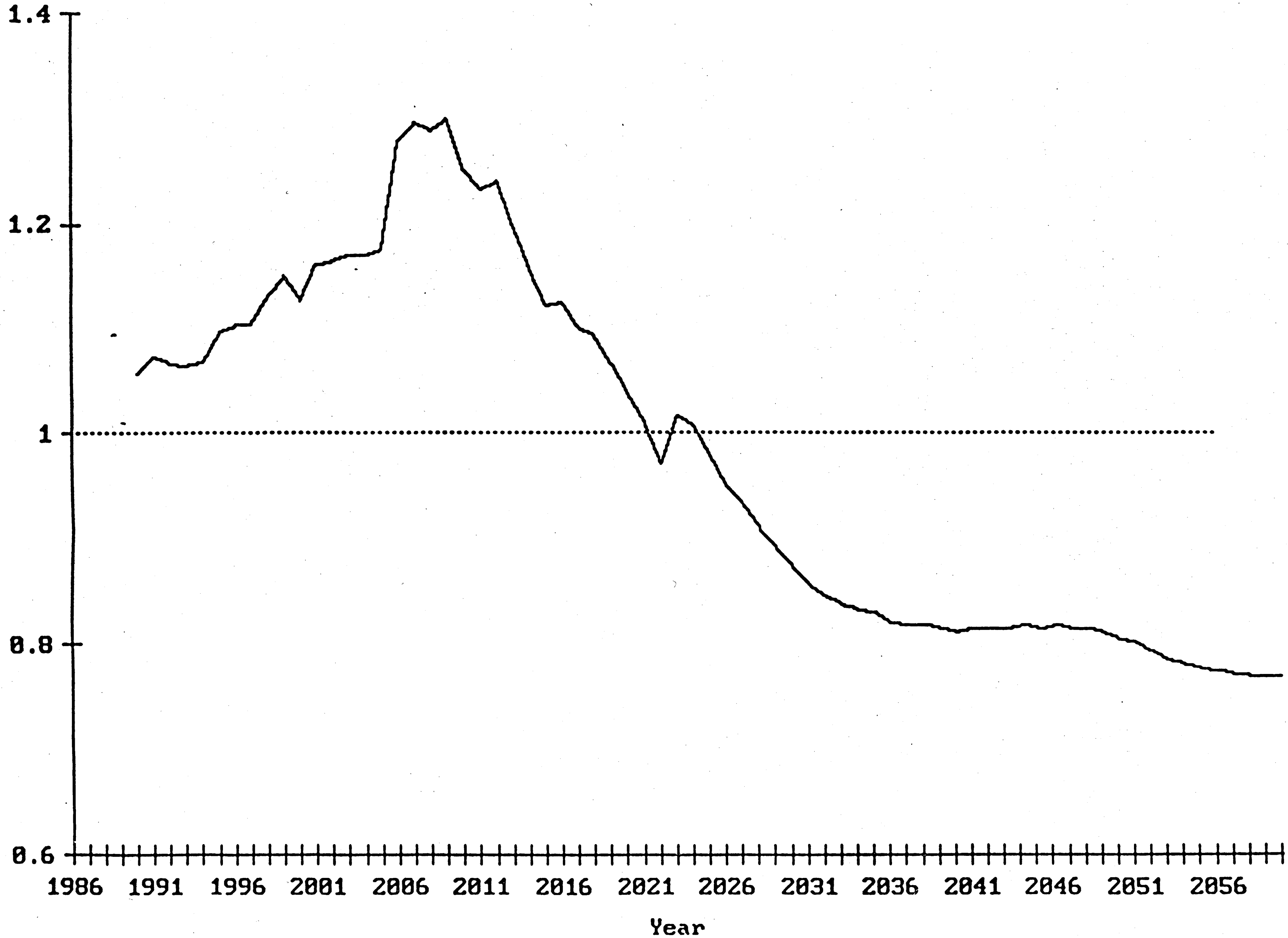


Figure 6.

Net National Saving Under Gramm-Rudman

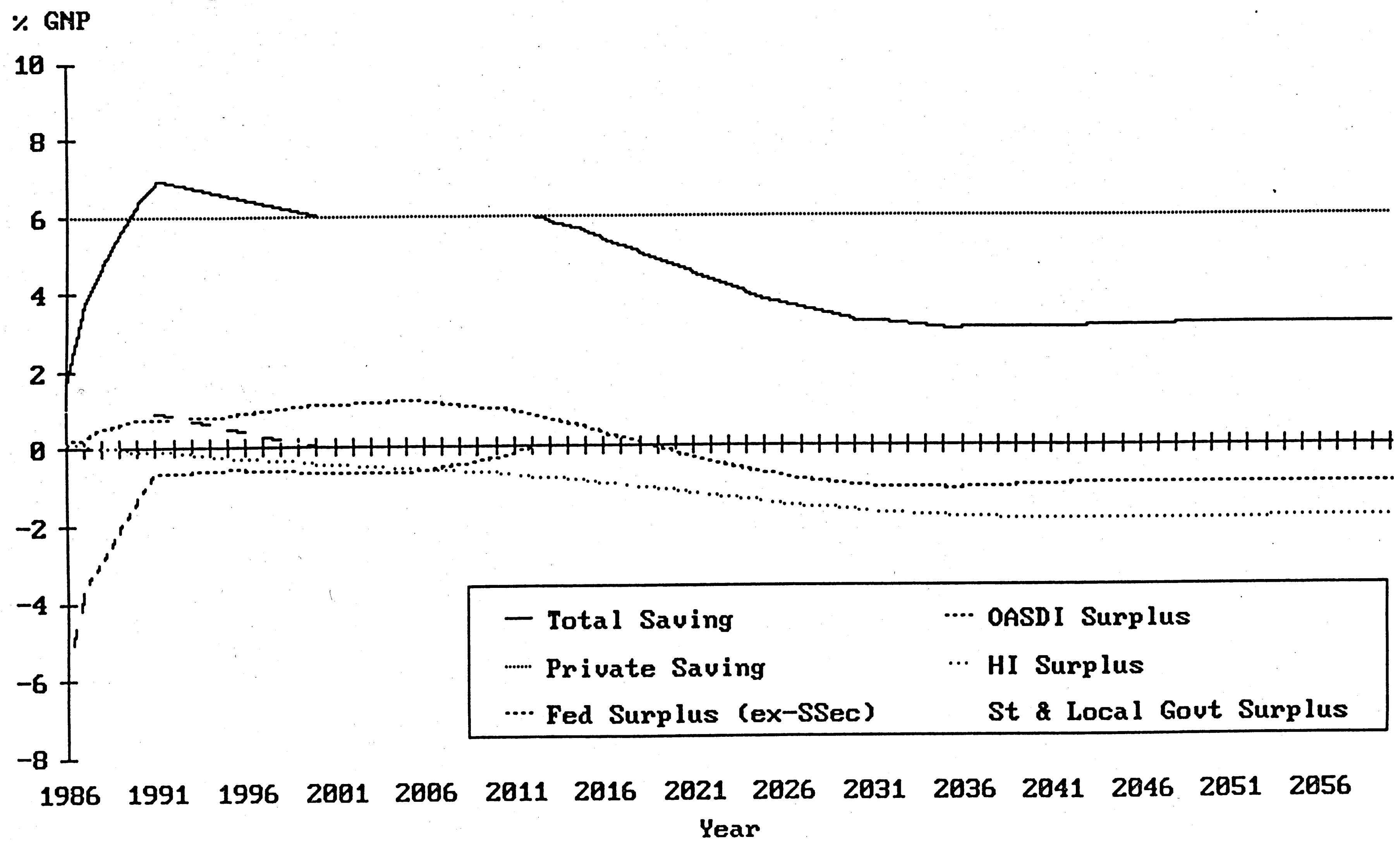


Figure 7.

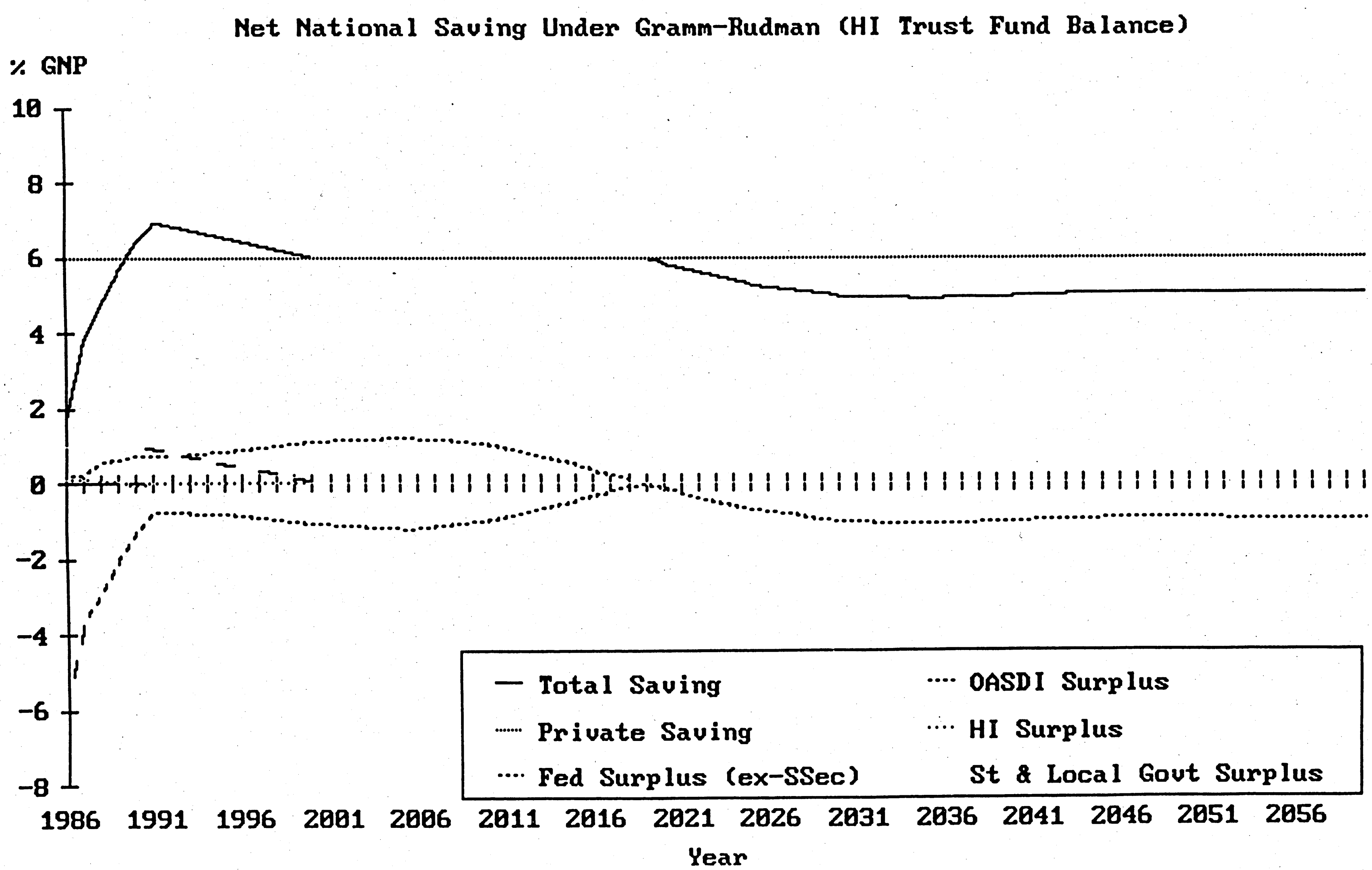

Net National Saving Under Gramm-Rudman (HI Trust Fund Balance)
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 8.

Net National Saving Under Balanced Federal Budget (2000 and after)

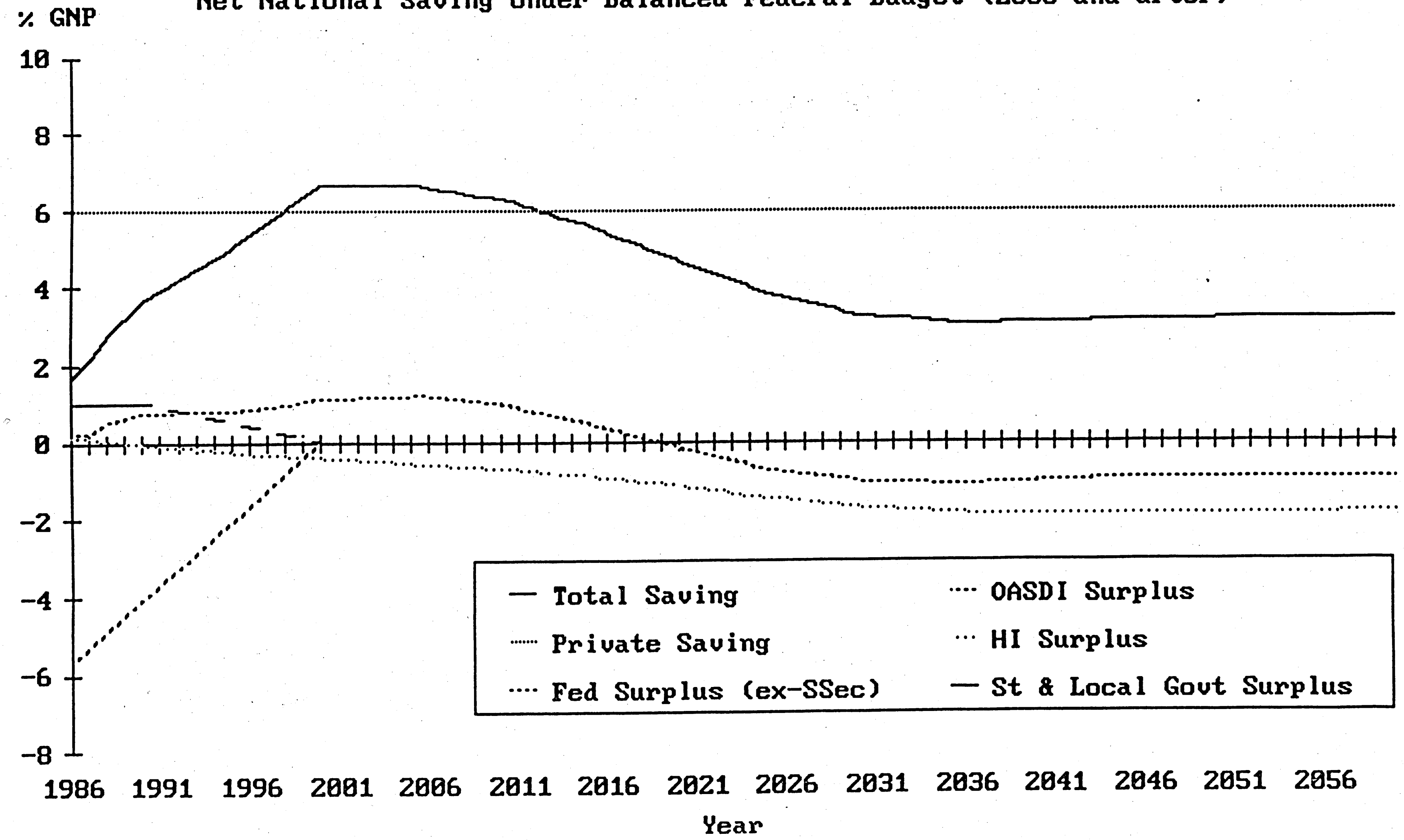


Figure 9.

Net National Saving Under Federal and OASDHI Deficits (Base Case)

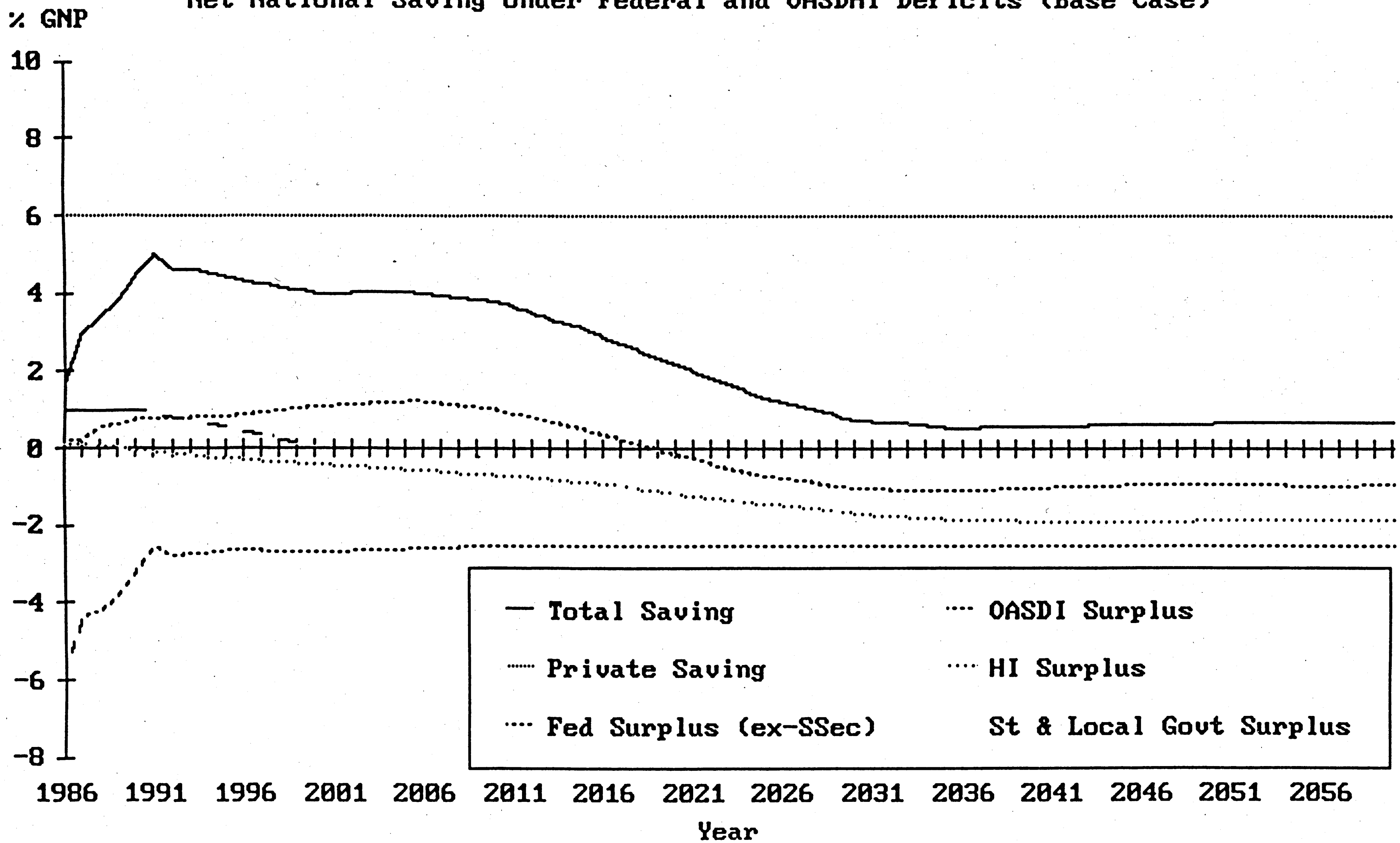


Figure 10.

Net National Saving Under HI Budget Balance

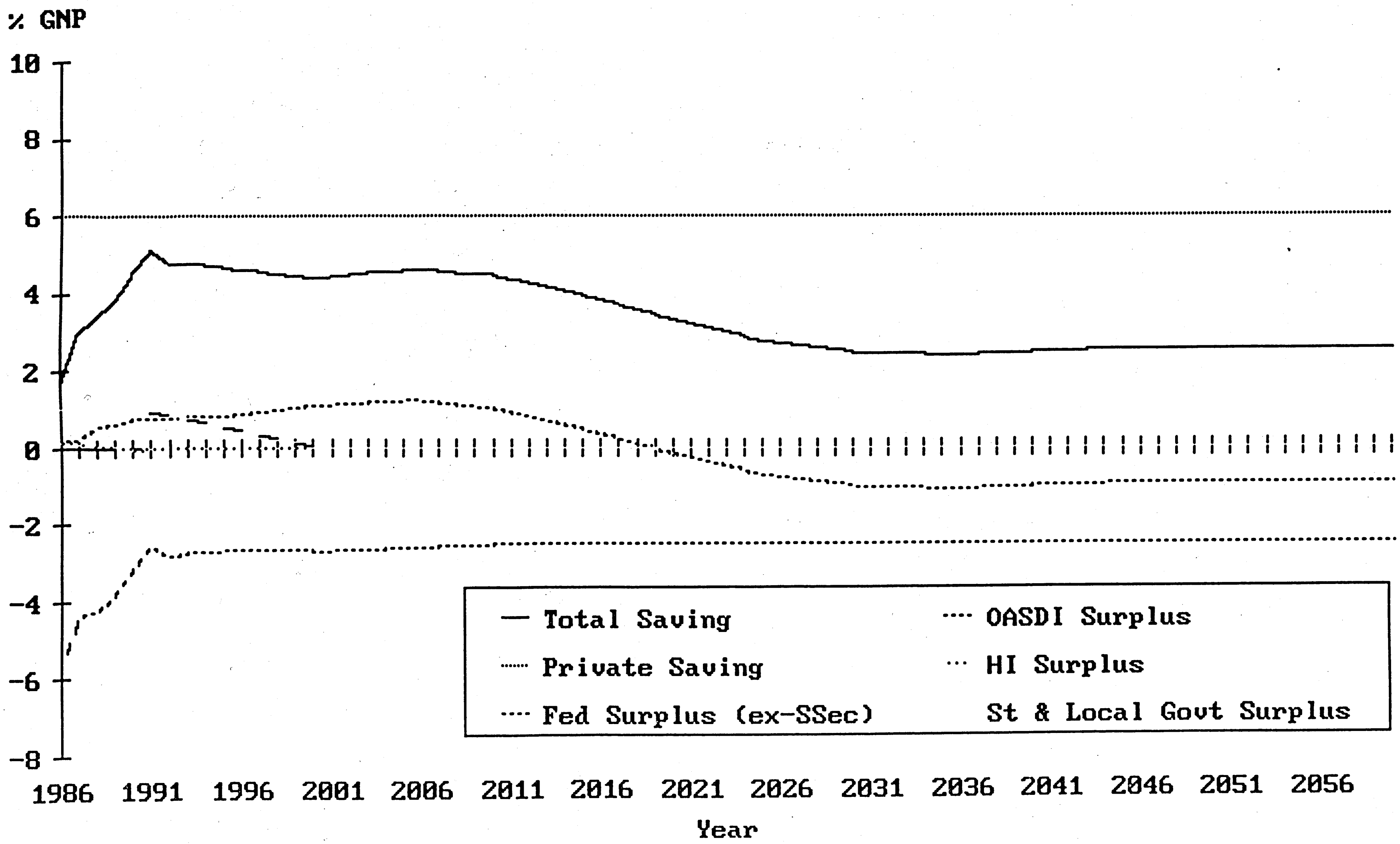


Figure 11.

Net National Saving Under Optimistic Social Security Assumptions

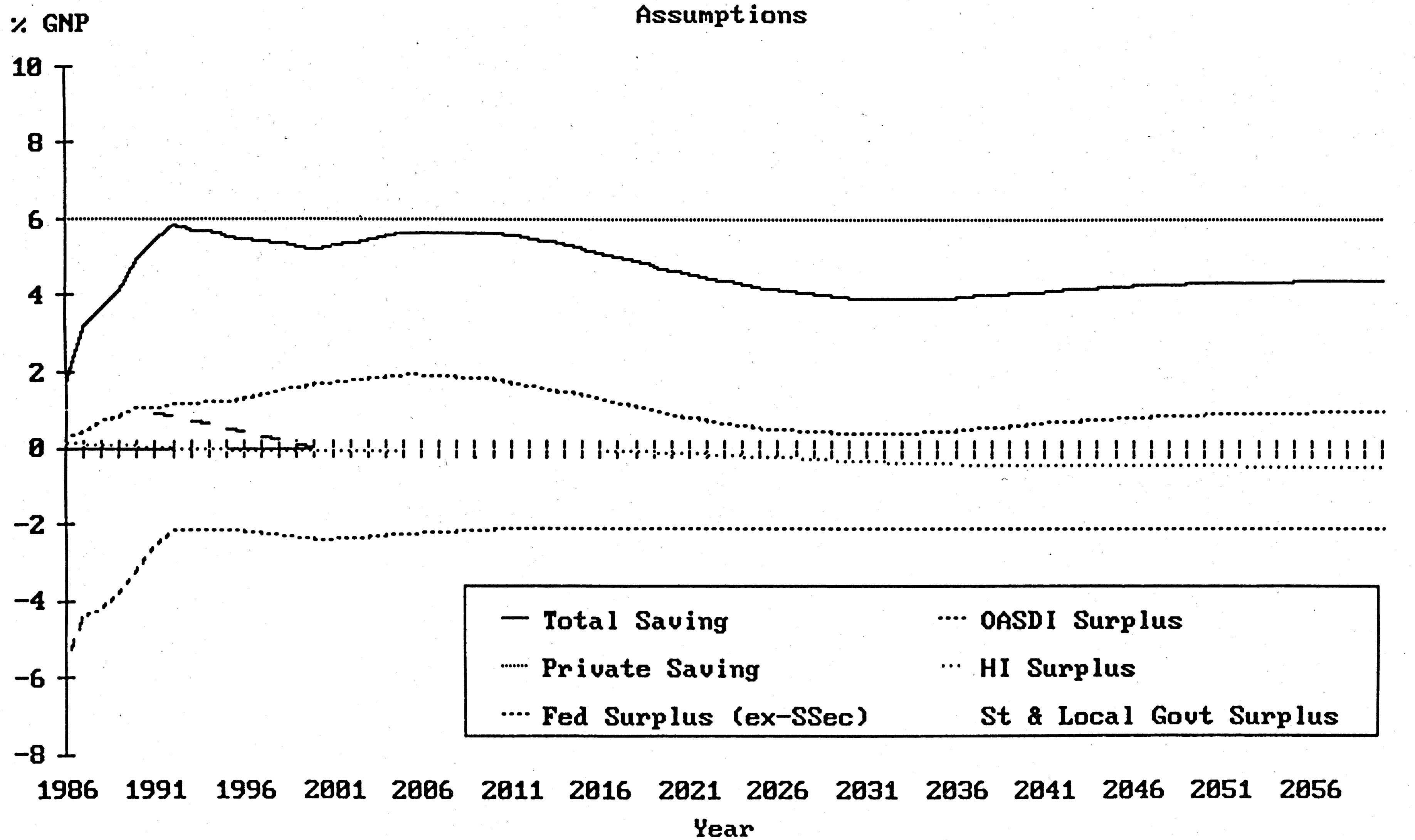


Figure 12.

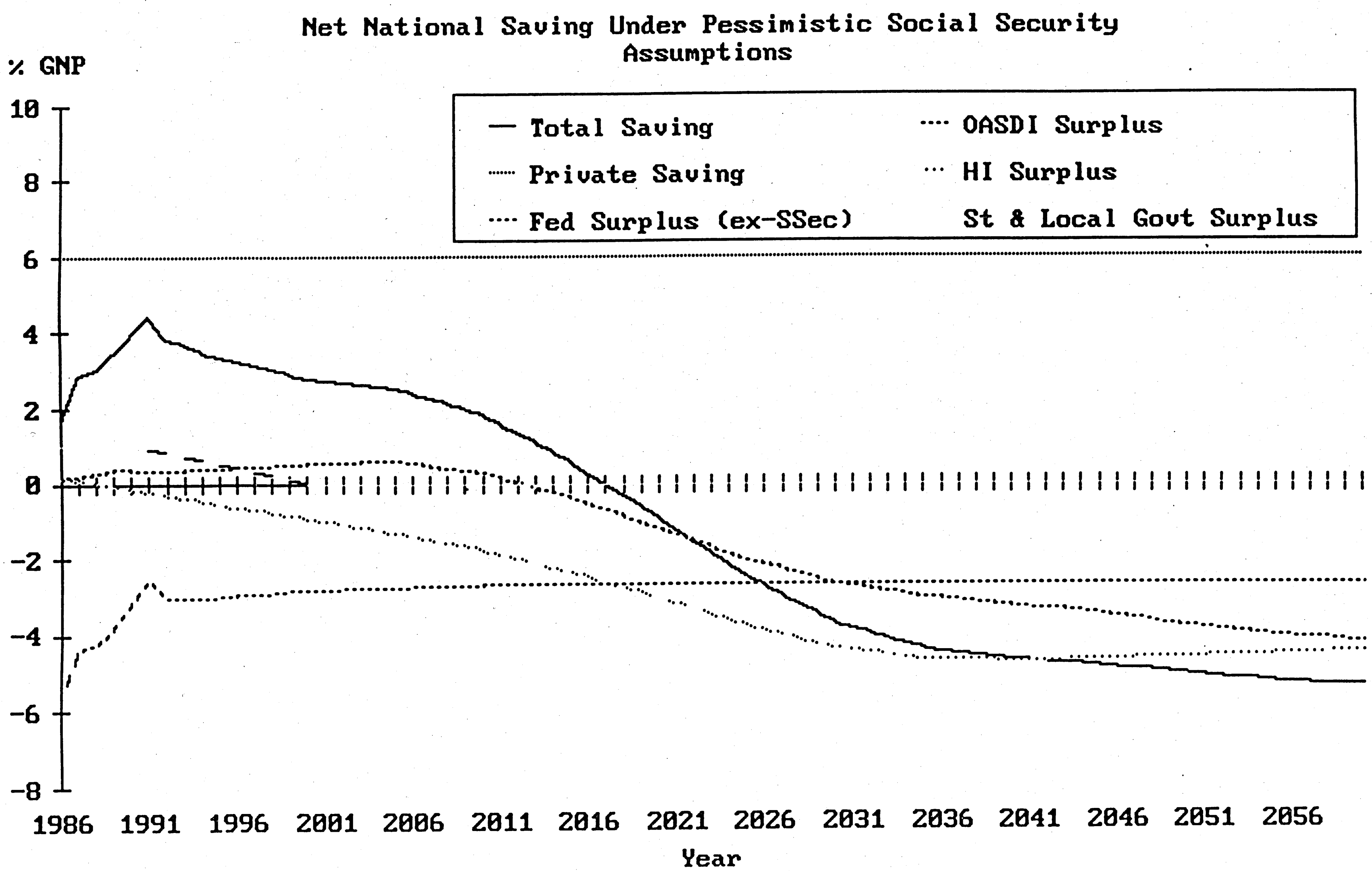
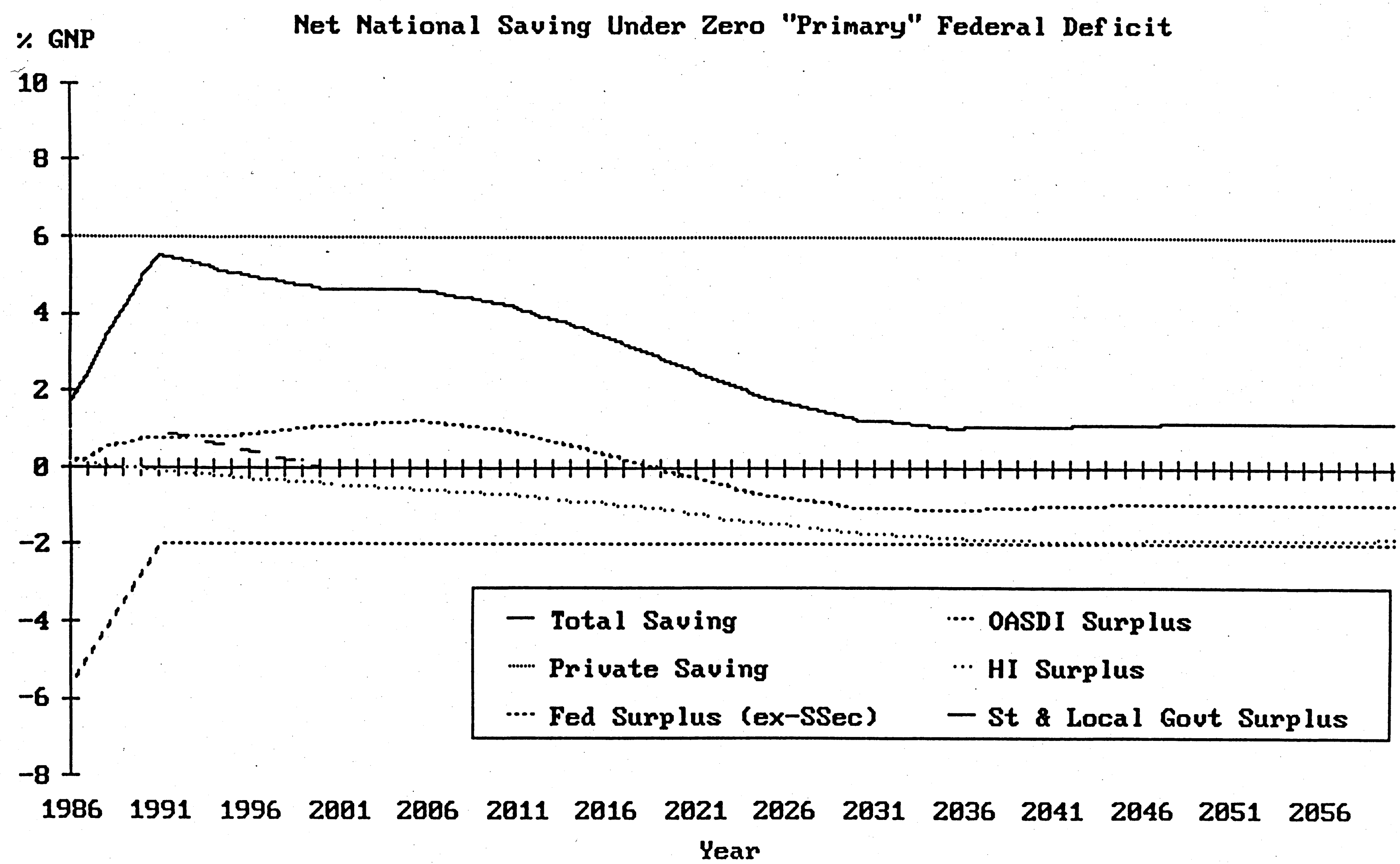

Net National Saving Under Pessimistic Social Security Assumptions
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year

Figure 13.



Net National Saving Under Zero "Primary" Federal Deficit
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 14.

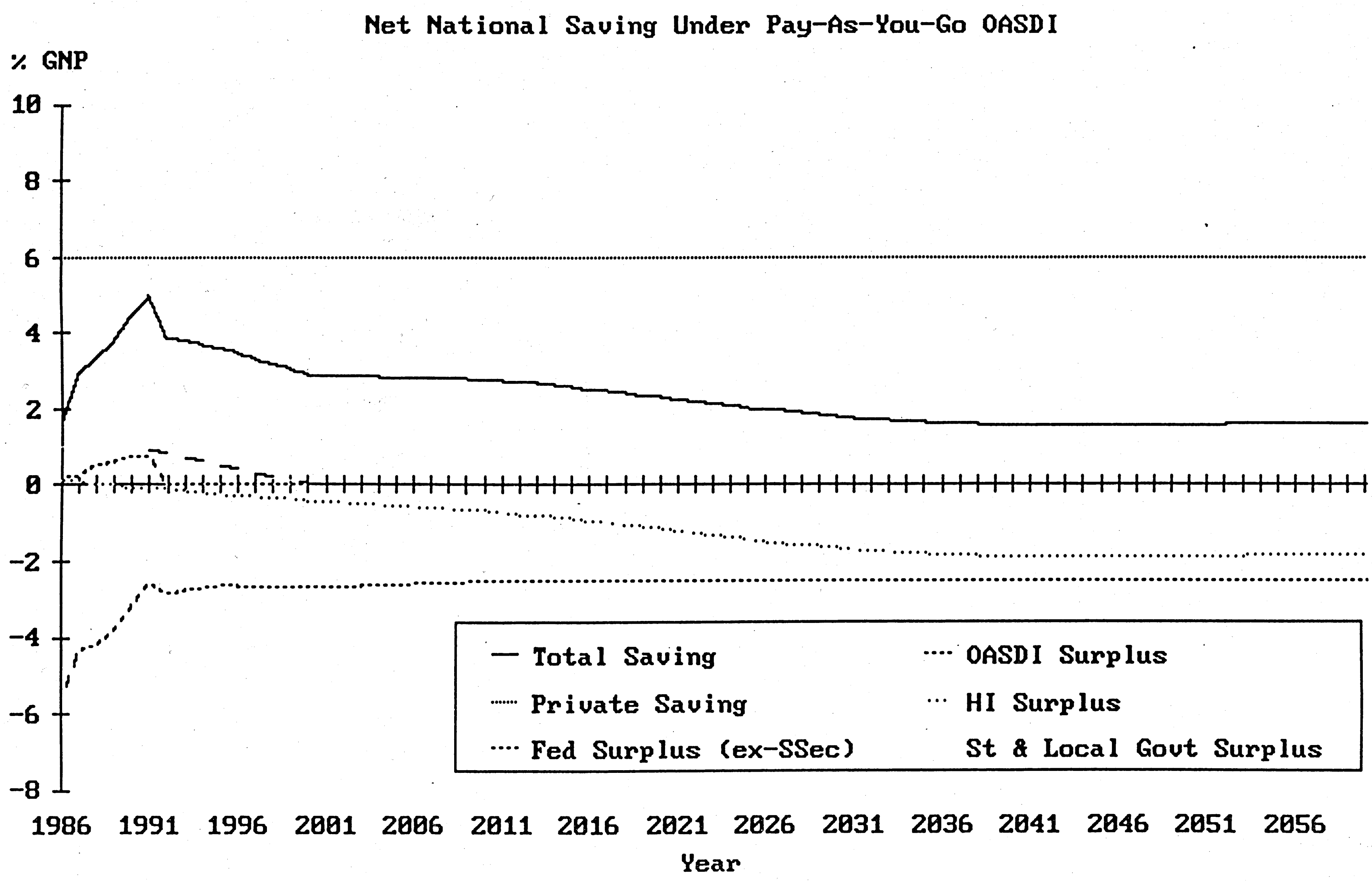
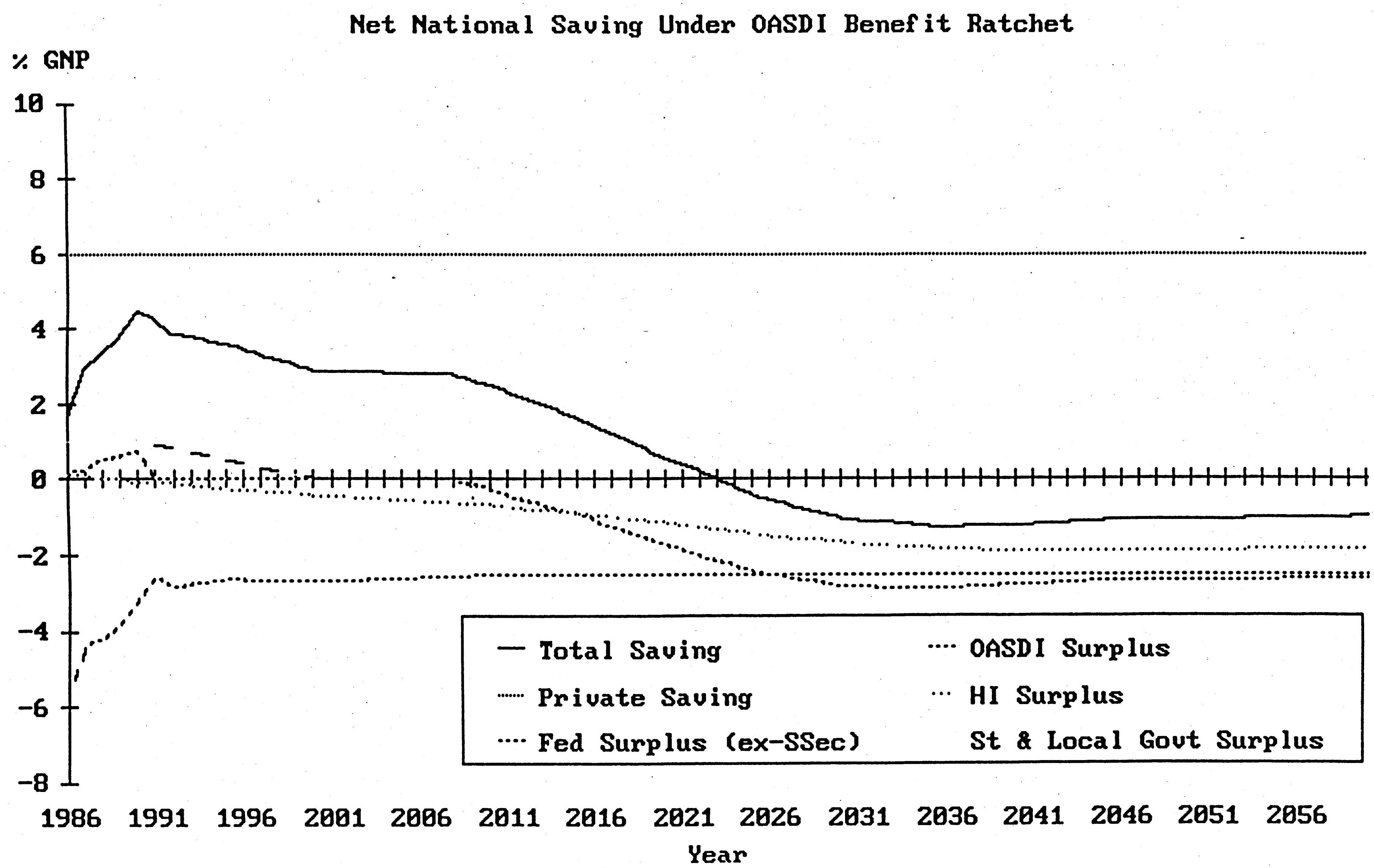

Net National Saving Under Pay-As-You-Go OASDI
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 15.



Net National Saving Under OASDI Benefit Ratchet
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 16.

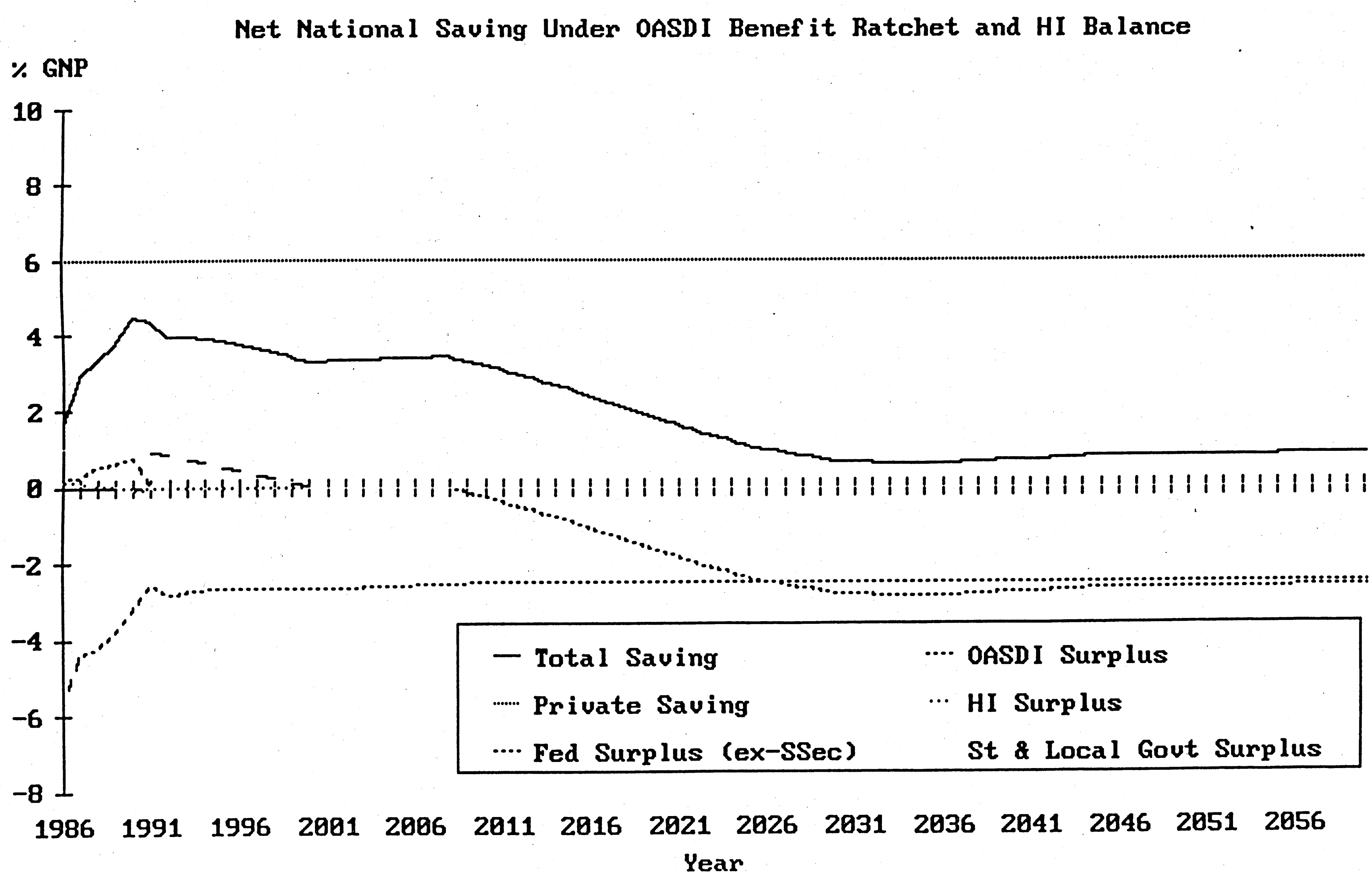

Net National Saving Under OASDI Benefit Ratchet and HI Balance
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 17.

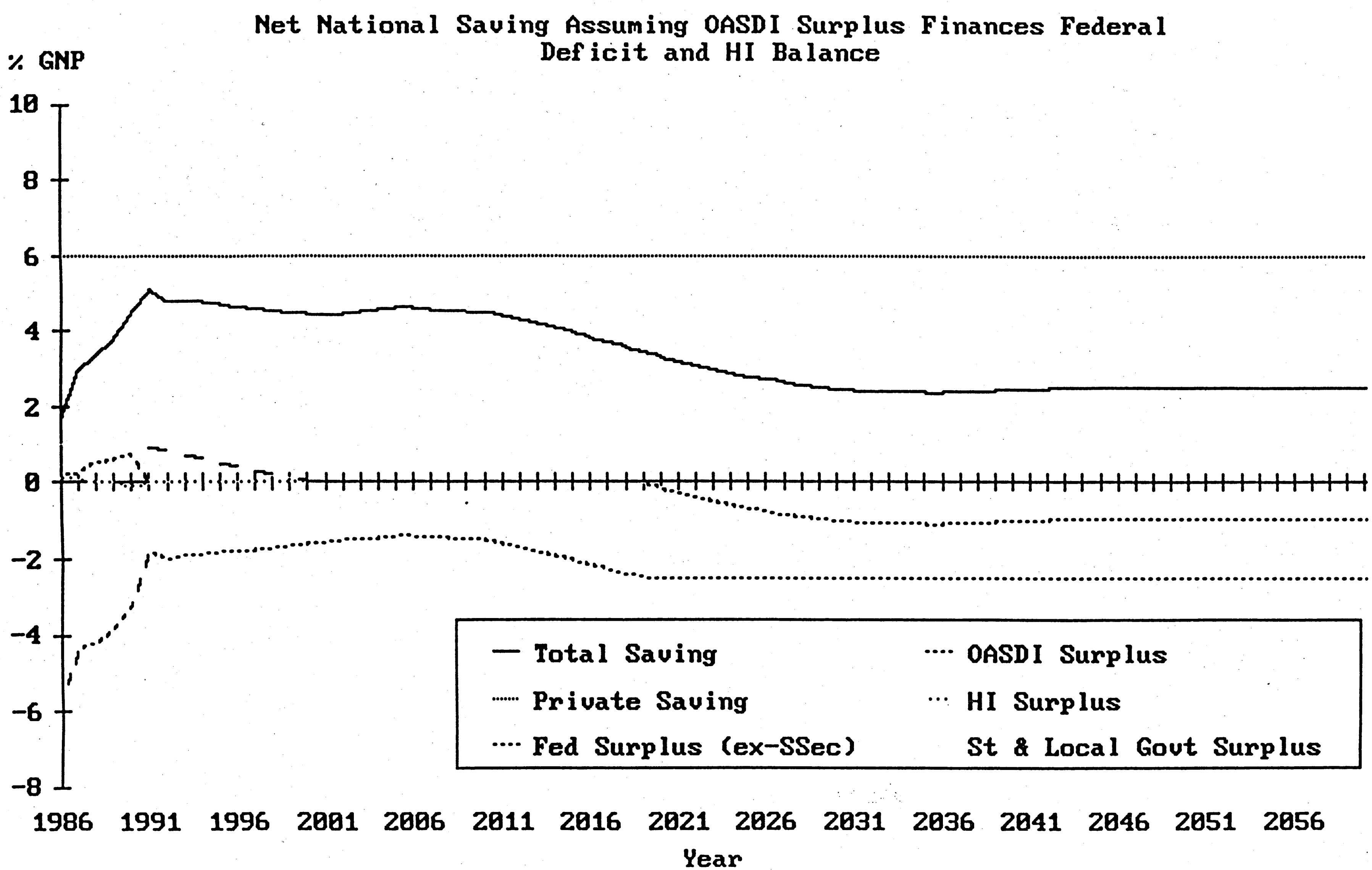
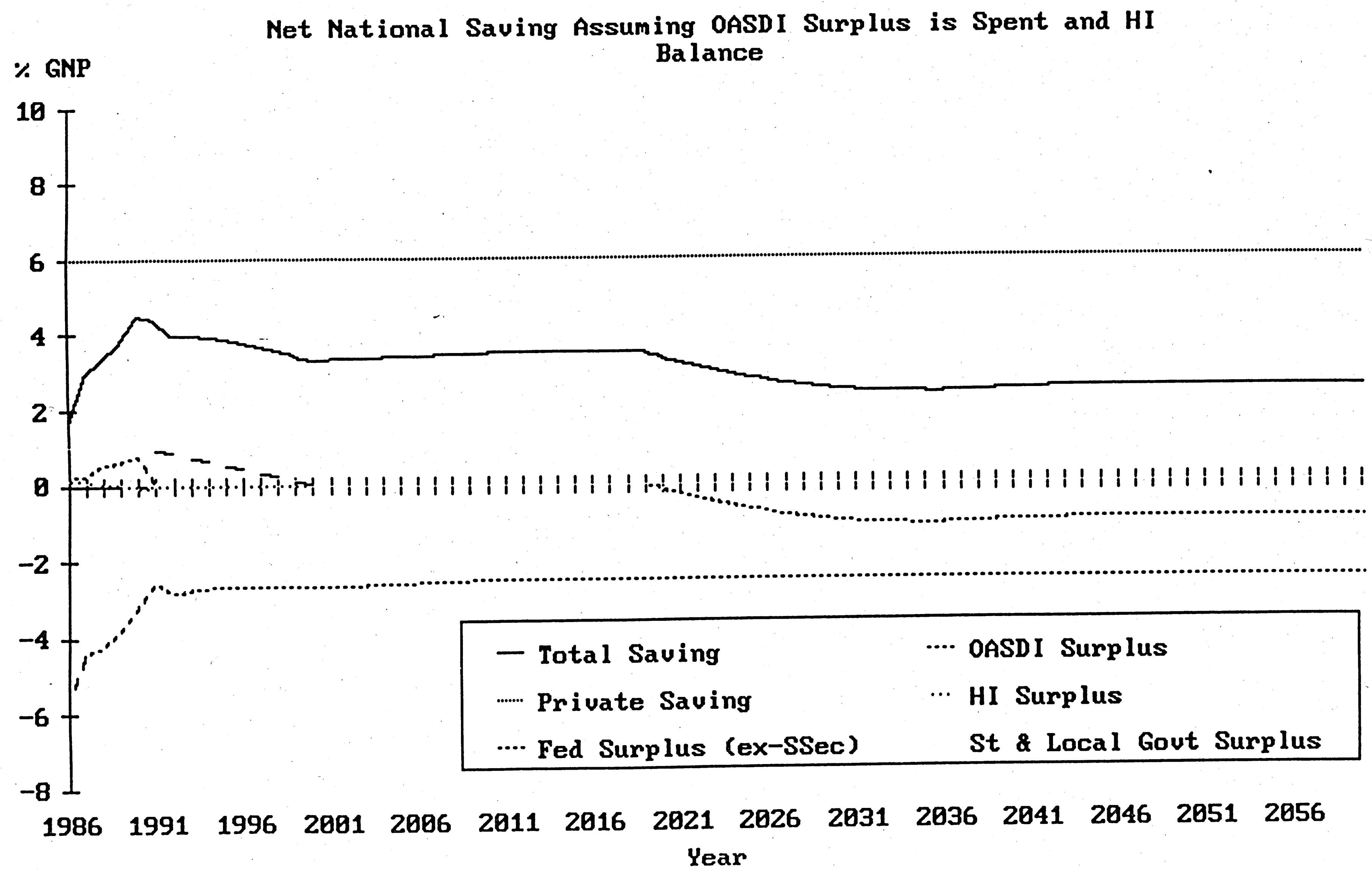
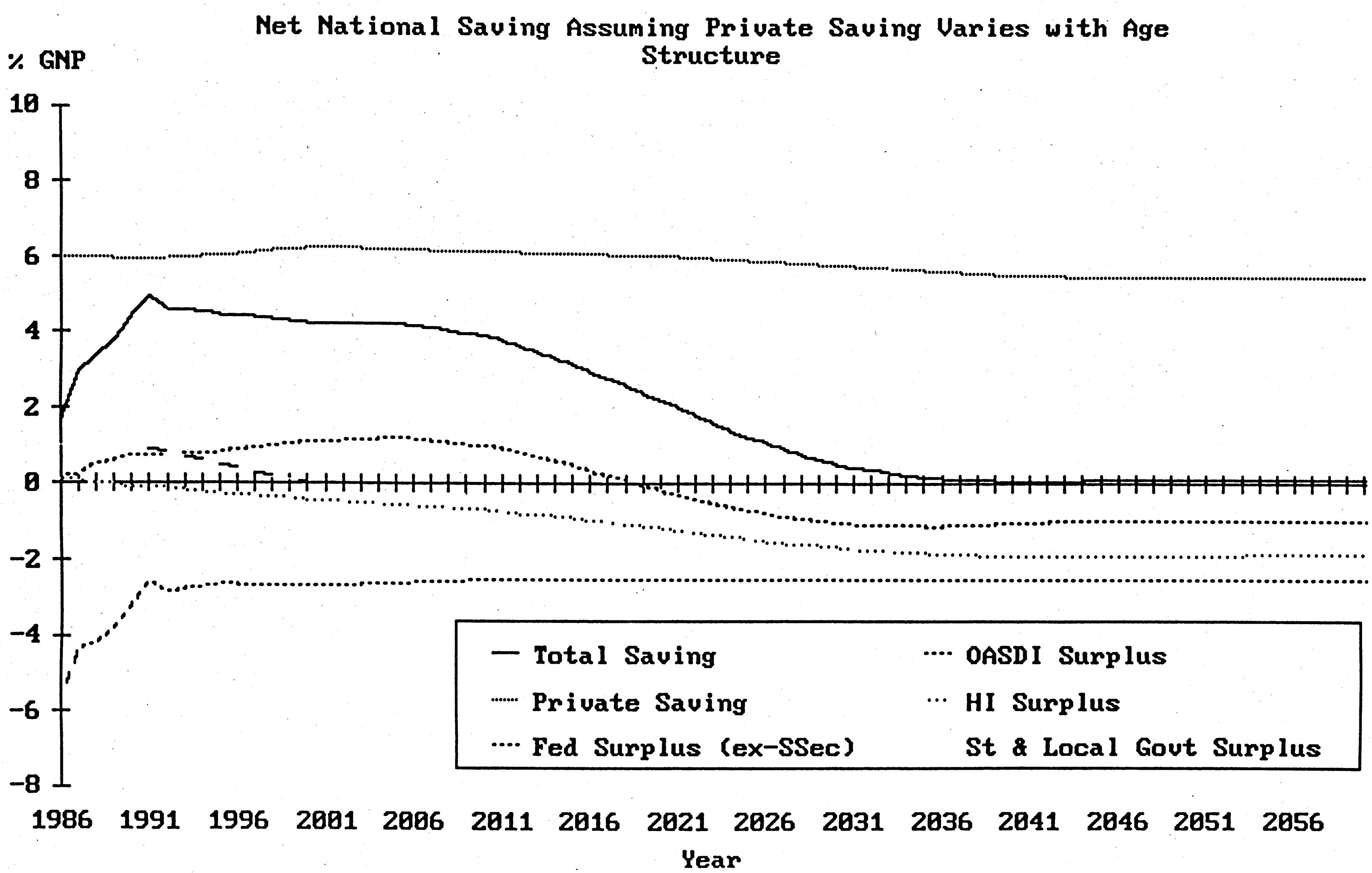

Net National Saving Assuming OASDI Surplus Finances Federal
Deficit and HI Balance
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 18.



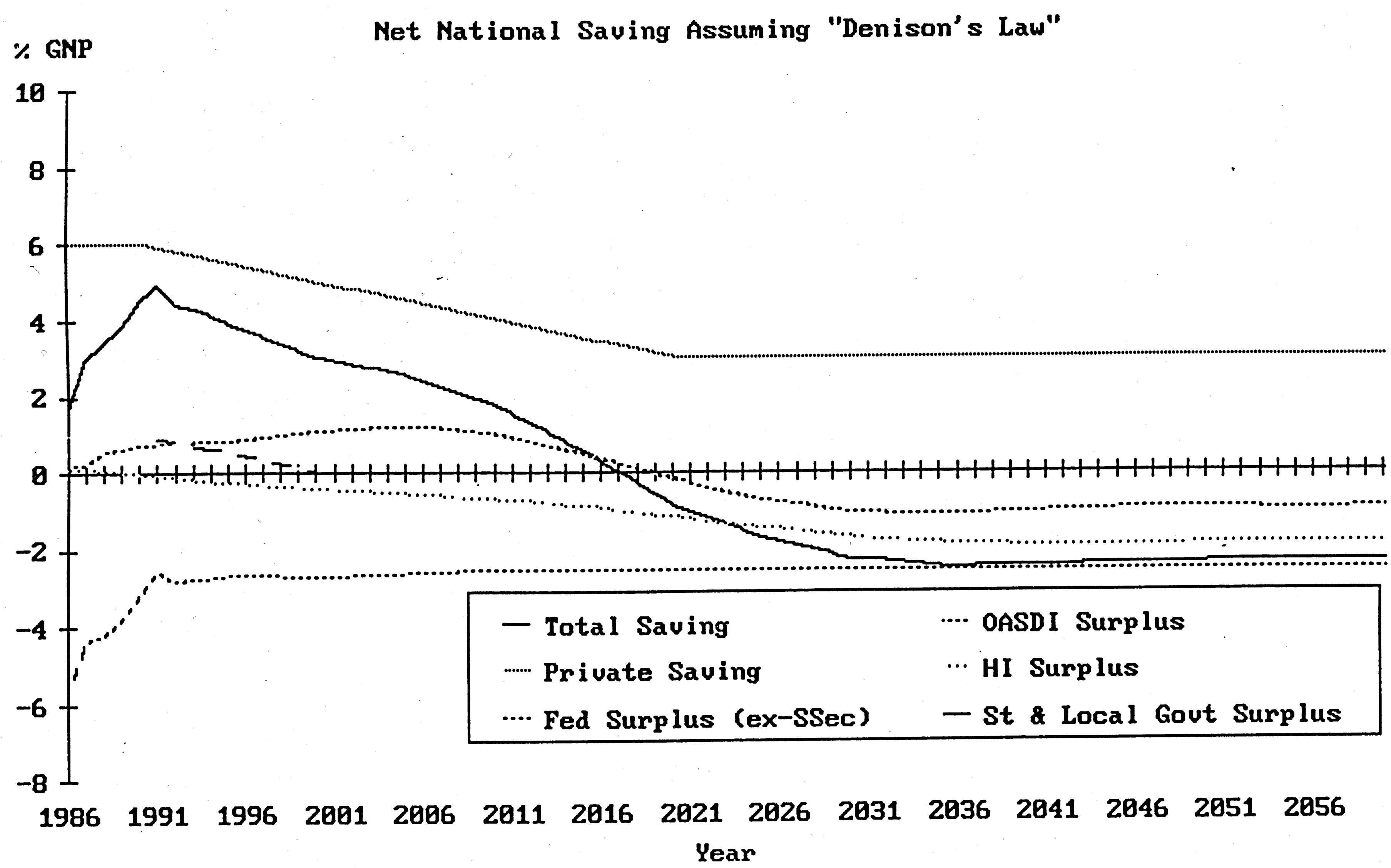
Net National Saving Assuming OASDI Surplus is Spent and HI Balance
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 19.



Net National Saving Assuming Private Saving Varies with Age Structure
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986 1991 1996 2001 2006 2011 2016 2021 2026 2031 2036 2041 2046 2051 2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

Figure 20.



Net National Saving Assuming "Denison's Law"
% GNP
10
8
6
4
2
0
-2
-4
-6
-8
1986
1991
1996
2001
2006
2011
2016
2021
2026
2031
2036
2041
2046
2051
2056
Year
Total Saving
Private Saving
Fed Surplus (ex-SSec)
OASDI Surplus
HI Surplus
St & Local Govt Surplus

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