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ISSUES IN NATIONAL SAVINGS POLICY

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ABSTRACT

This paper reviews a number of issues relating to the policy goal of increasing national savings. The first section considers the measurement and definition of national savings. Comparisons of current US savings rates with those of other countries and with the past US experience are presented. The second section considers possible avenues through which public policy can increase national savings. While most discussion has centered on the effects of changes in the rate of return received by savers, this is far from the only channel through which policy can effect savings. I conclude that changes in public savings or dissaving through budget surpluses or deficits are the most potent and reliable policy tool for altering the savings rate. The third section of the paper examines a crucial savings policy question. Where will extra savings go? Both empirical estimates and econometric model simulations suggest that a surprisingly small share of induced extra savings will find their way into increased plant and equipment investment. A major effect of increased savings would be to reduce capital inflows and improve American competitiveness.

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The allocation of resources between present and future consumption - or savings - is perhaps the most fundamental choice facing any economy. Just as an economy faces a choice between guns and butter today, it faces a choice between consumption today and consumption in the future. And the stakes involved in this choice are extremely large. Most of national wealth will be spent on future as opposed to present consumption. The rate of savings determines the rate of economic growth a country can enjoy. As we will see, it can also have an important influence on a nation's competitiveness on international markets.

The protection of generations yet unborn is often held to be one of the most fundamental roles of government. Public policy affects the national savings decision in many ways: through direct public saving or dissaving, through the effects of taxation on the rates of return available to private savers, through the effects of financial regulations on the public's ability to dissave and borrow, and through the effects of social insurance programs on incentives to self-insure through private savings - to name just a few of the most important examples. In many areas of economic policy, it is possible for the government to be neutral, leaving the private economy to determine the allocation of resources. In the context of savings policy, this is impossible. Any set of tax and spending rules must necessarily influence the rate of savings. There is no natural benchmark of neutrality.

This paper surveys some of the issues that are critical in thinking about national savings policy. A major theme of much of the analysis is the importance of thinking not just about the level of national savings but also its allocation. While increases in national savings and increases in productive plant and equipment are often equated in popular discourse, there is a substantial difference. National savings go to finance residential

investment, spending on consumer durables, and net foreign investment as well as plant and equipment investment. Only a relatively small share of any increase in national savings, perhaps one fourth, is likely to go into plant and equipment investment. Thus if the goal of policy is to increase productivity, measures directed at the allocation rather than the level of savings are likely to be more effective.

Of course, there are other reasons for advocating increases in national savings besides increases in plant and equipment investment. Residential investment also provides for the future. The accumulation of foreign assets, or reductions in the rate at which foreigners accumulate US assets raise the level of attainable future consumption and may serve more general foreign policy goals. Since the current and capital accounts must sum to zero, changes in the rate of net foreign investment have direct effects on the performance of the economy's traded goods sector. The level of national savings and its susceptibility to policy influence therefore remains important issues. The question of what policy instruments should be used to attain any given target for national savings remains an important one.

The paper is organized as follows. Section I briefly examines the current level of savings in the US in both historical and international perspective. By both historical and international standards, the rate of saving in the United States is rather low. The reasons why the US savings rate is so low are far from clear. Section II examines the various channels through which public policy may influence the savings rate. The most potent and reliable instrument the government can use to change the national savings rate is alterations in its own savings rate through changes in deficit policy. There also appears to be some scope for policy interventions

to affect the savings rate through reforms which move us from an income tax towards a consumption tax. Section III considers the allocation of incremental savings. Presumably a judgment about where incremental savings will be allocated is central to any analysis of the desirability of policy measures directed at increasing national savings. Both reduced form estimates of the effects of government deficits and econometric model simulations suggest that incremental savings are likely to be allocated about evenly between business investment, housing investment, consumer durables and net foreign investment. These empirical results are consistent with available data on the allocation of existing national wealth. Finally, Section IV concludes the paper by considering the strength of the case for major policy initiatives to increase national savings. Both the current situation and longer term issues are examined.

I. NATIONAL SAVINGS IN PERSPECTIVE

Table 1 presents estimates of the net and gross savings rate in the United States over the post World War II period. Information on the components of national savings is also presented. The data are drawn from the national income accounts and so are subject to a number of problems. All government spending and consumer spending on durable goods are excluded from savings. No adjustment is made for the effects of inflation on nominal interest payments. This leads to an understatement of the saving of the government and corporate sectors, since they are net debtors, and to an overestimate of personal savings since the household sector is a net creditor. It does not, however, affect the calculated level of national savings.

The data in Table 1 suggest several conclusions. First, the share of depreciation in GNP has increased substantially through time causing the trends in gross and net savings to diverge. This is a consequence of the rising capital output ratio in recent years that has resulted from the slowdown in productivity growth, and a shift in the composition of investment towards short lived assets. In recent years, gross private savings has been relatively high by historical standards whereas net private savings has been relatively low. Second, as has been emphasized in the policy debates of recent years, there has been a dramatic increase in the rate of dissaving by government. This is wholly the result of Federal deficits since state and local saving actually increased as a share of GNP between 1981 and 1984. Third, during the strong recovery of 1984, the net private savings rate rebounded strongly, reaching its highest level since 1975 when it was inflated by the large temporary tax reductions granted to households. It is too early to tell whether the strength of the savings rate observed in 1984

Table 1

U.S. Savings Behavior 1950-1984

Period	Gross Savings / GNP	Gross Private Savings / GNP	Net Savings / GNP	Personal Savings / GNP	Corporate Savings / GNP	Government Savings / GNP
1950-54	15.4	15.4	7.0	4.7	2.3	- .1
1955-59	16.3	16.5	7.1	4.8	2.6	- .2
1960-64	15.7	15.8	6.9	4.1	2.8	- .2
1965-69	16.4	16.7	8.1	4.9	3.6	- .2
1979-74	15.9	16.4	6.9	5.5	1.9	- .6
1975-79	16.0	17.3	5.7	4.6	2.4	- 1.3
1980-84	14.7	17.3	3.4	4.2	1.8	- 2.7
1984	15.1	18.4	4.1	4.3	3.1	- 3.4

is likely to persist.

It is important to note that US savings rates are rather low in long term historical perspective. Feldstein (1977), drawing on the work of Simon Kuznets, presents some estimated savings rates for the pre-World War II period. He finds relatively substantial decreases in savings. Compared to an average net private savings rate of 6.3 percent for the 1950 to 1984 period, Feldstein reports a net capital formation rate of 13.2 percent for the decade of the 1890's and 10.1 percent for the decade of the 1920's. This finding is perhaps surprising. Much modern theory emphasizes the role of saving for retirement. Yet retirement was an almost non-existent phenomenon in the early part of the 20th century. This may be taken as weak evidence in favor of the argument of Kotlikoff and Summers (1981) that bequests are a dominant motive for savings.

Just as current US savings rates appear relatively low in historical perspective, so do they appear relatively low in international perspective as well. Table 2 presents some figures on national savings rates for the United States, the European members of the OECD, and Japan. The data do not agree exactly with those in Table 1 because Table 2 is based on the United Nations System of National Accounts. The data in Table 2 show that the American savings rate lags far behind that of Europe and Japan. During the 1970's, the national savings rate in the US was only 53 percent of that in Europe and 31 percent of that in Japan. The only major European country with a savings rate as low as that of the United States was the UK, which like the United States enjoyed a very low rate of productivity growth.

Why are there such large differences in savings rates across developed economies? The question has been investigated, but is far from resolved. Differences in rates of economic growth which lead to differences in the relative affluence of young savers and older dissavers may well be part of

Table 2

International Comparison of Savings Rates

Period	Net National Savings		
	United States	OECD Europe	Japan
1955-1959	9.8	NA	21.5
1960-1969	10.5	17.3	17.0
1970-1979	8.0	15.1	25.5
1980-1981	5.0	11.0	21.3

Source: Kotlikoff (1984)

the story. Differences in Social Security systems may also provide a partial explanation. But at this point, economists are forced to fall back on the weak explanation of differences in tastes for savings. These tastes may not be wholly exogenous. Under the lingering influence of Keynes, concern about stagnation due to oversavings has perhaps had more influence on national attitudes towards savings in the US and UK, than in Japan or continental Europe.

By the standards of both history and other nations current US savings rates are very low. Whether they are too low is another question to which we return in the latter part of the paper. The comparisons presented in this section are disquieting, especially given the disappointing performance of the US economy over the last decade and a half. In the next section we turn to an investigation of what policies could be undertaken to increase national savings. Then we turn to an evaluation of whether or not the US savings rate is too low.

II. PUBLIC POLICY AND NATIONAL SAVINGS

This section considers the efficacy of possible policy approaches to increasing national savings. The problem of how to increase national savings is very different from the problem of isolating the cause of our low national savings rate. Just as we do not reinflate the leaky part of flat tires, there is no reason why the cause of low savings rates need be associated with policies to increase savings. Moreover, many potential determinants of the savings rate such as the age structure of the population and the rate of technical change are not readily alterable through public policy. Nor is the problem one of merely finding the most potent policy lever for increasing national savings. The theory of economic policy suggests that policy targets should be assigned to instruments which can influence them significantly, without incurring substantial collateral costs. It would be inappropriate for example, to try to manipulate the savings rate by abolishing life insurance contracts because of the collateral costs involved, even though the policy might be quite effective. So too, measures such as the issuance of savings bonds cannot play a major role, because while they do not have large collateral costs, they do not have much effect on savings either. The problem of savings policy is to find policy measures which can be carried far enough to significantly increase national savings without giving rise to significant costs.

Public Saving and Dissaving

The most direct tool at the government's disposal for altering the national savings rate is changes in the level of public saving or dissaving. As we saw in the previous section, public saving is one of the three components of national saving.

Except for the possibility, considered in some detail below, that increases

in public saving directly cause decreases in private saving, they will translate dollar for dollar into increases in national savings. Moreover, the level of public saving is subject to direct public control through changes in the level of taxation and government expenditure. The effects of given policy changes can be gauged with a great deal of precision.

The potentially direct linkages between the rate of public saving and the level of national saving suggest that if altering the rate of national saving is a policy goal, this goal should be assigned to deficit policy. Indeed, if the deficit can be altered without collateral costs, and its effects on national saving can be gauged accurately, the theory of economic policy as described in Brainard (1967) or Theil (1971) suggests that it alone should be used to influence the level of national savings. Other instruments should be set to achieve other goals without regard to their effects on the level of national savings. Any adverse effects on savings that might result from their setting can be mitigated through changes in public deficits. The two critical questions, then that must be addressed before concluding that debt policy should be assigned to the goal of setting capital intensity, are whether the changes in public savings have a significant and easily predictable effect on national savings and whether movements in the public savings rate have other significant economic effects. The two questions interact to some extent. If changes in public savings have only a small impact on national savings, extreme movements in public savings may be necessary to achieve given goals, and extreme movements are more likely to have other effects than are more moderate changes.

In standard Keynesian macroeconomic models, there is a clear and direct linkage between national savings and public savings. Consider for example a personal tax increase which reduces the government budget deficit. If

government spending is kept constant, public savings is increased by the revenue raised through the tax increase. Private savings is reduced only to the extent that the reduction in disposable income caused by the tax increase reduces private savings. As long as the marginal propensity to save of the household sector is low, this offsetting effect is likely to be very minor.

This view of the effects of budget deficits on national savings has been challenged in recent years by Robert Barro (1974) and a number of other authors. Their argument runs as follows. In the long run, the present value of the government's tax receipts must equal the present value of its expenditures. Increases in taxes today, with expenditures held constant, entail reductions in taxes tomorrow. The present value of the taxes that will be collected from consumers is unaffected by a tax change. This means that their wealth is unchanged and therefore that they should not alter their consumption decisions. Hence a tax increase should have no effect on national savings. The argument may be stated another way. On Barro's view, which is often referred to as the Ricardian Equivalence view, government debt is not net wealth. The value of the government bonds that consumers hold is exactly offset by their knowledge of the tax liabilities that will ultimately be borne to service or pay off the national debt. Changes in government debt, because they cannot affect consumers' wealth, cannot affect their spending decisions, and so cannot have any impact on the level of national savings.

Thus the Ricardian equivalence argument suggests that policies which change public savings while having no effect on the level of public spending can have no impact on the national savings rate. This argument limits severely the efficacy of deficit policy as a tool of savings policy. Is it valid? This has been the subject of a raging controversy over the past

decade. Much of the debate has revolved around the commonplace observation that consumers have finite lifetimes. Therefore, holds the Keynesian argument, some of the tax liabilities engendered by the national debt will be borne by future generations. Those alive at present will spend more because they are wealthier on account of the government bonds they hold. Persons yet unborn can hardly save in anticipation of their tax liabilities. As a result, increases in government debt increase private consumption and thereby reduce national savings. Proponents of the Ricardian equivalence view dispute this analysis holding that those alive today are likely to adjust their bequests to reflect any tax liabilities that are foisted on their descendants.

While the Ricardian equivalence debate has generated a great deal of interest in the determinants of intergenerational transfers, it seems unlikely that the nature of bequest motives is really of fundamental importance in determining the effects of government budget deficits on national savings. The typical adult consumer has an expected life span of about 35 years. If the debt is increased, most of the burden of servicing or repaying the debt will be borne within his lifetime. The present value of the debt burden that he will avoid by passing it on to his offspring is very small. The case for the view that government savings influences national savings must rest on some grounds other than the finiteness of individual lifetimes.

My reading of the evidence suggests that changes in government deficits are likely to have important impacts on national savings. They affect the level of national savings because consumers appear not to consider the effects of future tax policies when they determine their consumption decisions. Even when future tax changes have been legislated,

consumers appear not to be much affected. This is illustrated by recent experience. In the summer of 1981, a three year program of substantial reductions in income taxes was enacted. If consumers acted in a forward looking way, one would have expected consumption to surge immediately and then not to change much at all when the tax cuts actually took place. This is not what has occurred. Personal consumption expenditures rose at a 1.7 percent rate during 1981 when the tax cut was enacted, and at a 2.5 percent rate in 1982 when it began to take effect, and at a 5.1 percent rate in 1983 when it fully came on stream. The savings rate was higher in 1981 before the tax cuts than in 1982 or 1983 after the tax cuts. Similar patterns may be observed in other cases where tax policies have been announced in advance.

Recall that the Ricardian equivalence proposition that consumers internalize not only announced tax changes but also the yet unannounced changes that will ultimately be needed to balance the government budget. Imputing this degree of rationality to consumers strains credulity. Of course, in many cases even if households foresaw future tax changes, they would not change their behavior in anticipation of them. Many households are liquidity constrained and essentially spend all of their current disposable income. Movements in expected future income cannot affect their consumption or saving since they do not save and cannot borrow. On balance it seems reasonable to conclude that increases in current taxes will have a substantial influence on the level of national savings. Any offset due to reduced private savings because of reduced future tax liabilities seems likely to be small.

The analysis here has concentrated on the effects of changes in taxes which leave government spending unaffected. Quite obviously, even on the Ricardian equivalence view, changes in government spending might affect

national savings. But such changes also alter the mix between private and public consumption. They are thus less suitable as a policy instrument for manipulating the national savings rate.

It appears that through its debt policy the government can systematically and fairly predictably manipulate the level of national savings. The question of collateral costs remains. Before assigning the target of the national savings rate to debt policy, it is necessary to consider whether increases in public savings to raise national savings might have other adverse consequences which would make them infeasible. An obvious risk is the Keynesian fear that increases in public savings will lead to stagnation due to insufficient aggregate demand. Whatever the are the merits of this argument in the context of the post-Depression period, the fear of excessive savings is not an important one today. The ability of monetary policy to stimulate aggregate demand has been amply demonstrated. Any reductions in demand due to increased government savings can easily be offset by expansionary monetary policies. Indeed, on the plausible view that monetary policy targets nominal GNP de facto, increases in government savings will have no effect on national savings even without changes in monetary policy. Moreover, as Greg Mankiw and I (1984) have recently argued, increases in taxes may actually raise aggregate demand if the marginal propensity to hold money for consumption exceeds that for other components of GNP.

There are three other potential problems with dedicating deficit policy to the achievement of a national savings target. First, raising taxes to increase public savings involves excess burden. All real world taxes involve some distortion of economic behavior and therefore impose costs on the private sector in excess of the revenue collected. Of course increased

taxes at present reduce government interest payments, reducing the need for tax revenue in the future. Nonetheless, using tax policy as an instrument for controlling public savings is likely to require that taxes be varied in a way which causes distortions, and this is a collateral cost. Second, if increases in public savings were used to achieve a major increase in national savings, to levels anywhere near those observed in Europe, the national debt would be eliminated. It would then be necessary for the government to invest directly in the private sector which might pose political problem of different sorts. Third, it might be politically impossible for the government to run chronic budget surpluses in an effort to increase national savings. As the New Republic's recent conclusion that "the nation can no longer afford current student loan programs" evidences, the fiscal situation of the government has an important impact on public spending decisions. Chronic surpluses may well be impossible because of the pressures they create for new spending programs. In this case, it will be infeasible to increase national savings greatly through increases in public savings and it might be undesirable as well.

The analysis in this subsection suggests that the public savings rate should be the principal policy tool used to achieve any given national savings target. Increases in public savings have a predictable potent effect on national savings. And at least some changes in national savings could be achieved without significant collateral costs. However, achieving large increases in national savings to levels even approaching those observed in Europe through increases in public saving might not be feasible. Moreover, policymakers appear unwilling to use deficit to achieve a national savings target. It therefore is useful to examine other possible policy instruments for affecting the national savings rate.

Tax Reform

In recent years, many public finance experts have advocated that our current income tax system be replaced with a consumption tax. One of the arguments advanced in favor of a consumption tax is that it would promote saving at the expense of consumption. More generally, it has been argued that the tax system should be reformed to promote saving at the expense of consumption. These ideas have found legislative expression in the IRA provisions of the 1981 tax act, in the reductions in top marginal rates, and in the generous tax treatment of private pensions. Nonetheless, the argument that tax reform can significantly affect the level of national savings is far from universally accepted. Many experts believe that savings decisions are not sensitive to rates of return and that tax reforms can therefore have only very limited effects on the national savings rate. Until quite recently this pessimistic view of the potential for tax policy to increase national savings was generally accepted.

The conventional wisdom that changes in the rate of return to savers caused by tax policy are unlikely to have much impact on the savings rate is buttressed by both theoretical and empirical arguments. The theoretical argument is that increases in the rate of return available to savers have two potential effects. On the one hand, they make saving more attractive. On the other they reduce that amount that must be saved to hit any given future wealth target. In economists' jargon, substitution and income effects conflict. The empirical argument is that studies which add interest rate variables to aggregate consumption functions typically find those variables to have little impact and not to enter in a statistically significant way.

Elsewhere, Summers (1981),(1982),(1984), I have considered these arguments in detail. My conclusion is that they are not valid. Increases in the rate of return to savings such as might be achieved through tax

reforms, would be likely to have a significant effect on the private savings rate. The standard theoretical argument summarized above, by assuming that all labor income is received in the first of two periods, neglects the human wealth effect of increases in rates of return. Increases in rates of return reduce the present value of households' future labor income tending to reduce consumption and increase savings. Furthermore, the standard argument considers the effects of uncompensated changes in rates of return. Compensated increases in rates of return, such as would be associated with a shift from income taxation towards consumption taxation can be shown to unambiguously increase savings. Finally, it is important to recall that increases in the rate of return have an unambiguously negative effect on borrowing. This point is empirically significant. In 1981, interest deductions reported on personal tax returns exceeded interest income. Reductions in borrowing have exactly the same effect on national savings as increases in personal savings.

Nor is the empirical evidence in favor of the view that rates of return have negligible effects on savings very strong. The historical experience reflects largely transitory changes in rates of return which would be expected to have much smaller effects on savings than the permanent changes that would be associated with structural tax reforms. There are also important methodological difficulties with existing consumption function studies. These include their failure to take account of human wealth effects and their maintained assumption that changes in rates of return have no effect on either disposable income or wealth. The empirical work reported in Summers (1982), which makes use of several alternative techniques that are free of these difficulties, suggests that changes in rates of return might well have significant effects on private savings.

In addition to their effects on rates of return available to private savers, there are a number of other channels through which changes in tax policy might affect private savings. Reductions in corporate taxes which raise corporate cash flow will increase corporate savings unless, as seems unlikely, dividends are adjusted rapidly. It is an open question whether, and over what horizon, households adjust their saving to offset the saving done on their behalf by corporations. Unless they adjust fully and immediately, reductions in corporate taxes will raise national savings.

An alternative example is provided by IRA's. There is a saying that life insurance is sold not bought. One wonders whether the same is not true of retirement savings. It seems likely that tremendous volume of advertising inducing consumers to open IRA's, which has become a sure sign of springtime in America, has at least some effect on some savings decisions.

On balance, it seems likely that tax reforms could well increase the national savings rate. This of course does not mean that they should be used for this purpose. Tax reforms have a host of effects on both economic efficiency and equity, of which their impact on national savings is not necessarily the most important. If the desired national savings rate can be achieved through public savings, there is no reason to manipulate the tax system towards this end. Rather, the tax structure should be selected to maximize efficiency and equity goals. If, however, public savings cannot or will not be used to achieve a target rate of national savings, there is a case for tax reforms to encourage national savings.

Social Insurance

Beyond the effects of direct public savings and the effects of the tax system, government affects the level of national saving through its expenditure policies. The most obvious example is the Social Security

system. Social Security promises citizens a very substantial level of support after they retire. It is natural to conjecture following Feldstein (1974), that Social Security thereby reduces private savings. Indeed, Feldstein originally estimated that the existence of Social Security might reduce the private savings rate in the United States by as much as 50 percent. This argument has generated a large literature over the last decade. Theoretical work has emphasized that promised Social Security benefits are unlikely to reduce private savings dollar for dollar. Unlike private savings, Social Security provides support for retirement in indexed annuitized form. Social Security's effects on savings may be offset by its tendency to encourage early retirement, or by its effects on bequest behavior. Empirical work using time series data, international cross section evidence, and data on individual households has been somewhat inconclusive as well.

The significance of this debate is unclear. If, as seems likely, Social Security has had the effect of reducing national savings, it is not clear what policy response, is appropriate. The program exists because of a social desire to make transfers to the elderly and to provide certain types of insurance. The provision of these types of insurance and transfers may affect the national savings rate. But as long as these effects can be offset with other policy instruments without undue costs, there is little reason to interfere with the provision of insurance in order to influence the national savings rate. Of course, Social Security reform may be appropriate on its own terms. But, unless increasing national savings is seen as an urgent goal, and no other policy instrument is available, there is no case for Social Security reform on the grounds of national savings. Social Security policy should be directed at goals other than national savings. Its effects on national savings are very uncertain, and there are

large collateral consequences associated with using it to alter national savings.

A similar argument applies to most other public policies that impact on national savings. Reform of the regulations on the interest rates that financial institutions are allowed to pay, for example, might influence national savings. But it seems inappropriate to base decisions on these reforms on considerations of national savings, given the multiplicity of instruments available to influence national savings and the paucity of other tools available for regulating financial institutions. This is not to endorse deposit ceilings. Rather, the argument is that they should be set on grounds.

Summary

The theory of economic policy dictates that policy instruments should be assigned to targets if their effect on the target is relatively predictable, and if changes in the use of an instrument do not involve large collateral costs, either because they have minor effects, or because the effects can be offset through the use of other policy instruments. These criteria suggest that the primary instrument of national savings policy should be public savings. Increases in public savings are likely to translate fairly directly into increases in national savings with relatively little uncertainty. Changes in the rate of public savings are not likely to have important collateral costs.

Tax reform is a also likely to influence the national savings rate, but it is not clear that it should be used for this purpose unless increases in public savings are infeasible. It is probably not appropriate to give national savings much weight in making policy in other areas.

III. THE EFFECTS OF INCREASED NATIONAL SAVINGS

Any policy judgment about the desirability of increasing national savings must depend on a judgment about the allocation of increments to national savings. This issue is particularly important given the increasing integration of world capital markets. Consider the case of a small open economy in a world where capital was perfectly mobile. Increases in national savings would have no effect on the domestic capital stock. Since capital mobility would equalize returns around the world any, incremental savings would be spread thinly around the world. Increases in domestic savings would not tend to increase domestic investment. Such an analysis is clearly appropriate in considering increases in saving within a single US state. Capital is mobile across state boundaries and any state is small relative to the US economy. It is less clear how relevant it is to the US economy which is large relative to the world economy, and whose savings may not be completely mobile internationally.

Even apart from the international allocation of incremental savings, there is the question of where savings which increase the domestic capital stock will fall as well. Many of the arguments adduced to support increased capital formation do not really apply if extra savings do not lead to extra investment in plant and equipment. Other forms of capital formation are not penalized by the tax system and are less likely to promote technological innovation. This section considers first the implications for savings policy of the openness of the US economy and then examines the likely allocation of increases in domestic capital formation. Finally, estimates of the effects of reduced budget deficits on the composition of output based on both reduced form equations and econometric simulations are presented.

International Capital Mobility

Assessing the degree of international capital mobility is crucial in judging the effects of an increase in national savings. If capital is perfectly mobile, one would expect that only a share of increased savings equal to the US share of the world economy would fall on domestic capital formation. The remainder would go to finance investment abroad, or equivalently to purchase capital in the United States now held by foreigners. The United States accounts for about one-third of the output of the world's capitalist economies. Thus, if capital is perfectly mobile, most of any increase in national savings will go to finance foreign investment.

Increased US financing of foreign investment has a necessary concomitant. The balance of payments identity holds that the current and capital accounts must sum to zero. Increased capital outflows or reduced capital inflows must necessarily be balanced by improvements in the trade balance. Exports must rise and imports must fall improving the competitiveness of US industry. The mechanism through which these changes will occur is simple. Increased savings will reduce the return available on US assets making them less attractive to foreigners and reducing the demand for dollars. This will lead to an exchange rate depreciation which in turn improves US competitiveness. Thus if capital is internationally mobile a major effect of any increases in US savings will be an improvement in US competitiveness, or alternatively stated a deterioration in our terms of trade.

Alternatively, if capital is not internationally mobile, increases in US savings will lead to equal increases in US capital formation. The extent of international capital mobility then becomes a critical issue. I have presented my views on this question in some detail in Summers (1985)

have presented my views on this question in some detail in Summers (1985) and just summarize them here. Evidence can be marshalled in support of various positions about the degree to which capital is internationally mobile. The flourishing Eurodollar market, the large US current account deficit, and the substantial international flows of gross investment bely the view that capital is inherently immobile.

On the other hand, as Feldstein and Horioka (1980) have emphasized the correlation across countries between rates of savings and investment is extremely high. High savings countries are also high investment countries on a very consistent basis. This proposition is illustrated in Table 3 which presents national savings and investment rates for a number of countries. While the long run average savings rate varied across countries between 17.3 percent and 34.9 percent, the largest average current account deficit was only 4.4 percent and the largest surplus was only 1.7 percent. The correlation between domestic savings and investment rates was .91. For various sample periods, regressions consistently suggest that the propensity to invest out of domestic savings exceeds .8. domestic investment rates on domestic savings rates consistently suggests that the propensity to invest out of domestic savings exceeds .8.

It is not clear how the observed high correlation of domestic savings and investment rates can be reconciled with high degree of capital mobility that seems apparent. Surely, it is unlikely that coincidence leads to the strong association of savings and investment rates. In Summers (1985), I argue that the observed association between savings and investment rates is a reflection of national economic policies. For reasons that are not entirely clear, nations are unwilling to accept large current account imbalances for sustained periods. This leads them to use the levers of economic policy to achieve external balance. This leads to a close

Table 3

Savings, Investment and Current Accounts

(1963-1981)

	Savings/GDP	Investment/GDP	Current Account/GDP
Japan	34.9	34.5	0.5
Switzerland	29.7	28.0	1.7
Austria	27.5	28.2	- 0.7
Norway	26.9	29.9	- 3.0
Portugal	25.7	27.7	- 2.0
Netherlands	24.9	24.5	0.5
Germany	24.9	24.5	0.5
Iceland	24.9	28.2	- 3.3
Finland	24.6	26.5	- 1.9
Greece	24.3	26.7	- 2.4
France	24.1	24.6	- 0.5
Australia	23.8	25.9	- 2.1
New Zealand	22.8	25.5	- 2.7
Italy	22.6	22.0	0.6
Spain	22.6	23.6	- 1.0
Sweden	22.5	23.1	- 0.6
Canada	22.3	23.4	- 1.1
Belgium	22.3	22.5	- 0.2
Denmark	20.7	23.5	- 2.8
Ireland	20.7	25.1	- 4.4
United States	19.4	19.2	0.2
United Kingdom	18.7	18.9	- 0.2
Turkey	17.3	19.5	- 2.2

Source: Caprio and Howard (1984)

association between national savings and investment rates. For example, it appears that within the OECD, nations where private savings exceeds domestic investment tend to run budget deficits on average, while nations where private savings falls short of investment tend to run surpluses on average.

This interpretation of the data suggests that nations are unlikely to pursue policies which substantially increase national savings without also attempting to stimulate national investment. However, it suggests that if such a policy were attempted, the result would be only small increases in capital formation, and a large effect on the trade balance. In a sense, the United States has pursued this policy in reverse in recent years, as the Federal budget deficit has mushroomed. The result has been large capital inflows from abroad which have enabled domestic investment to be extremely strong on a cyclically adjusted basis.

If the primary effect of increases in national savings is to reduce capital inflows or increase capital outflows with relatively little impact on national investment, the question arises of whether or not they are desirable. This depends on why they are being advocated. Investment abroad will not increase the productivity of American workers. Nor does the tax system create a wedge between the private and American social return to foreign investment. On the other hand, increased foreign investment does pass wealth on to future generations and in this sense may be beneficial. Furthermore increased capital outflows or reduced capital inflows will be associated with improvements in the competitiveness of domestic firms on world markets.

The Domestic Allocation of Capital

The analysis in the preceding section suggests that a large part of any increase in domestic savings would flow abroad. What about the component

that went to finance investment in the United States? One reasonable first approximation is that it would be spread relatively evenly across the components of national wealth. Information on the asset composition of national wealth may be gleaned from the National Balance Sheets prepared by the Federal Reserve system. They reveal that at the end of 1983, the net worth of the United States was $11.4 trillion. This $11.4 trillion was comprised of $3.9 trillion in residential structures and consumer durables, $3.1 trillion in plant and equipment,$3.3 trillion in land, and $.8 trillion in inventories as well as a small positive claim on foreigners.

Despite the natural tendency to think of plant and equipment spending as the principal disposition of savings, less than 30 percent of national wealth is held in this form. At market value rather than replacement cost, the share of plant and equipment would be even lower. Even among reproducible assets, the share of plant and equipment is less than half. It seems likely, therefore, that much of any increase in national savings that was brought about by public policy would be allocated to residential structures and consumer durables. In addition, the reduced interest rates that would be associated with increases in savings would lead to increases in the value of non-reproducible assets like land. The resulting increases in wealth would then tend to increase consumption, partially offsetting the initial increase in savings.

This analysis suggests that on the basis of a priori reasoning, one should anticipate that increases in national savings will have only a relatively minor effect on plant and equipment spending. Much of any increase in saving will go to finance increases in foreign investment. And savings allocated domestically will go in substantial part to increase the value of land, and to investment in residential structures. Below, I test these ideas by examining the relationship between changes in Federal budget

deficits and the composition of national output. Changes in Federal budget deficits to a large extent represent exogenous changes in national savings. By examining their impact on the composition of output, we can gauge the likely allocation of incremental national savings.

Federal Deficits and the Composition of National Output

The starting place for our analysis is the national income identity:

$$(1) \quad D = G_f - T_f = PS + (T_s - G_s) + NFI - I$$

where D represents the Federal deficit, PS is private saving, $G_s - T_s$ the deficit of non-Federal governments, NFI is net foreign investment and I is domestic investment. In the absence of official reserves transactions, NFI will be just the negative of the current account balance. This identity demonstrates that with GNP held constant reductions in Federal savings must raise private savings, increase state and local surpluses, draw funds in from abroad by crowding out net exports, reduce investment or have some combination of these effects.

I estimate the effects of increases in Federal savings on the composition of national output by fitting reduced form equations of the type:

$$(2) \quad \frac{Z_{it}}{GNP_t} = a + b \frac{D_t}{GNP_t} + c_1 Cycle_1 + c_2 Cycle_2 + U$$

where Z_i, i=1-4 represent components of GNP and $Cycle1_t$ and $Cycle2_t$ are variables intended to control for cyclical conditions. The coefficients b_i measures the extent to which deficits affect each national income component. All estimated equations were corrected for first order serial correlation. In alternative specifications, current and lagged capacity utilization and

its lagged value, and real GNP growth rates were used to proxy for cyclical conditions. Equations were estimated using both the standard deficit as reported in the National Accounts and an inflation adjusted deficit which accounts for inflations's erosion of the real value of outstanding debt. The sample period was 1949-1982 except in the case of the net foreign investment equation which was estimated over the 1973-1982 period to allow for the effects of the shift to floating exchange rates. Results are shown in Table 4.

The results differ somewhat across equations but several reasonably robust conclusions emerge. Budget deficits call forth increased private saving. Such saving rises by about 30 cents for each dollar of Federal deficits. This extra saving reflects the effects of increased disposable income for consumers, the effects of increases in rates of return caused by Federal borrowing and possibly the effects of anticipated tax liabilities. Each dollar increase in Federal dissaving appears to increase state and local saving by about five cents. This may reflect substitution of local for Federal activity on either the tax or spending side.

The results confirm the prediction that increased deficits crowd out net exports by attracting foreign capital inflows. It is reasonable to expect that this result should occur much more rapidly with fixed than with floating exchange rates so we focus on estimates for the 1973-1982 period. This makes it very difficult to pin down the effects of deficits on net foreign investment with any precision. The equations tend to suggest that each dollar of deficits calls forth about 25 cents in increased net foreign investment and so crowds out an approximately equal amount of net exports. In all likelihood, reestimation including the last two years when both budget and current account deficits have ballooned would

Table 4

The Effects of Federal Deficits on the Composition of GNP

Deficit Concept	Standard	Standard	Inflation Adjusted	Inflation Adjusted
Cyclical Variable	GNP Growth	Capacity Utilization	GNP Growth	Capacity Utilization
Net Private Savings	.204 (.108)	.233 (.126)	.440 (.099)	.464 (.098)
State and Local Saving	.058 (.030)	.051 (.040)	.062 (.025)	.018 (.031)
Net Foreign Investment	.270 (.661)	.684 (.749)	.256 (.175)	.236 (.112)
Net Investment	- .624 (.086)	- .602 (.117)	- .380 (.074)	- .423 (.086)
Net Non-Residential Investment	- .235 (.067)	- .129 (.049)	- .172 (.061)	- .099 (.031)

Note: Estimates refer to b_i in (4). Numbers in parentheses are standard errors. Except where noted estimates refer to the sample period 1949-82. All equations were estimated with correction for first order autocorrelation.

suggest a significantly greater effect of budget deficits on net foreign investment.

Finally, the estimates suggest that each dollar of Federal deficits crowds out about 40 cents of net investment. The average estimate in the table is somewhat greater than this but neglects the effects of deficits on foreign capital inflows which have only become important in the last decade. The estimates in the final row of the table indicate that a little less than half of the crowded out investment is plant and equipment with the remainder being inventories and housing. An extra dollar of Federal saving, according to these estimates, will only generate about 20 cents in extra plant and equipment investment.

There are a number of possible problems with reduced forms of the type presented above. Movements in the budget deficit may not be exogenous. Variables affecting the composition of national output may have been omitted. An alternative approach to estimating the effect of changes in Federal saving on the composition of national output is through simulation of a large econometric model. To this end, Table 5 reports the results of some recent DRI simulations of the effects of a deficit reform package. The deficit reform package which DRI considered reduced the Federal deficit as a share of GNP by 3.5 percent over the 1986-1989 period through a balanced combination of tax increases and spending cuts. DRI also estimated the effects of its package on the components of GNP.

The results in Table 5 tend to corroborate the estimates just presented. About one-third of the effects of deficit reduction is offset by decreases in private saving. A little less than a third is offset by increased state and local surpluses and reduced net foreign investment. Just over a third of deficit reductions flow into increased net investment, with about two-thirds of this total devoted to residential investment. This

Table 5

DRI Econometric Model Estimates of the Effect of a Reduced Deficit on the Composition GNP

	Baseline	Reduced	Difference	Share
Federal Deficit	5.9	2.4	3.5	100
Net Private Saving	7.0	5.8	1.2	34
State and Local Saving	1.5	1.2	.3	9
Net Foreign Investment	2.0	1.3	.7	20
Net Investment	4.6	5.9	1.3	37

Source: DRI Review, November 1983 and author's calculation. All figures are percentages of GNP.

with about two-thirds of this total devoted to residential investment. This means that each dollar of deficit reduction leads to about a fifteen cent increase in net plant and equipment investment. It is encouraging that these large econometric model estimates are so close to those obtained from reduced forms. While each methodology has its problems for an exercise of this sort, the errors should be relatively independent.

On balance, these empirical exercises confirm the hypotheses sketched at the beginning of this section. Increases in national saving are likely to have a variety of effects. In part, exogenous increases will be offset by the effects of lower interest rates, in part net foreign investment will decline, and residential and nonresidential investment will increase. As a very rough approximation, these four responses will occur to about an equal extent. The conclusion is that increases in national saving are a relatively ineffective way of stimulating business investment. This conclusion would be reinforced if Keynesian effects of increased savings on aggregate demand were considered, or if more weight were given to the current episode of strong investment performance in the face of large budget deficits. The next section considers the implications of these results for policy.

IV. CONCLUSIONS

The analysis in this paper suggests that public policy could be used to increase the level of national savings. Reductions in government borrowing would raise national savings without major associated costs. The remaining question is whether sustained increases in national savings would be desirable in the longer run.

There are strong considerations suggesting that deficit reduction should be a high priority. Government budget deficits of 5 percent of GNP loom over any foreseeable horizon. It seems inconceivable that economic growth will generate enough revenues to substantially reduce these deficits. Indeed, most deficit projections such as those of the CBO are based on the assumption that steady economic growth will continue for the next five years. It seems much more likely that these projections will prove too optimistic than that they will prove too pessimistic. Current large deficits do not permit us to avoid the burdens of taxation, they only postpone and increase it through the accumulation of interest.

The choice is not between deficits and tax increases, it is between deficits with tax increases in the future, and tax increases today. There are many reasons to favor the former course. US budget deficits are having a disastrous impact on the traded goods sector of the economy, and are greatly complicating worldwide economic recovery. Large trade imbalances threaten free trade policies. The United States is now or soon will be a debtor nation. If foreign capital flows dry up, domestic investment rates will fall dramatically even relative to their historically low levels. Unless an argument can be constructed for substantially reducing the national savings rate below its historical level, there is a clear case for reducing projected Federal deficits.

The appropriate stance for policy in the long run is less clear. Feldstein (1977) argues that policy should be used to substantially increase the national savings rate. His argument is that the available rate of return, which he estimates at 12 percent, is great enough that more savings are desirable unless we discount the utility of future consumption at a very high rate. The estimated 12 percent return is based on the observed profit rate of non-financial corporations. There are a number of reasons to believe that it substantially overstates the return to incremental national saving. First, the rate of profit has declined dramatically in recent years. A more reasonable current estimate would be in the 9 percent range. Second, as I have emphasized, most incremental savings would not flow into the corporate sector. There is every reason to expect that return on other uses of saving is lower than the return on corporate investment. Americans receive only the after tax return on foreign investment. Corporate capital is taxed more heavily than housing or consumer durables. Third, some part of the rate of profit represents a risk premium. One plausible measure of the certainty equivalent return on extra savings is the real return on nearly risk free investments such as Treasury bills. While this figure is perhaps 5 percent at present, it has averaged less than 1 percent over the past 40 years.

On balance, it seems likely that the current risk adjusted social return to increased savings is probably well below 9 percent, and perhaps is less than the economy's growth rate.

At such rates, it is not clear that the social gains from increased national savings would be large. There does not seems to be a compelling case for raising investment in houses or the value of land. Nor, except for current exigencies is there a clear case for reducing net foreign investment in the United States. While there are strong economic arguments

for increased investment in plant and equipment, increasing national savings is a very indirect way to bring it about.

The arguments presented in Section 3 about the allocation of incremental savings suggest the desirability of policies directed specifically at stimulating domestic plant and equipment investment. All the analysis implies that the supply of savings to the corporate sector is very elastic. Even if savings do not respond sharply to increases in the rate of return, there is substantial scope for portfolio reallocations to finance increases in business investment. Hence, measures which stimulate investment are unlikely to be crowded out by rising interest rates. The returns to private investment in plant and equipment exceed those on other investment. And there is at least some reason to think that there may be substantial technological externalities associated with plant and equipment investment. The extremely high correlation between national rates of growth and national investment rates may well reflect the embodiment of technical change or learning by doing effects.

The most obvious policy measure available for encouraging plant and equipment investment is corporate tax reform. By increasing the investment tax credit or accelerating depreciation allowances, it is possible to stimulate investment without conferring windfall gains on the owners of existing capital. From this perspective, the recent Treasury Tax proposal is rather unsatisfactory. It reduces the tax burden on old capital by cutting the corporate tax rate and offering dividend relief, and it increases the tax burden on incremental investment by eliminating the ITC and scaling back depreciation schedules.

There appear to be stronger economic arguments for measures directed at encouraging plant and equipment investment than for measures directed at

increasing national savings generally. It should be noted however, that increases in investment incentives, will ceteris paribus lead to capital inflows. This means a deterioration in US competitiveness at least in the short run, as the dollar appreciates. This adverse effect of increased incentives for investment can only be offset by increased national savings. There may then be a case for increasing savings as part of a policy mix directed at increasing business. But the case for a major policy effort to raise the long term national savings rate without other policy changes is not very strong.

REFERENCES

Barro, Robert J., "Are Government Bonds Net Wealth?" Journal of Political Economy, November/December 1974, 1095-1118.

Brainard, William, "Uncertainty and the Effectiveness of Policy,"American Economic Review, 1967.

Caprio, G., and D. Howard, "Domestic Saving, Current Accounts and International Capital Mobility," ERB International Finance Discussion Paper 244.

Feldstein, Martin, "National Savings in the United States," in JOBS AND PRODUCTIVITY (American Assembly: 1967).

Feldstein, Martin, "Social Security, Induced Retirement and Aggregate Capital Accumulation,"Journal of Political Economy, September/October 1974, 905-926.

Feldstein, Martin and C. Horioka, "Domestic Savings and International Capital Flows,"Economic Journal, June 1980, 314-329.

Kotlikoff, Laurence and L. Summers, "The Role of Intergenerational Transfers in Aggregate Capital Accumulation,"Journal of Political Economy, August 1981.

Mankiw, N. Gregory and L. Summers, "Are Tax Cuts Really Expansionary?" NBER Working Paper, 1984.

Summers, Lawrence H., "Capital Taxation and Accumulation in a Life Cycle Growth Model,"American Economic Review, September 1981, 533-544.

_____, "Tax Policy, the Rate of Return and Private Savings," NBER Working Paper 995, 1982.

_____, "The After Tax Rate of Return Affects Private Savings," American Economic Review, May 1984.

_____, "The Long Term Effect of Current Macroeconomic Policies," in THE LEGACY OF REAGONOMICS, ed. Hulten and Sawhill (Brookings: 1984).

Theil, H., THE THEORY OF ECONOMIC POLICY (North Holland: 1971).

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