

THE EFFECT OF GOVERNMENT POLICIES

The second step toward effective productivity-enhancing measures is to identify existing policies that may have reduced productivity growth--for example, policies that have reduced the growth in the capital/labor ratio, adversely affected the quality and/or composition of the stock of human and physical capital, or worsened the impact of energy price increases. Then, ways of modifying or removing these policy impediments to productivity growth can be devised. Positive measures can also be pursued to raise the effective capital/labor ratio, improve the quality of the capital stock, and mitigate energy price shocks.

This report identifies a number of policies of both types: existing policies that have contributed to a slowing in productivity growth, and proposed ones that might work toward higher labor productivity. For example, the effective capital/labor ratio has probably been reduced by the failure to adjust the federal tax code for the effects of inflation. Saving in forms conducive to capital formation has been discouraged by the taxation of nominal interest income as though it were real income. Consider the bondholder who receives a 9 percent rate of interest, on which he pays a tax rate of 40 percent, while the rate of inflation exceeds 10 percent. Investment in plant and equipment has also been hampered by the failure to adjust historical cost depreciation rules for the inflated cost of replacement equipment. The effective capital/labor ratio has also been reduced by environmental, health, and safety regulations that have tended to divert capital from use in the production of goods and services to the production of cleaner air and water, a healthier environment, and safer working conditions. While these latter uses of capital are of real

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aircraft, are two examples of quality change that are not reflected in their total value as measured for GNP.

Measurement problems, however, do not seem to explain the general decline in productivity growth. Most of the factors that give productivity indexes a downward bias were also operating in the past, and there is little reason to suppose that, in the aggregate, they became more important around 1965. See Albert Rees, "Improving Productivity Measurement," American Economic Review (May 1980), pp. 340-42.

value, the results of using capital in these ways do not get counted in output, production, or productivity indexes.

Policies to promote productivity growth include various tax incentives that would work in the following directions: increasing the portion of savings going into financial assets, increasing business investment (including research and development), and promoting the allocation of labor and capital to their most efficient uses.

PLAN OF THE REPORT

This report is structured around the determinants of productivity growth discussed above: saving, investment, technology, labor quality, energy prices, and regulation. Each chapter describes the relationship between one of these determinants and a range of public policy options. A final chapter discusses industry-specific policies. This structure reflects the judgment that no single policy change seems likely to reverse the productivity slowdown. Rather, to stimulate productivity growth significantly, policies may be needed to increase saving and investment and the pace of technological advance and the reallocation of resources to more productive uses. The report offers a menu of alternatives in each of these policy areas.



CHAPTER II. TAX PROPOSALS TO CHANGE THE COMPOSITION AND RATE OF PERSONAL SAVING

One of the frequently cited reasons for the U.S. productivity growth slowdown is that Americans consume, rather than save, too large a portion of current output. In fact, however, American households save a large fraction of their income. The slowing in productivity growth is probably more directly related to the form in which savings are held, particularly the small portion channeled into business capital formation. This chapter examines recent patterns of U.S. saving and considers several proposed tax policies designed not only to direct saving into more productive uses but also to raise the saving rate. 1/

THE NATIONAL INCOME ACCOUNT MEASURE OF PERSONAL SAVING

From an individual saver's perspective, saving means deferring consumption to the future by accumulating stocks of assets. From the national perspective, saving means adding part of current output to the stock of capital--that is, to the goods needed to produce other goods.

The claim that Americans save too little is often justified by two observations: that the U.S. saving rate is lower than that of other industrialized countries, and that the U.S. saving rate has been declining. Tables 3 and 4 present these commonly cited data.

An assessment of this argument requires that one examine the definition of saving used in the national income account (NIA) statistics, from which the tables are drawn. In fact, the NIA estimates of personal saving do not measure all of consumption deferred or capital accumulated. In the NIA statistics, saving is

1/ In this paper, saving (singular) refers to the flow of income and production into uses other than current consumption. Savings (plural) designates the accumulated stock of saving. Saving rates refer to the flow of saving as a fraction of income.

TABLE 3. PERSONAL SAVING (NIA BASIS) AS A PERCENT OF DISPOSABLE PERSONAL INCOME FOR SELECTED COUNTRIES, 1978

United States	4.9
Canada	10.4
United Kingdom	12.8
West Germany	13.7
Japan	19.1

SOURCE: Federal Reserve System, Board of Governors.

TABLE 4. U.S. PERSONAL SAVING (NIA BASIS) AS A PERCENT OF DISPOSABLE PERSONAL INCOME, 1948-1979

1948-1955	5.8
1955-1965	5.8
1965-1974	6.9
1974	7.3
1975	7.7
1976	5.8
1977	5.0
1978	4.9
1979	4.5

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis.

a residual, equal to disposable income less current personal outlays for goods, services (including the estimated value of housing services), interest, and transfers to foreigners. The NIA concept of personal saving does not include durable consumer goods, which permit consumption in the future, or the changes in market value of existing assets such as real estate and jewelry. Thus the NIA statistics understate the amount of consumption deferred. On the other hand, because they include the purchase of new houses,

and for other reasons, the NIA statistics overstate the flow of personal saving into business capital accumulation. 2/

WHAT AND WHY IS PERSONAL SAVING?

Saving is a decision about the timing of consumption. To save is to give up present consumption in exchange for future consumption. People choose to defer consumption for several reasons: to smooth consumption rates over a life cycle in which income is expected to vary, to make bequests (and hence to defer consumption to one's heirs), and to accumulate reserves against unexpected contingencies. But, for the purpose at hand, it is not necessary to know precisely why people save or the factors that cause them to change their total saving rates. 3/ Instead, it is only necessary to know that people do save and that this choice requires them to accumulate assets of lasting value.

Savings can be held in numerous alternative forms. Adding to one's bank or thrift account or buying stocks, bonds, annuities, and other financial assets out of current income constitutes personal saving. But, in addition, the purchase of a house, other real estate, a car, a washing machine, a radio, or some other durable good permits the deferral of consumption. A durable asset provides a stream of present and future consumption services. The

2/ For some of these other reasons, see Philip Howrey and Saul Hymans, "The Measurement and Determination of Loanable Funds Saving," Brookings Papers on Economic Activity (1978:3), p. 658.

3/ This is fortunate because the factors affecting saving rates are not completely understood and are currently the subject of intense dispute. See, for example, M.J. Boskin, "Taxation, Saving and the Rate of Interest," Journal of Political Economy, vol. 86, no. 2, pt. 2 (April 1978), pp. S3-S27; Howrey and Hymans, "The Measurement and Determination of Loanable Funds Saving," pp. 655-85, and discussion of Howrey and Hymans, pp. 686-705; Martin Feldstein, "Social Security, Induced Retirement, and Aggregate Capital Accumulation," Journal of Political Economy, vol. 82, no. 5 (September/October 1974), pp. 905-26; and Michael Darby, The Effects of Social Security on Income and the Capital Stock (American Enterprise Institute, 1979).

present value of that future consumption has been saved. Other forms of saving include expenditures for education and health. Skills and good health acquired in the present permit a higher level of consumption later.

HOW MUCH DO AMERICANS REALLY SAVE?

One measure of saving that includes the accumulation of durable goods may be obtained from the Federal Reserve's Flow-of-Funds (FoF) accounts. FoF saving for a specified time period is equal to the increase in household stocks of durable goods, nonfarm homes, and noncorporate assets, less depreciation of these assets, plus net investment in financial assets, less increases in household debt. The composition and behavior of this measure of household saving is shown in Table 5.

TABLE 5. SAVING BY HOUSEHOLDS (FLOW-OF-FUNDS BASIS) AS A PERCENT OF DISPOSABLE PERSONAL INCOME, 1970-1979

	Increase in Tangible Assets	- Depre- ciation	+ Increase in Financial Assets	- Increase in Household Debt	= Total Household Saving <u>a/</u>
1970	16.6	11.6	11.0	3.5	11.8
1971	18.1	11.7	13.2	6.4	12.6
1972	19.7	11.7	15.1	8.7	12.2
1973	19.3	11.4	15.7	8.4	13.8
1974	17.3	11.9	12.7	5.1	11.5
1975	16.7	12.2	14.0	4.7	11.6
1976	18.6	12.3	15.6	8.1	10.8
1977	20.0	12.3	16.5	10.9	10.6
1978	20.4	12.4	16.7	11.2	10.8
1979	19.4	12.7	15.7	10.2	9.4

SOURCES: Federal Reserve System, Board of Governors; U.S. Department of Commerce, Bureau of Economic Analysis.

a/ Because of the methods used in estimating household saving in the FoF accounts, total household saving differs substantially from the sum of its components.

The FoF saving rate is more than double the NIA rate. Declines in the FoF rate appear in 1974, 1976, and 1979. The latest drop in the FoF saving rate consists of a decline in the demand for financial assets by households coupled with a slowing in the accumulation of tangible assets.

Although measures of saving that include durable goods accumulation are superior to the NIA measure of personal saving as indicators of consumption deferred, FoF household saving is far from a comprehensive measure. Personal and government expenditures for some medical care and education might legitimately be included, as well as business expenditures for research and development, and also retained corporate earnings that raise the value of a firm and the wealth of its shareholders. In addition, when government builds a highway or improves a harbor, resources are diverted from consumption now to consumption later. Table 6 displays estimates of these components of U.S. saving, broadly defined, for the last 20 years. Thus defined, saving rises to more than 40 percent of disposable personal income.

Even though Americans save much more than is indicated by the NIA personal savings measure, evidence indicates that savings rates are still higher in some other industrialized countries, notably in Germany and Japan (see Table 7).

DEARTH AMIDST PLENTY: PRIVATE NONRESIDENTIAL FIXED INVESTMENT AND U.S. SAVING

A more important question is how savings are used. Although Americans have exhibited a marked propensity to defer consumption, only a small share of this saving gets transformed into additional private, nonresidential investment in plant and equipment. As indicated in Table 8, less than 4 percent of current after-tax income is used to increase the stock of private investment in nonresidential structures and equipment. Thus, even though the NIA personal saving rate understates saving in the sense of consumption deferred, it overstates saving in the sense of output allocated to increasing the stock of private business capital.

Household saving can be transformed into productive business plant and equipment only to the extent that savers choose to

TABLE 6. TYPES OF SAVING AS A PERCENT OF DISPOSABLE PERSONAL INCOME, 1955-1978

	Private and Gov't. Expendi- tures for Medical Care	Private and Gov't. Expendi- tures for Education	Undis- tributed Corporate Profits	Research and Develop- ment Expen- ditures	Federal, State, and Local Gov't. Expen- ditures for Nonmilitary Construction and Durable Goods a/ Minus the Budget Deficit	Total	Total Plus FoF Household Saving
1960-1966	7.7	7.3	4.0	4.1	5.9	29.0	37.3
1967-1973	9.3	9.8	3.3	3.8	5.1	31.3	41.8
1974-1978	11.1	10.4	4.2	3.2	2.9	31.8	42.9

SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; National Science Foundation; and Federal Reserve System, Board of Governors.

a/ These are gross figures, that is, depreciation has not been deducted. In addition, some expenditures for construction are also counted in the columns showing government expenditures for medical care and education.

TABLE 7. GROSS SAVING BY HOUSEHOLD, CORPORATE, AND GOVERNMENT SECTORS AS A PERCENT OF GROSS DOMESTIC PRODUCT FOR SELECTED INDUSTRIALIZED COUNTRIES, 1960-1977

	Household <u>a/</u>	Corporate <u>b/</u>	Government <u>c/</u>	Total
United States	8.5	8.0	1.9	18.6
United Kingdom	6.5	8.4	3.5	18.7
Canada	8.2	10.8	3.6	21.9
West Germany	10.2	10.8	5.6	26.1
Japan	17.2	12.5	5.6	35.8

SOURCE: Estimated by Machinery and Allied Products Institute from Organization of Economic Cooperation and Development (OECD) data.

a/ NIA personal saving, capital consumption (depreciation) of household assets, and net income and depreciation of unincorporated enterprises.

b/ Retained earnings and depreciation of privately and publicly owned enterprises, including limited liability partnerships.

c/ Gross revenues less current expenditures.

finance that investment. As shown in Table 9, U.S. savers have increasingly favored tangible assets such as housing and durable goods over financial assets. In fact, during the 1970s when individuals were increasing the proportion of saving devoted to housing and other durable goods, they reduced, in nominal dollar terms, their direct holdings of corporate equity shares. Moreover, of the \$173 billion in securities (credit market instruments and corporate equity) acquired by households in 1976-1979, \$111 billion or about 64 percent was issued by government or government agencies rather than by private business.

TABLE 8. PRIVATE NONRESIDENTIAL FIXED INVESTMENT (NET OF DEPRECIATION) AS A PERCENT OF DISPOSABLE PERSONAL INCOME, 1955-1979

1955-1964	3.48
1965-1973	4.92
1974	4.49
1975	2.00
1976	2.00
1977	2.76
1978	3.62

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis.

TABLE 9. NET INVESTMENT IN OWNER-OCCUPIED HOMES AND CONSUMER DURABLES AS A PERCENT OF INDIVIDUALS' SAVING, FoF BASIS, 1970-1979

	1970	1974	1979
Owner-Occupied Homes	13.6	17.9	28.0
Consumer Durables	23.5	22.2	26.5
Total	37.1	40.1	54.5

SOURCE: Federal Reserve System, Board of Governors.

WHY IS SO LITTLE AMERICAN SAVING DEVOTED TO PRODUCTIVE CAPITAL FORMATION?

Rates of return on alternative assets after allowing for inflation and taxes are important in determining the ways in which people save. People prefer more income to less, so they

prefer higher yields (adjusted for risk) to lower yields. For the last 10 years or so, investment in housing has provided one of the highest rates of return available to most savers. For example, a home-buyer who purchased a \$40,000 house in 1970 with a 10 percent equity down payment had increased the value of his equity by 600 percent in 1979 if the price of his house merely kept pace with the rise in the price of the average owner-occupied dwelling. Rates of return on assets used to finance business capital formation, by contrast, have not only been relatively low but in many cases negative. An investor subject to a marginal tax rate of 30 percent who purchased a high-quality corporate bond in 1970 with a nominal annual yield of 8 percent earned an annual after-tax rate of return of about minus (-) 2 percent per year on average through the 1970s. The real value (adjusted for inflation) of the Standard and Poor's common stock index has declined to less than 60 percent of its 1970 level. (Dividends, which averaged about 4 percent of the stock price per year over this period, reduced the loss somewhat.)

One of the reasons that housing and, to a lesser extent durable goods have been so attractive to savers is the favorable tax treatment they have received. ^{4/} Interest paid on loans is fully deductible for calculating income taxes, while the flow of services from durable goods and housing is not taxed at all. Capital gains on owner-occupied housing are taxed at very low rates, and frequently escape taxation altogether. Income from financial assets--and the capital goods that underlie them--is taxed more heavily, even though some relief is provided by features of the tax code such as accelerated depreciation allowances and the tax deferrals permitted with Individual Retirement Accounts (IRAs) and Keogh plans. One provision of the Windfall Profits Tax of 1980 broadens the existing \$100 dividend income exclusion to include interest income, and raises the ceiling to \$200 per taxpayer.

^{4/} Frank de Leeuw and Larry Ozanne, "Investment in Housing and the Federal Income Tax," in Henry J. Aaron and Joseph A. Pechman, eds., How Taxes Affect Economic Behavior (Brookings Institution, forthcoming).

Many countries provide stronger tax incentives for savers to acquire financial assets than does the United States. ^{5/} Canada, for example, permits savers to defer taxes on up to \$3,500 of income per year under an IRA-type plan, even if they participate in an employer-funded pension plan. Canada also exempts the first \$1,000 of domestic interest income from taxation. Moreover, interest rates paid by financial institutions are not subject to regulated ceilings as they are in the United States.

WHAT MIGHT BE DONE?

Before considering, in some detail, policies that might induce households to increase the share of savings held in financial assets, two other possible means of promoting the flow of saving into business capital accumulation require mention: reducing the federal deficit and increasing corporate saving.

Reducing the Federal Deficit

If federal outlays were in balance with federal tax revenues, the federal government would no longer be a major claimant on the flow of savings. More funds would be available to finance business enterprise, and the cost of those funds would be lower. A difficulty with this argument is that balancing the budget would require either higher taxes or lower expenditures. Both types of budget adjustment would initially tend to reduce income and the total flow of saving. Once the temporary effect on income of balancing the budget was over, however, the total flow of saving and the saving rate would be higher with budget balance. To minimize the chances that a balanced budget would reduce the flow of saving, the required changes in taxes and spending should be designed to lower the proportion of income consumed.

^{5/} For a country-by-country tabulation of various measures to promote personal saving, see William J. Byrne, "Fiscal Incentives for Household Saving," International Monetary Fund Staff Papers, vol. 23, no. 2 (July 1976), pp. 455-89. This section draws heavily on the Byrne article.

Increasing Corporate Saving

From a capital accumulation perspective, an advantage of corporate, as opposed to personal, saving is that it is already in the hands of those whose investment activity is so important to productivity growth. Possible measures to increase business saving include lower corporate income taxes and accelerated depreciation. Both of these are discussed in Chapter III.

Changing the Composition of Household Saving

A general approach to shifting the composition of personal saving away from real estate, durable goods, and other tangible assets toward financial assets would be to raise the after-tax rate of return on the latter and to lower it on the former. Five specific changes will be discussed here: a higher interest income exclusion, a reduction in the maximum marginal tax rate on investment income, a saving exclusion, a threshold saving tax credit, and abolition of the interest-expense tax deduction.

A Higher Interest Exclusion. The recently enacted \$200 interest and dividend exclusion is unlikely to affect savings behavior substantially because the ceiling is low relative to current levels of interest income. About half of all taxpayers currently receive at least \$200 in interest and dividends annually, and over 97 percent of all interest and dividends are earned by those whose capital income exceeds the exclusion limit. Thus, for most moderate- and high-income savers, the \$200 exclusion offers no incentive to increase holdings of financial assets. A larger exclusion could provide these incentives. In the limiting case, all interest and dividend income could be made exempt from income taxation.

A Reduction in the Maximum Marginal Tax Rate on Investment Income. At present, investment income is subject to a maximum marginal federal tax rate of 70 percent, whereas labor income is subject to a maximum tax rate of 50 percent. Under one variant of this proposal, the maximum rate on investment income would be reduced to 50 percent.

A Saving Exclusion. This approach would permit additions to savings held in financial assets to be excluded from taxable income until retirement, at which time the taxpayer could be expected to

be in a much lower tax bracket. One method of implementing such a plan would be to give every taxpayer the right to establish an Individual Retirement Account (IRA) whether or not he is an active participant in a qualified or government retirement plan. Currently, IRAs are available only to persons not otherwise participating in a pension plan. Under current law, nonworking spouses have no opportunity for IRA participation unless the working spouse is eligible. Those authorized to establish an IRA can exclude a maximum of \$1,500 per year per working person, or \$1,750 per year in the case of a joint return and joint IRA if only one spouse is employed.

A variation on the saving exclusion would be to permit unlimited contributions to IRA/Keogh accounts.

The Threshold Saving Tax Credit. One proposal introduced in the 96th Congress would have provided a 50 percent tax credit for financial and some forms of noncorporate investment (excluding consumer durable goods and owner-occupied homes) above a threshold level that would increase with income.

A person with a modified adjusted gross income of \$30,000, for example, would have to save 5 percent or \$1,500 each year before beginning to earn the credit. After crossing the threshold, income-financed net additions to holdings of deposits in financial institutions, U.S. government securities, equity shares, and corporate debt would qualify for a 50 percent tax credit. Contributions to retirement plans (excluding Social Security), life insurance premiums, investments in commercial real estate, and increases in the taxpayer's share of the book value of noncorporate businesses would also count as eligible savings, provided these were financed out of income and not by borrowing. The various threshold saving rates in this proposal are shown in Table 10.

The tax credit would be recaptured if the savings were not held in eligible assets for at least five years. Dissaving for the purpose of paying medical bills or tuition (investment in human capital) would not be penalized, however. The recapture would be waived for retired persons. It should be noted here, however, that the administration of recapture provisions and "permissible dissaving" would create enormous enforcement difficulties for the Internal Revenue Service.

Abolition of the Interest-Expense Tax Deduction. At present, interest payments on home mortgages and consumer credit may be

TABLE 10. THRESHOLD SAVING RATES

If the modified adjusted gross income <u>a/</u> is:	The threshold saving rate is:
Not over \$10,000	0%
Over \$10,000 but not over \$12,000	1%
Over \$12,000 but not over \$15,000	2%
Over \$15,000 but not over \$20,000	3%
Over \$20,000 but not over \$25,000	4%
Over \$25,000 but not over \$50,000	5%
Over \$50,000 but not over \$100,000	6%
Over \$100,000 but not over \$200,000	8%
Over \$200,000	10%

SOURCES: S. 18, H.R. 169.

a/ Modified adjusted gross income is adjusted gross income (as defined in the tax code) minus deductions permitted for personal exemptions.

deducted without limit from income when computing personal income taxes. This feature of the tax code provides a substantial incentive for people to borrow rather than to accumulate funds in advance of purchase. Disallowing the interest deduction on new borrowing ("grandfathering" existing debt obligations), would reverse this incentive and severely reduce the expected after-tax rate of return on many nonfinancial forms of saving, especially housing. To prevent this policy from increasing the overall tax burden, it could be coupled with an across-the-board personal tax cut.

EFFECTS OF THESE PROPOSALS ON AFTER-TAX RATES OF RETURN

The first four proposals would reduce tax rates on some saving and savings income. But they differ significantly in the degree to which they would raise after-tax rates of return on different levels of saving and for different income groups.

Start with the conceptually simplest proposal: to exempt all personal interest and dividend income from taxation. The only way to increase further the after-tax rate of return on financial assets would be to pay bounties on interest income or saving. The bounty approach is incorporated in the saving tax credit. The 50 percent credit would double the after-tax rate of return on above-threshold saving for those taxpayers able to use the entire non-refundable credit. By comparison, a general saving exclusion would not directly raise the after-tax rate of return on financial assets but would provide incentives to accumulate assets as a means of sheltering current income. The incentive provided by an exclusion increases with the marginal tax rate. That is, the higher the tax rate, the greater the value of the exclusion and the more likely the exclusion will increase the demand for financial assets.

A complete interest or saving exclusion would probably succeed in changing the composition of saving and in increasing the availability of funds for business capital formation (provided that qualified "saving" is defined to include increased holdings of corporate equities and debt and to exclude consumer durables and housing). ^{6/} However, the appeal of the savings and interest exclusion proposals (and some tax credit plans) is limited by the substantial budget cost of these measures. A total interest exclusion would probably reduce annual federal tax revenues by \$50 billion; a saving exclusion, by \$22 billion.

The threshold tax credit plan would contain the revenue loss by restricting the credit to above-threshold saving. But the most frequently mentioned approach to limiting the loss of tax revenues is capping the interest or saving exclusion. Unfortunately, such caps would severely limit the incentive effects of the exclusion and mostly reward existing saving. The reason a low-capped

^{6/} This ignores two potential problems: (1) Will other tax rates be raised so that government revenues are unchanged? If so, which taxes will be increased and what will be the economic effects of doing so? (2) Will investment by foreigners in the United States be changed? Will U.S. investment in foreign countries change? If so, how will this affect U.S. business capital formation? For a more complete discussion of the interaction of taxation and domestic capital accumulation, see David F. Bradford, "The Economics of Tax Policy Toward Savings," in George M. von Furstenberg, ed., The Government and Capital Formation (Ballinger, 1980), pp. 11-71.

exclusion would be an ineffective inducement to saving is that most high-income persons (who do most of the personal saving) already earn relatively large amounts of interest.

A low-capped interest and dividend exclusion significantly raises the after-tax rate of return on additions to financial savings only for the few high-bracket savers who do not now earn at least the ceiling amount of interest. For low-bracket savers who earn less than the maximum exclusion, it raises after-tax rates of return to a lesser extent, because the value of an exclusion decreases with the marginal tax rate.

The proposal for reducing the maximum marginal tax rate on investment income would raise after-tax rates of return on financial savings (old as well as induced) but only for high-bracket savers. This might be justified on the grounds that these are the people who do much of the nation's saving and who at present have strong tax incentives to invest in tax sheltered activities rather than in the most productive uses.

Judged in terms of their effect in increasing rates of return on financial assets and in promoting the use of saving for domestic capital formation, the complete exclusion of saving or interest income, and the threshold saving tax credit plans, would probably be superior to the other proposals. Lowering the maximum rate on investment income, and universal IRA/Keogh plans, would probably be moderately effective. Low-capped (less than \$500) interest exclusions would be the least effective options.

Disallowing the interest-paid deduction would change the composition of household asset holdings by significantly increasing the after-tax cost of financing real estate and durable goods. This, in turn, would decrease the expected rate of return on these assets. Because a deduction is worth more at higher tax rates, the proposal would especially reduce the demand for real estate by middle and upper tax-bracket households.

EFFECTS OF THESE PROPOSALS ON TAX REVENUES

Without detailed knowledge of the response of savers to these tax changes, revenue loss estimates must be extremely rough. Errors of at least 20 percent should be expected. The following generalizations are based on the information at hand:

- o Estimates by the Treasury and the Joint Committee on Taxation suggest that the \$200 interest exclusion would cost at current income and price levels about \$2.5 billion per year before induced changes in saving behavior or revenue feedbacks. Under similar assumptions, a \$500 exclusion would cost less than \$4 billion.
- o A total interest exclusion would cost \$50 billion per year and a total saving exclusion would cost \$22 billion, again before induced saving and before feedbacks.
- o Reducing the maximum tax rate on investment income from 70 percent to 50 percent would reduce revenues by \$5 billion.
- o The revenue loss associated with the threshold saving tax credit is highly responsive to the level of the thresholds and the amount of the tax credit. However, adopting the proposed thresholds and assuming that about 25 percent of existing NIA saving would qualify for a 50 percent tax credit, the threshold plan would have reduced Treasury revenues by about \$9 billion in 1978. To be consistent with other estimates, this assumes no increase in saving. However, a notable feature of this plan is that it would increase saving \$2 for every \$1 of revenue loss on induced saving.
- o The proposal to raise the present IRA contribution ceiling to \$3,000 per year and to extend participation to all would cost \$3 billion per year.
- o Disallowing the personal interest deduction would increase revenues by \$16 billion.

THE COST AND DIFFICULTY OF ADMINISTERING THE PROPOSALS

With respect to their ease of administration, the proposals fall into two distinct categories: those that would require little or no change in existing record-keeping requirements for tax purposes, and those that would substantially increase record-keeping and reporting requirements.

The proposals for interest exclusion, reducing the maximum marginal rate on investment income, and disallowing the interest

deduction would require little or no change in existing procedures. The administrative and compliance hurdles for IRA/Keogh plans have already been crossed, at least for low levels of participation.

On the other hand, substantial changes and costs would be involved in adopting a saving exclusion or a tax credit. The heart of the matter is that to measure saving it would be necessary to measure changes in qualified asset holdings and changes in debt. The accumulation of assets financed by an equal amount of borrowing is not saving. Therefore, to ensure that only saving would be rewarded, data would have to be maintained by taxpayers on asset holdings and debt outstanding. This would not be impossible, but the costs, especially at the outset, would be very large. In addition, recapture of tax credits in case of ineligible dissaving would be very difficult to achieve.

THE EFFECT OF CHANGING THE COMPOSITION OF SAVING ON AGGREGATE DEMAND

The consequences of changing the composition of saving markedly toward financial assets would be substantial. If, for example, the 50 percent threshold savings tax credit were adopted, or the deductibility of interest payments on new debt incurred by individuals were to be disallowed, the effect on the level and composition of aggregate demand could be wrenching. The demand for debt-financed consumer durables and housing would drop sharply. The demand for financial assets, including deposits in financial institutions, corporate debt and equity, noncorporate equity, and government securities, would increase. Employment in housing construction and consumer durables would fall. Put another way, resources now being devoted to less "productive" forms of saving and investment would be released for use in forms that would enhance productivity growth.

The redeployment of these resources would be a costly, time-consuming process. Workers would lose jobs in some industries and have to find new jobs elsewhere. During the interim, income would fall.

In order to facilitate the adjustment and mitigate its cost, it might be necessary to use expansive monetary and fiscal policies to increase investment in plant and equipment at the same time that

the demand for financial assets was increasing. The adjustment would also be aided by falling interest rates and lower capital costs for business enterprises. The impact might be spread over a longer period and, probably, reduced in magnitude--at the cost of deferred gains in productivity--by phasing in the policy change gradually. For example, the threshold tax credit could be set initially at 10 percent and increased five percentage points a year. The interest deduction cap could also be reduced annually from a relatively high starting level.

The essential point, however, is that the basic structure of an economy cannot be changed without resource shifts, painful as they may be. The only way to move to a more capital-intensive, productive economy is to change the composition of saving and the pattern of resource use.

THE EFFECTS OF SAVING TAX INCENTIVES ON THE STOCK OF CAPITAL AND PRODUCTIVITY

The likely effects of tax incentives that succeeded in increasing saving or in changing its composition may be summarized as follows:

- o Measures raising the overall saving rate would not have a large effect on the capital stock or on productivity for a number of years.
- o Measures changing the composition of savings would have a quicker effect on capital and productivity, although the early-year effects would still be quite modest.
- o Over 10 years or more, however, tax policies raising the saving rate and/or directing a larger portion to investment in the productive capital stock would have a substantial effect on productivity and real per capita income.

These conclusions can be established by considering the arithmetic of saving, investment, and capital accumulation.

The Short-Run Effect of Raising the Saving Rate. Even if one assumes that very large tax incentives would be provided for saving and that the responsiveness of saving to changes in real after-tax rates of return would be relatively high, induced annual increases

in saving would be small relative to the existing capital stock. For example, the adoption of a 50 percent tax credit on above-threshold saving would double the after-tax rate of return. Assuming that the responsiveness of saving to changes in the after-tax rate of return has been correctly identified by Michael Boskin, who found that a one percent increase in the rate of return leads to a 0.4 percent increase in saving, a 100 percent increase in the after-tax rate of return would cause a 40 percent increase in saving. ^{7/} In 1979, personal saving on a flow-of-funds basis was \$121.0 billion. A 40 percent increase would add about \$48.4 billion per year to the capital stock, which currently totals about \$4,000 billion (including housing and consumer durables). Thus, under assumptions favorable to the discovery of a big impact on capital, the first-year induced increase in the capital stock would be less than 1.5 percent.

The Short-Run Effect of Changing the Composition of Saving. Portfolio composition--the form in which individuals hold their savings--appears to be much more responsive to changes in relative rates of return than total saving is to changes in the overall after-tax rate of return. Whenever the rate of return on a particular asset rises relative to other similar assets, savers shift into the higher-yielding alternative. This is made plain by the U.S. experience with "disintermediation"--the withdrawal of funds from financial institutions and the increase in direct investment by households in marketable securities whenever open-market interest rates exceed the maximum rates banks and thrift institutions are permitted to pay. The "gold rush" of 1979 is another example of how changes in expected rates of return can trigger large shifts in the composition of savings.

Thus, if tax policy were to offer savers significant incentives to finance business capital formation rather than to hold durable goods and commodities, the increased flow of funds to investment would probably be much greater than is indicated by estimates of the responsiveness of total saving to changes in after-tax rates of return. For example, in 1979 the net investment in tangible assets by individuals was \$118.8 billion and the

^{7/} Boskin, "Taxation, Saving and the Rate of Interest." Other studies have found the repercussions on saving to be much less. See, for example, Howrey and Hymans, "The Measurement and Determination of Loanable Funds Saving."

increase in household debt (about three-fourths of which was for real estate and consumer credit) was \$211.6 billion. If the deductibility of mortgage and consumer credit interest payments were to be disallowed and the first \$10,000 of capital income made tax-free, the induced demand for financial assets might easily exceed twice the \$48.4 billion increase in total saving projected from a doubling of after-tax rates of return.

Accordingly, it is reasonable to expect a larger short-run effect on the capital stock and therefore a faster effect on productivity from changing the composition of saving than from increasing the saving rate. The short-run effect on productivity, however, would probably still be rather modest.

The Long-Run Effects of Increasing Saving and Changing Its Composition. While it is important not to overestimate the short-run effects of increased saving on productivity, it is essential to recognize that the longer-term effects of a small increase in the saving rate could be quite large. If, for example, the rate of business fixed capital formation were to increase by one percentage point, say from 2.5 percent per year (the average for the 1970s) to 3.5 percent, the capital stock would be \$700 billion larger by the year 2000 than with the slower growth path. This amounts to approximately one-third of the current U.S. capital stock. That alone might be sufficient to increase labor productivity by 5 to 10 percent in the year 2000.

SAVING AND CAPITAL ACCUMULATION IN AN OPEN ECONOMY

Policies that tend to increase saving or shift saving toward corporate investment are often criticized on the grounds that an increase in domestic saving is neither necessary nor sufficient for an increase in investment. In an open economy, increases in saving can be invested abroad and domestic investment can be financed by foreign saving. Thus, it may be that an increase in domestic saving will only increase foreign capital accumulation, while domestic investment may not be constrained by domestic saving.

As conceptual possibilities, both propositions are unassailable. The limited evidence available, however, strongly suggests that incremental saving tends to be invested in the home