THE RELATIONSHIP BETWEEN REALIZED INCOME AND WEALTH

Report from a Select Sample of Estates Containing Farms or Businesses

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ABSTRACT

A unique sample of estate tax returns matched with previous years' income tax returns allows calculation of reported or realized income relative to value of assets. For owners of closely held businesses and farms, the realized rate of return on all assets is found to be about 2 percent; when wages are added to capital income, realized income is still less than 4 percent of the value of assets. The rate of realization is found to decline significantly as wealth increases (both before and after accounting for portfolio adjustments), and as the percentage of wealth in noncorporate, closely held form increases.

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I. INTRODUCTION

Income from wealth can be realized or unrealized for both tax and accounting purposes. Generally, realized income is in the form of direct cash flow from the underlying assets, while unrealized income is in the form of appreciation in the value of the assets. This division is not pure. The selling of an asset, for instance, causes a cash flow from previously unrealized income.

The Federal income tax is primarily a tax on realized income. The base for calculating the tax is essentially the cash receipts of the taxpayer less certain outlays for business costs. Imputations of changing asset value are normally not used, except in the case of depreciation of qualified assets.

In filing their income tax returns, taxpayers provide direct information on the amount of their income realization. These data are used for a wide variety of studies, ranging from national income accounting to analyses of behavioral reactions to tax disincentives. Whatever their limitations, income tax returns are widely believed to be one of the best sources of microdata on realized property income, partly because they do not suffer from the amount of underreporting present in survey data.

Unfortunately, previous comparisons of households on the basis of realized income suffered from the drawback that there was no information on the wealth which was the source of property income. One draws very different conclusions about a household which realizes $10,000 in property income if the associated value

of its property is $100,000 than if it is $1,000,000. Because unrealized income is not reported or even calculated by most households, knowledge of the wealth of households, when combined with other information on economic rates of return on assets, would also give a means of determining whether much economic income goes unrealized for tax purposes.

On a separate track, however, work has proceeded on the use of estate tax returns as a source of wealth data (Lampman, 1962; Smith and Franklin, 1974). These data are highly valued because of the requirement of complete assessment of property value at death and because there have been serious problems of nonresponse and underreporting when other attempts have been made to gather data on the wealth of households.

The availability of a small national sample of estate tax returns matched with the previous year's income tax returns therefore made possible a unique opportunity to examine the relationship between realized income from capital and the underlying value of the assets that produced that income. This data set is especially rich in information on reported rates of return on closely held assets, as the sample consists of farmers and businessmen with substantial amounts of such assets at time of death. For purposes of this paper, the ratio of realized income to value of wealth shall be referred to as the realized rate of return or simply the rate of return. The realized rate of return differs from the actual economic rate of return by the amount of unrealized income or other income on capital not reported on the tax return.

For this sample the size of the realized rate of return on all wealth is found to be around 2 percent, much less than would be recognized if that wealth were invested in the lowest paying savings account. Even when wage income is added to capital income (because of the difficulty of separating the two components), the amount of realized income is still less than 4 percent of the total value of assets.

Because economic theory holds that each investor equalizes after-tax rates of return on assets of equal risk, it is difficult to believe that these low realized rates of return actually reflect equally low economic rates of return. Indeed, if account is made for the illiquidity and riskiness 1/ of many of the assets held by members of the sample, one would expect that the average economic return of these individuals would be in excess of the rate of return received by individuals holding less risky assets such as savings accounts and, therefore, considerably in excess of the rates of return realized for tax purposes. In a related paper (Steuerle, 1982), it was reported that the net income from capital reported on individual tax returns is less than one-third of the net income from capital (excluding inflationary returns) in the economy. The evidence presented here is consistent with the earlier finding that much income from capital is not reported or required to be reported on individual income tax returns.

This study also finds that the realized rate of return varies according to certain economic circumstances of the taxpayer. The realized rate of return on all assets generally declines as the value of assets increases. Even after accounting for portfolio differences, regression analysis reveals that there is still a significant rate of decline. In terms of portfolio differences themselves, the greater the percentage of assets which are closely held, the lower the realized rate of return on all assets. Additionally, farmers and owners of real estate businesses tend to realize lower rates of return on their total portfolio than other businessmen.

This low ratio of realized income to economic income has a number of implications for both policy and research. For expenditure and tax policy, these results imply that realized income is not a very reliable measure of well-being, at least

for persons with substantial ownership of capital. If need is based on economic income, then an expenditure program may be inadequately targeted if grants vary only with realized income. A similar limitation applies to the individual income tax system, where realized income is used as the measure of ability-to-pay.

Moreover, the efficiency of investment in the economy may be seriously distorted when the tax rate (or the potential for not realizing income) varies by asset type. Tax considerations lead individuals to invest more in assets for which smaller portions of total economic income are realized as income subject to tax. Resulting portfolio adjustments lead to a sectoral misallocation of investment.

The low ratio of realized income to asset value has implications for a number of related areas of research. Realized income is often used to measure the degree of inequality in society and counts of those in poverty (e.g., Bureau of the Census, 1981). This study provides further evidence of the extent to which such data, if not adjusted to account for unrealized income or wealth, must be interpreted with a good deal of caution.

Finally, realized income is sometimes used by researchers as a means to estimate wealth of households. Under the investment-income approach to wealth estimation, the wealth of an individual in a particular asset is estimated by dividing the realized income (data sources generally contain information only on realized income) from that asset by the expected rate of return on that asset (Atkinson and Harrison, 1978, p. 171). This paper presents one of the few independent estimates of such rates of return, and perhaps the only independent estimate for those who wish to apply wealth/income multipliers to income tax return data.

Source of Data

This study uses a sample of 117 estate tax returns matched with the income tax returns of decedents for the calendar year before the year of death. The estate tax returns were filed during 1973 (for deaths generally in 1972 or 1973), while the income tax returns usually covered calendar 1971 or calendar 1972 income. Each estate in the sample had a gross estate of $60,000 or more, contained a large percentage of assets in the form of closely held business or farm, and its executor applied for deferred payment of estate tax. To be more precise, this study uses a random sample of returns which applied under IRS Code Section 6166 for an extension of time for payment of estate tax. Under this provision, the value of the interest in the closely held business must exceed 65 percent of the adjusted gross estate.

Although this study presents heretofore ungathered information on the important relationship between income and wealth for owners of closely held assets, ideally the sample would have included all estate tax returns, not just those with closely held assets. Nonetheless, it is hoped that this study will prove to be an important first step in estate-income analysis and a useful catalyst for comments on alternative approaches to using such data. Although the hypothesis cannot be tested here, we might also expect that much of the portfolio behavior of this sample is similar to that of wealthholders with similar amounts of wealth, especially with regard to behavioral responses to tax incentives.

The match of the estate tax with the previous year's income tax allowed a direct comparison of the income from capital with the value of the capital that produced that income. Since the year of death differed by one or two years from the year in which the income was recorded, the comparison was not exact. The value of an asset may have differed slightly from year to year, and the taxpayer may have engaged in purchases and sales of assets after the receipt of the income, but before death. In order to file

for an extension of payment of estate tax, however, most of the assets for members of this sample had to be held in closely held businesses at time of death, and sales of portions of closely held businesses are often difficult. Moreover, to the extent that consumption was likely to be financed out of sales of assets, any bias in the estimates of realized rates of return would be upward. However, if wealthholders tend not to consume out of their wealth (David and Menchik, 1981) 2/, then the bias due to inexact match of year of income and year of valuation of assets is slightly downward, and the wealth measure should be discounted about one year.

Any bias due to the inexact match of year of death and year of income is still likely to be small. However, there are two tax accounting reasons why there is almost certain to be a net upward bias in the realized rate of return measures. First, valuations of farms and businesses for estate tax purposes are typically low. While estimates of value must be reasonable, there clearly is a tax incentive for executors and heirs to provide the lowest among reasonable estimates. Second, the measure of asset value includes only the assets of the deceased, while the income measure may include both the deceased's former income and that of a spouse.

Practically all of the data items were taken directly from the estate and income tax returns. Further information on items of data is contained in the Appendix.

II. REALIZED RATES OF RETURN

Average rates of return for various asset types and various gross estate classes are presented in Table 1. (Estate classes are split so as to provide equal sample sizes in each class). For closely held business assets of all members of this sample, income was only 1.15 percent of the value of the assets (3.56 percent is the average of the individual rates of return,

Table 1

REALIZED RATES OF RETURN 1/
(percent)

Type of Asset	Gross Estate Class: $60,000-$362,000	$362,000-$840,000	$840,000 or More	All Classes
Closely Held Business (Non-Corporate)	2.22 (2.45)	1.78 (3.78)	0.47 (4.69)	1.15 (3.56)
Corporate Stock - Total	0.81 (2.03)	2.18 (4.09)	1.24 (1.94)	1.30 (2.66)
a. Closely Held	0.21 (0.22)	2.26 (3.00)	0.93 (0.85)	0.96 (1.08)
b. Non-Closely Held	4.14 (5.22)	2.10 (3.87)	2.27 (2.95)	2.32 (3.79)
All Assets -- Capital Income Only	3.24 (3.38)	3.33 (3.39)	1.29 (1.82)	1.88 (2.86)
All Assets -- Capital + Wage Income	6.57 (6.33)	4.67 (4.73)	2.99 (3.89)	3.66 (4.98)

1/ Top Numbers: Weighted Average Rates of Return (or $\sum^{n}$ income/ $\sum^{n}$ value of assets).

Bottom Numbers, in Parentheses: Unweighted Average Rates of Return (or $\sum^{n}$ (income/assets) / n).

Size of Sample (by row, respectively):

1. (28,35,21,84)
2. (19,25,33,77)
2a. (13,9,27,49)
2b. (13,23,24,60)
4. (39,39,39,117)

if no weighting of individuals by amount of assets is made). Even this estimate may be high, as data limitations required attribution to the closely held business of all business and farm income reported on related tax schedules. 3/

The rate of return for corporate stock is the dividend rate. To the extent that capital gains are earned and realized on such stock, the estimate of the realized rate of return from ownership of corporate stock does not reflect the total return. It is not possible in this study to separate out capital gains on corporate stock from other capital gains nor to know the year in which those capital gains were accrued. Dividends on nonclosely held stock equaled 2.32 percent of assets. This figure can be contrasted to a Standard and Poors dividend rate on 500 stocks of 2.84 percent for 1972 and 3.14 percent for 1971.

While all asset types exhibit realized rates of return which are low, the rate of return for stock of closely held corporations is the lowest of all. Closer examination of the data indicates that, of 49 persons owning stock in closely held corporations at time of death, only 16 reported any dividends at all. Of these 16 persons, 5 had dividend rates of less than 1 percent, and 12 had rates of less than 3 percent. In effect, closely held corporations, at least in this sample, are not prone to pay out dividends. This result should not surprise us, for corporations (other than subchapter S corporations) are subject to corporate tax. Wages and dividends are both taxable to the individual recipient, but only wages are deductible against corporate tax.

When all nonwage income 4/ is treated as capital income, the income for all members of the sample is only 1.88 percent of their assets. Capital income includes income from all nonwage sources, including savings accounts and capital gains, while the asset measure includes value of homes and durables. In practice, it is impossible to separate capital income from wage income for

owners of business and farms. These owners may receive capital income in the form of wages or labor income in the form of profits. By adding income designated as "wages" to capital income, then, we can derive an upper bound for the income earned on all assets. Total income is still only 3.66 percent of the value of assets.

No matter what the measure of realized rate of return or the gross estate class, the rate is quite low--less than the lowest paying savings account. Moreover, as noted in the previous section, this method of estimation probably results in an overstatement of the rate actually declared. When wages are added to income from capital, the resulting measure of the realized rate of return from capital is biased upward even more.

III. REGRESSION RESULTS

From Table 1, it appears that the realized rate of return decreases as gross estate size increases and that the rate of return is lower for closely held businesses than for other assets. For tax reasons, of course, we should not find such results surprising. Larger gross estate sizes are generally indicative of higher marginal tax rates. Taxpayers with higher marginal tax rates shift toward assets for which exclusions of income from tax are possible. Moreover, assets cannot be costlessly exchanged once they have appreciated in value (that is, investors become "locked into" their assets because of the capital gains taxes); therefore, past as well as current marginal tax rates may have induced the particular portfolios observed at any one point in time. Indeed, current wealth may be more representative than current income of the marginal rates which influenced the existing portfolio.

While tax effects clearly induce the distribution of assets among different income and wealth groups, the data are insufficient to determine whether these low realized rates of

return imply low economic rates of return as well. 5/ Economic theory does hold that after-tax rates of return on assets of equal risk are equilibrated across assets and that differentials in tax rates will become reflected in different before-tax rates of return on the assets. 6/ However, this study finds that lower realized rates of return are generally associated with assets considered to have higher risk. Thus, the tax effects may indeed have lowered the economic rate of return on risky, but tax-preferred, assets relative to other assets; however, the economic rate is still likely to be higher for these risky assets than for many less risky investments such as interest-bearing financial instruments. Empirical evidence generally has borne out the finding of higher economic rates of return to assets with higher risk (e.g., for corporate stock, see Ibbotson and Sinquefield, 1982; for farms, see U.S. Department of Agriculture, 1981). There is no reason to suspect that such findings are not also applicable to this sample.

There are two related reasons to believe that lower realized rates of return do not imply lower economic rates of return for persons with large amounts of wealth. First, the very presence of large amounts of wealth means that top wealthholders are likely to have been persons who were successful, rather than unsuccessful, in their investment. Second, top wealthholders are also likely to be persons who accumulated rather than consumed much of their income. In this case, a lower realized rate of return may simply indicate that persons with higher rates of savings do not need to realize as much income to finance their consumption.

One means of testing this last hypothesis is to see if increases in wealth significantly affect realized rates of return even after accounting for differences in portfolio allocation. Such a finding would lend support to the notion that larger wealthholders are more likely to take advantage of the option not to realize income even when they receive equal before-tax rates of return on particular types of assets.

In this section we use regression analysis to find out whether the relationship between realized rate of return and wealth is statistically significant and, further, whether realized rates of return vary by type of asset held, e.g., by type of closely held business: farm, real estate, or other business. Accordingly, regressions were run using rates of return from closely held business or farm (noncorporate), corporate stock, and all assets as dependent variables. In the case of all assets, wage income is both excluded and included in the measure of income and, hence, rate of return from those assets. Recall that for owners of closely held business, it is often difficult to separate wage from capital income.

Table 2 presents the results of these regressions. For each dependent variable, one equation was run using only one independent variable--the value of the assets from which the related income is derived. For instance, if the rate of return from corporate stock is the dependent variable, the independent variable is the value of all corporate stock in the estate. In remaining equations, other possible explanatory variables are added: the value of all other assets, income other than the income from the particular assets being examined, dummy variables for closely held business comprised entirely of farm assets or of real estate assets, and variables which reflect the percentage of assets in closely held or corporate form.

The first equation of each series is meant primarily to be descriptive of the data. We check to see whether rates of return for closely held assets and all assets decline as the amount of ownership of those assets increase. As suggested by the summary data reported in the previous section, these rates do indeed decline and the relationship tends to be significant for all except corporate stock, although for closely held business (noncorporate), the relationship is significant only at the

Table 2

REGRESSIONS FOR REALIZED RATES OF RETURN a/

REGRESSION NUMBER	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)	(4c)	(4d)
DEPENDENT VARIABLES	Rate of Return on Closely Held Business (non-corporate)		Rate of Return on Corporate Stock		Rate of Return on All Assets-- Capital Income		Rate of Return on All Assets -- Capital + Wage Income			
INDEPENDENT VARIABLES										
Constant	5.40** (1.52)	2.47 (2.79)	3.27** (.94)	5.19** (1.67)	3.67** (.56)	5.93** (1.72)	6.06** (.75)	7.25** (.72)	12.71** (2.76)	9.89** (1.95)
Value of Underlying Assets (in $ millions)	-3.95* (2.15)	-1.80 (2.63)	-1.01 (.86)	-.23 (1.11)	-.88** (.41)	.02 (.35)	-1.18** (.55)	-.63* (.38)	-2.05** (.52)	-.76** (.38)
Value of Other Assets (in $ millions)		11.03** (3.01)		-.40 (1.63)						
Other Income (in $ millions)		-38.72 (64.00)		5.51 (21.32)		-33.79* (17.07)				
Farm		.29 (2.95)				.78 (.97)		-2.86** (.87)		-1.06 (1.10)
Real Estate		-4.01 (3.43)				-1.06 (1.00)		-3.57** (1.02)		-2.68** (1.10)
Percentage of Corporate Stock Held Closely				-4.61** (2.18)						
Percentage of Assets In Non-Corporate, Closely Held Form						-3.73* (2.01)			-9.79** (3.21)	-5.39** (2.32)
Percentage of Assets In Stock of Closely Held Corporations						-3.45 (2.36)			-2.93 (3.86)	-3.34 (2.71)
Percentage of Assets In Stock of Non-Closely Held Corporations						-3.15 (3.23)			-3.43 (5.30)	.84 (3.73)
Size of Sample	84	71	77	77	117	100	117	100	117	100
R^2	.040	.398	.018	.081	.039	.137	.039	.159	.253	.238

a/ Standard Errors are shown in parentheses.
* Significant at the .10 level.
** Significant at the .05 level.

.10 level. Although not reported in Table 2, similar regressions using value of all assets (rather than assets from which the income was derived) as the only independent variable show similar results--a decline in realized rate of return for all except corporate stock as the value of assets increases.

The rate of return for closely held businesses or farms is found to be sensitive primarily to the value of other assets (see equation 1b). For a $1 million increase in value of assets other than closely held businesses, the rate of return on closely held business goes up by 11.0 percentage points. For a $1 million increase in closely held business assets, the realized rate of return on those assets goes down by 1.8 percentage points, but the relationship is no longer significant. A possible explanation of this result is as follows: as noted before, owners of closely held business have a great deal of discretion as to when to realize income, and, like other wealthholders, they tend to realize lower rates of return as their wealth increases. However, persons who show greater amounts of other assets include both those who are diversifying in order to obtain better or less risky returns elsewhere and those who find it necessary to realize more income in order to obtain more liquidity, perhaps to cover consumption needs. In summary, for owners of closely held business, the presence of larger amounts of other assets indicates a greater current tendency to realize income from the closely held assets themselves.

Other variables add little to the explanation of the realized rate of return on closely held business. Other income 7/--in part a proxy for marginal tax rates applying when the first dollar of income is received from the business--is insignificant, as are dummy variables for farm and real estate. As noted above, however, past marginal tax rates may be more appropriate than current marginal tax rates when examining those parts of portfolios which are especially locked in due to past investment decisions.

Turning to corporate stock, we find that only the "percentage of stock held closely" tends to explain much of the difference among individuals in rates of return (equation 2b). Given the tax incentive for owners of closely held corporations to pay wages in lieu of dividends, we expected the dividend rate on closely held stock to be lower than the dividend rate on other corporate stock. This is indeed what we found.

A number of theories assert that taxpayers with higher-than-average marginal tax rates will tend to hold corporate stock with lower-than-average dividend rates. However, in contrast to Blume, Crockett & Friend (1974), we found no significant, negative correlation between the dividend/price ratio and income (or wealth) in this sample.

In equation (3b), we test whether the rate of return on all assets, capital income only, is related to several variables: value of assets, amount of other income, type of closely held business--farm, real estate, or other business, and percentage of assets in 1) noncorporate, closely held form, 2) stock of closely held corporations, and 3) stock of nonclosely held corporations. Only "other income" and "percentage of assets in noncorporate, closely held form" are significant at the .10 level. 8/

The percentage of assets in noncorporate, closely held form is significant not only in equation (3b), but in all equations in which it is introduced as a variable. However, equation (2b) is the only equation in Table 2 in which "other income" is significant, although only at the .10 level. Economic theory suggests that as other income goes up and marginal tax rates rise, taxpayers would tend to control their portfolios so as to minimize the extent to which the economic return from assets is realized for tax purposes. The insignificance of "other income"

in equation (1b), as contrasted to (3b), would indicate that total portfolio rates of return are likely to be controlled through adjustments in asset holdings other than holdings of closely held business. A simpler explanation is that the measure of capital income, or the distinction between wage and capital income, is especially poor for closely held business assets.

Equation (4d) is similar to equation (3b), except that wage income is included in the income from the assets and there is no "other income" since all income is included in the rate of return variable. In equation (4d), a decline in realized rate of return is indicated as asset value increases. Since this equation allows for various portfolio adjustments, the significance of the asset value variable lends support to the hypothesis that top wealthholders lower their realized rates of return not only through portfolio adjustments, but also by simply realizing less of their income for tax purposes.

In terms of portfolio variables, equation (4d) also indicates a significant decline in rate of return as the proportion of the estate in noncorporate, closely held business increases. Even after adjusting for the proportion of assets held closely, owners of real estate have a much lower rate of return relative to owners of other business. Contrasting this equation to equation (3b)--in which the ownership of real estate is not significantly related to the rate of return on capital--would indicate that owners of real estate businesses pay themselves a lower wage rate (relative to value of capital) than owners of other businesses, while realizing about the same rate of capital income. Again, this does not imply a lower economic rate of return to owners of real estate, since owners of land and buildings may have substantial unrecognized income through appreciation in the value of assets.

Equations (4b) and (4c) are presented primarily to show the effect of variables reflecting farm or real estate (as opposed to other business) ownership separately from the effect of portfolio allocations into noncorporate, closely held assets and corporate assets (both closely and nonclosely held). Note that farm owners tend to realize less than owners of other business in equation (4b), but that this difference seems to be explained in equation (4d) by the allocation of the portfolio among closely held and nonclosely held assets, i.e., farmers realize lower rates of return on their total portfolio by holding a greater percentage of their assets in the closely held form.

IV. SUMMARY

The realized rate of return on all assets for owners of closely held businesses and farms is quite low. The rate tends to decline both as wealth increases and as the percentage of wealth in noncorporate, closely held form increases. Dividend rates for closely held corporate stock are lower than rates for other corporate stock and often are zero. Counting both wages and other income, the realized rates of return for owners of real estate business are lower than those of other businesses. Farmers also tend to realize lower rates on their total assets than other business owners, but the difference tends to be reflected in a greater percentage of assets held in closely held form.

Although this source of data provides new and important information on the relationship between income and wealth, it does not allow determination of whether the decline in realized rates of return as wealth increases implies a similar decline in economic rates of return. Three factors, however, argue against such a result. First, the assets held by top wealthholders tend to be more risky; other sources of data have tended to confirm higher rates of return for riskier assets.

Second, persons who accumulate wealth are likely to have achieved such accumulation through successful investment in assets with relatively high rates of return. Finally, even after adjusting for portfolio changes, rates of realization were still found to decline significantly as wealth increased. My conclusion is that tax effects do cause portfolio shifts and do lower the economic rate of return on risky, but tax-preferred, assets relative to other assets. However, this economic rate of return is still likely to be higher for the risky assets held by top wealthholders than for other assets. Moreover, there remains a realization effect: that is, for many tax-preferred assets, the rate of realization of income is somewhat discretionary in nature, and it declines as wealth increases.

These low realized rates of return call into serious question the use of realized income from capital as part of any measure of well-being or ability-to-pay. For owners of capital, economic income may have little relationship to realized income, and rates of realization may vary according to the assets they hold. Tax and expenditure programs based upon realized income can produce inequitable results and may lead individuals to allocate their investments inefficiently.

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1/ The relevant measure of risk is that which is nondiversifiable or unavoidable (systematic). See, for instance, Modigliani and Pogue (1974).

2/ David and Menchik (1982) found that little of inter-spousal transfers were consumed, at least by persons in the top earnings quintile (p.17).

3/ Income from closely held business is calculated as the sum of business income, partnership income, rental and farm income. To the extent that there may have been some partnership income which came from sources which did not qualify as closely held business, for instance, the rate of return for closely held business may be overstated.

4/ Income equals adjusted gross income as reported on tax returns. Except for a few items of exclusion, generally small in nature, adjusted gross income equals gross income.

5/ The economic rate of return discussed here is before individual taxes, but after corporate taxes. The before-corporate tax economic rate of return on noncorporate assets is generally believed to be lower than the rate obtainable on corporate investment.

6/ For a splendid model of the extent to which economic rates of return would be lowered in a no-risk world for higher income individuals holding assets with greater tax preference, see Galper and Toder (1982).

7/ Using total income would involve a simultaneity problem since the income variable would depend upon the rate of return and vice-versa.

8/ Technically, these variable are significant at the .051 and .067 levels respectively.

BIBLIOGRAPHY

Atkinson, A.B. and Harrison, A.J., Distribution of Personal Wealth in Britain (Cambridge: Cambridge University Press, 1978).

Blume, Marshall E., Crockett, Jean and Friend, Irwin, "Stockownership in the United States: Characteristics and Trends," Survey of Current Business (November 1974), pp. 16-40.

Brittain, John A., Inheritance and the Inequality of Material Wealth (Washington: The Brookings Institution, 1978).

Bussman, Wynn V. "Estimation of Household Corporate Stock Portfolios and a Model of Rate of Return from a Sample of Wisconsin Income Tax Returns (1946-1964)." Ph.D. dissertation, University of Wisconsin, 1972.

Cordes, Joseph J. and Sheffrin, Steven M., "Taxation and the Sectoral Allocation of Capital in the U.S." National Tax Journal XXXIV (December 1981), pp. 419-432.

David, Martin, and Menchik, Paul L. "Modelling Household Bequests," presented at the Econometric Society, Washington, D.C., 28 December 1981.

Feldstein, Martin S. "On the Theory of Tax Reform." Journal of Political Economy (July-August 1976), pp. 77-104.

Fisher, Lawrence and Lorie, James H., "Rates of Return on Investments in Common Stock," Journal of Business 41 (July 1968), pp. 291-316.

Galper, Harvey and Toder, Eric, "Transfer Elements in the Taxation of Income from Capital." National Bureau of Economic Research Conference on Income and Wealth, Madison, Wisconsin, May 14-15, 1982.

Ibbotson, Roger and Sinquefield, Rex. Stocks, Bonds and Inflation: The Past and the Future (Charlottesville, Va.: Financial Analysts Research Foundation, 1982).

Lampman, Robert J., The Share of Top Wealthholders in National Wealth, 1922-56 (Princeton: Princeton University Press, 1962).

Modigliani, Franco and Pogue, Gerald A. "An Introduction to Risk and Return." Financial Analysts Journal 30 (May-June 1974), pp. 73-77.

Pechman, Joseph A. and Okner, Benjamin A., Who Bears the Tax Burden? (Washington: The Brookings Institution, 1974).

Smith, James D. and Franklin, Stephen D., "The Concentration of Personal Wealth, 1922-69," American Economic Review 64 (May 1974), pp. 162-167.

Steuerle, Eugene, "Is Income from Capital Subject to Individual Income Taxation?" Public Finance Quarterly, 10 (July 1982), pp. 283-303.

Tobin, James, "The Theory of Portfolio Selection." in The Theory of Interest Rates, pp. 3-51, edited By F.H. Hahn (London: MacMillan and Company, 1965).

U.S. Bureau of the Census, Characteristics of the Population Below the Poverty Level: 1979 (Washington: Government Printing Office, 1981).

U.S. Department of Agriculture, Balance Sheet of the Farming Sector (Washington: USDA, various years).

U.S. Department of the Treasury, Internal Revenue Service, Statistics of Income -- Personal Wealth, various years.

Weisbrod, Burton A. and Hansen, W. Lee, "An Income-Net Worth Approach to Measuring Economic Welfare," American Economic Review 58 (December 1968): pp. 1315-29.

APPENDIX

Information on Source of Data

Each income tax return contained items of income such as wages, interest, dividends, farm income, rental income, partnership income, and business income. Each estate tax return identified value of gross estate, real estate, corporate stock, farm and non-corporate business assets, and value of closely held business. This last item was required of taxpayers to determine eligibility to file for the extension of time to pay the estate tax. By turning to worksheets and schedules attached to the returns, it was possible to differentiate wages from closely held business, dividends from closely held stock, and value of corporate stock in closely held business. In addition, the value of own home was separated from value of all other real estate. In most cases, the value of own home could be found in the documents attached to the estate tax return. However, in some cases--particularly where there was a farm--the presence of a home was indicated but the value of the house was not separated from the reported value of the farm or real estate. To impute a value of own home in these cases, two regression analyses were run. In the first regression, the sample consisted of all farms or ranches where value of own home was known. In the second regression, the sample consisted of all nonfarm estates where the value of own home was regressed against size of gross estate. These regressions were then used to impute the value of own home to those estates where a home was likely to be present, but where a value was not reported. The value of real estate in closely held business and the total value of closely held business assets were then adjusted by the value of own home.