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PART III

INCOME DISTRIBUTIONS WITH LONG AND SHORT ACCOUNTING PERIODS

CHAPTER 5

Capital Gains and Individual Income—Evidence on Realization and Persistence

Martin David
University of Wisconsin

and

Roger Miller
University of Wisconsin

PREFACE

In this paper, we attempt to investigate one particular source of income over individuals, and through time, in order to see what affect this has on variation of income through time. A particular source of income which we have chosen is capital gains—and, particularly, realized capital gains, as reported on the income tax returns. Thus, the approach of our paper is in rather sharp contrast to that of the other two papers presented in this session. Consequently, it is appropriate for us to state the reasons for having chosen our approach, as well as to interject a comment or two on what we feel is valuable in the approaches taken in the other papers.

It is our belief that the most appropriate manner in which to study variations in the distribution of income among individuals through time is to employ a model of income determination. Such a model may have submodels of the determination of separate parts of total income as its components. We focus at this juncture on just one such component.

The other papers in this section, by Kohen, Parnes, and Shea, and by Benus and Morgan, each focus on the Lorenz curve of the distribution of income among individuals year by year or period by period, and also when the incomes of individuals are aggregated over two, three, or four or more subperiods or complete periods.

In each paper, the primary determinant of whether one distribution is more or less equal than another is the Gini coefficient, notwithstanding all of the recent criticism of that measure in the study of the inequality of income distributions. No logical structure of the determination of income and its variation is included in their analyses. Their focus is thus on the total distribution of income without regard to the placement of individuals within the distribution, whereas our focus is on what accounts for the movement of individuals up and down within a given distribution, even when that distribution is for two years or more.

In the paper by Kohen, Parnes, and Shea, our attention is not only drawn to the discrepancy between single year and panel surveys in studying income variability, but they also attempt to analyze the source of the discrepancy as an element of bias, as opposed to a real phenomena. Unfortunately their ability to carry through this analysis is somewhat hampered by the fact that they have, by the very nature of their panel, removed from the distribution those persons who are most mobile and, perhaps, most likely to have large income fluctuations.

Benus and Morgan are similarly concerned with discrepancies between analyses of single-year and panel surveys. However, they go further in noting the problems one has with definitions of "what is income" and "for whom" (for what "unit of analysis") when examining a time period that extends much farther than that of the Kohen group. They recognize that simple concepts become complex and ambiguous as the time period expands. They do not quite emphasize enough, however, the effect that this would have on simple measures—such as a Gini coefficient—which tend to lose their precision of meaning.

A secondary consideration which represents a principal departure of our analyses from those of the other papers is the discrepancy between survey panel data and administrative panel data, especially where the administrative panel data is for a shifting panel, in which people can move into, as well as out of, the data. Because of our use of administrative panel data, another departure of our paper involves the length of the period concerned. While we have not gone to the extreme of comparing distributions of lifetime income, we have considerably more than four years of data for many of the individuals in our sample.

One could perhaps criticize our study because it concentrates

on realized reported capital gains from income tax returns. However, we see some justification for this in that the redistributive effects of the income tax, particularly at certain low levels of income, have received a great deal of publicity, especially in recent years. This does not mean that we would denigrate the importance of unrealized but accrued capital gains. Indeed, we have plans for attempting to assess, for the people in our sample, annual accrued gains which are not realized. Nor did we wish to make a simple imputation of unrealized accrued gains to individuals similar to that made by Ben Okner in his paper presented during an earlier session.

A final point to emphasize is that in our paper, in contrast to the others in this session, we make a comparison between what can be accomplished in terms of understanding human behavior when truly micro-time-series data are used, as opposed to the partially aggregated data that is inherent in cohort analysis, which is so much in vogue.

We end this preface with the following observation derived from our study of realized capital gains: (1) there is not overmuch distinction between the distributions of money income, long-run versus short-run, due to the realization of capital gains, owing to the persistence of such realization for individuals who realize; and (2) there is a large effect on either long-run or short-run distributions due to the differential incidences of realized capital gains over individuals.

INTRODUCTION

Analysis of single-period cross sections, and of successive cross sections, reveals that the tax subsidy to income in the form of realized capital gains is very large, very unevenly distributed among individual tax-paying units, and especially unevenly distributed among income classes.

Aside from the information summarized in the preceding paragraph, very little is known about the economic effect of the capital gains tax provisions. Perhaps the greatest single gap in our knowledge is the distribution through time of this tax subsidy for particular individuals. Even within a single high-income class, realized gains are unevenly distributed in any one year. Are those "left out" in one year able to reap the rewards of this special treatment in the following year? Or in the following five or even

ten years? If not, are the differentials in impact systematically related to taxpayer characteristics over which the individual has control?

The analyses of our data which we present produce partial answers to these questions. We are limited because we have no direct information about the existence and amount of unrealized gains. (Such gains do not appear in the annual tax documents that are the basis for these data.) In all that follows, therefore, it should be understood that we are using data on taxable realized gains reported on tax returns by Wisconsin residents. The extent to which this limits our conclusions is indicated by Bhatia's finding that during the period 1948–64, only $147 billion were reported as capital gains on U.S. individual income tax returns out of a total of $682 billion of increases in wealth accruing to U.S. individuals.[1] While some of these unreported accrued gains will eventually be partially taxed when realized, a substantial fraction will be exempted from taxation altogether, because of transfer of appreciated assets at death. Estimates by David[2] on the mortality of wealth holders indicate that at least one-fifth of the accrued gains that are not reported on tax returns will be transferred at death. A similar calculation by the U.S. Treasury for the population of taxpayers with more than $100,000 of adjusted gross income in 1967 indicated that nearly half of the total income accruing to those taxpayers would escape capital gains taxation at death because of forgiveness.[3]

The information that we report is derived from a random sample of tax returns filed by Wisconsin taxpayers 1946-60. By law, husband and wife file independent returns, so that income sources of men and women can be separately studied. The tax return data include information on occupation; and we were able to obtain birth data from other sources.[4] We are thus able to

[1] Kul Bhatia, "Accrued Capital Gains, Personal Income and Saving in the United States, 1948-1964," *Review of Income and Wealth*, Series 16, no. 4 (December 1970).

[2] Martin David, *Alternative Approaches to Capital Gains Taxation* (Washington, D.C.: Brookings Institution, 1968), pp. 96-98.

[3] Committee on Ways and Means, *Tax Reform Studies and Proposals: U.S. Treasury Department* (91st Congress, 1st Sess., February 5, 1969), Part I, p. 110.

[4] Richard Bauman, Martin H. David, and Roger F. Miller, "The Wisconsin Assets and Incomes Studies Archive," *Social Science Information* (December

relate changes in income patterns to changes in wealth and aging over the lifetimes of taxpayers.[5] The value of the data are enhanced because all the tax returns for a particular individual in the sample are matched over the years that he has filed. Thus variability of income and changes in an individual's use of tax subsidies can be studied.

Wisconsin income tax provisions require the reporting of capital gains or losses by all resident taxpayers, and add the entire amount of gain to taxable income for the purpose of computing tax liability. The data we report therefore do not distinguish between gains on assets held for more than six months (long-term capital gains in the federal code during this period) and gains on assets held for shorter periods of time.

With these caveats behind us, we can begin our presentation. The analysis in this paper is divided into two parts. First, we investigate the characteristics of individuals (and the economy) that are associated with the realization of gains. Then, we assemble evidence on the importance of gains in the income streams of individuals over extended periods of time.

Being ever mindful of the opportunities we have to demonstrate the potentialities of microdata, we begin with a two-stage look at the data on realization in the context of a formal model. The basic features of the model are developed in Section I, which includes our "first look" at the data. In this stage, the cost of accessing microdata led us to concentrate on partially aggregated data. Our micro-time-series of individual data are grouped into age-sex cohorts, producing distinct time series of cohort means. In addition, nonproperty sources of income are lumped together (aggregated). The second type of aggregation, of variables, is at least partially due to the first type, of units, for the latter results in vastly fewer distinct observations, with resulting loss of degrees of freedom. This "first look" thus incorporates the types of

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1967):49-70; also available as a chapter in Ralph Bisco, ed., *Data Bases, Computers, and the Social Sciences* (New York: Wiley, 1969). The method of the data collection is documented in Martin David et al., *Linkage and Retrieval of Microeconomic Data* (Lexington, Mass.: Heath-Lexington Books, 1974).

[5] Martin David and Roger F. Miller, "A Naive History of Individual Incomes in Wisconsin, 1947-1959," *Journal of Income and Wealth* (March 1970):79-116; also available as Social Systems Research Institute Reprint No. 223.

compromises ordinarily encountered in econometric time series analysis using data that are not ideally suited to the model. In keeping with the spirit of this comparison, the section is written as though (and should be read as though) these were the best and only data available.[6]

Section II estimates the same model with these "limited data" compromises relaxed. It is not necessarily the best model for the disaggregated data, but the essential point would be lost if we used a different model. Further explanation of the "second look" is postponed to the second section of the paper, in order to avoid distracting the reader from the substantive analysis presented in Section I. Indeed, much of Section II will be unintelligible without the background of Section I.

I. ANALYSIS OF THE PARTIALLY AGGREGATED DATA

Two propositions underlie the analysis below: (1) appreciation of property rights is the principal source of realized gains; and (2) property rights generate income that is reported on tax returns. These propositions imply that it is useful to look at samples of *taxpayers* to discover propositions about the realization of capital gains. The nexus between property rights and income implies that persons holding wealth are represented as part of the reporting population. Conversely, persons whose gross income falls below the filing limit and who thus do not file tax returns are unlikely to hold wealth that accrued potentially realizable gains.

Neither proposition is totally correct: some realized capital gains are derived from royalties on patents and sources other than appreciation of wealth; some property rights do not generate income that is taxable under Wisconsin law.[7] Nonetheless, if diversification of portfolios leads owners of property rights to hold several classes of assets, we may expect some taxable return to appear on tax returns of individuals who have the potential to realize gains.

We stress the relationship between ownership of appreciating wealth and the filing of tax returns, inasmuch as the proportion of

[6] These partially aggregated results were reported in the Joint Economic Committee, *Compendium on the Economics of Federal Subsidy Programs*, Part 3, pp. 269-85. The disaggregated results are presented here for the first time.

[7] U.S. securities are tax-exempt; vacant land and owner-occupied housing do not yield annual taxable receipts.

the *population* filing returns varies with age. Only 35 percent of men over 75 in 1960 filed a tax return; 59 percent of men aged 66 to 75 did so; and over 87 percent of men aged 31 to 65 filed returns.[8] The propositions above imply that the bulk of persons with a potential for realizing capital are embedded in this tax-return filing population. If we can discriminate those with a potential gain from the remainder of the taxpayers, useful statements about the relationship between potential for realization and the act of realizing gains can be made.

To study the behavior of wealth holders which causes them to realize gains, we constructed a simple model:

$$R_{it} = aW_{it} + bO_{it} + cA_{it} + d + u_{it} .$$

R_{it} is the probability that the ith individual realized gains in year t; W_{it} is the wealth of the individual in year t; O_{it} is income not associated with return on W_{it}, and A_{it} is age. W_{it} was estimated by the quotient of rent, interest, and dividends divided by the Baa rate on corporate bonds [Moody's index of yields]. O_{it} was defined as adjusted gross income (AGI) less capital gains, rent, interest, and dividends. Clearly W_{it} understates wealth; equity in owner-occupied homes and unincorporated enterprises is not included. For that reason, one would expect some propensity to realize capital gains to be associated with the mixture of self-employment and wage income included in O_{it}. Thus we would expect both a and b to be significantly positive.

The relationship between age and realization that should be expected is not clear. If advancing age causes a lock-in effect, c should be negative. However, failure to isolate the potential for gains occasioned by self-employment income causes a positive bias in c.[9] u_{it} is a random error term.

[8] Martin David, "Legislation, Enforcement and the Filing of Tax Returns," *National Tax Journal* (December 1971):519-20, and David and Miller, "A Naive History," p. 85.

[9] Suppose O declines as people retire, so that there is an inverse correlation of O with age. In addition, as O declines, assume that those with a potential to realize gains out of self-employment income continue to file returns. Then, the probability of realizing a gain is higher for the older group with smaller average incomes. This may be revealed by a spurious correlation of the probability of realizing gains with age.

Bias in the age coefficient does not occur if the explanatory variable for W is measured in a way that includes all potential for gains and O includes only labor-related income.

To explore variants of the model suggested and to handle the information more efficiently, the representative samples of tax returns for the years 1947–59 were aggregated to produce a time series of information on eight distinct birth cohorts for men and women. This produced a total of sixteen time series of observations on groups of virtually identical individuals for a period of thirteen years.[10] The relationships was then fitted to the average of each variable over the cohorts.

Results of the model are displayed in Table 1. Age, the wealth proxy, and other income all have significant positive impacts on realization. The model was also extended to determine whether global changes in market conditions contributed to, or detracted from, realization of gains. Table 1 indicates that the level of yields on Baa bonds had no influence on realizations, aside from its role in the wealth proxy. The appreciation accrued or reduction in property values accumulated during the year also failed to play a role in the probability of realizing gains.

Several aspects of the relationship require comment and interpretation. The age effect is large and significantly positive. This is to be expected. A natural correlation between age and the existence of appreciated assets occurs, inasmuch as an individual must first acquire the asset and then hold it for a period of time before the change in prices alters its value. Only after holding an asset for a time is realization of gain or loss possible. Indeed, this natural correlation is a principal justification for the cohort analysis. By studing what happens to a fixed group of people, we can observe how their assets and incomes change over time. We can avoid imputing an age effect due to historical differences between younger and older persons based on a comparison of individuals who are, in fact, different. Instead, our analysis

[10] Individuals who fail to file a return or migrate out of the Wisconsin tax jurisdiction will be included in the totals for some years but not for others. In any case, the average for each cohort in each year is representative of taxpayers.

The eight birth cohorts used are 1860-74, 1875-84, 1885-94, 1895-1904, 1905-14, 1915-24, 1925-29, and 1930-34. Each observation for a cohort in each year is treated identically, although some observations represent many more taxpayers than others. This treatment of the data does not bias coefficients in Table 1. Use of a linear probability model is discussed in John Neter and Scott Maynes, "On the Appropriateness of the Correlation Coefficient with a 0, 1 Dependent Variable," *Journal of the American Statistical Association* 65 (June 1970):501-9.

TABLE 1 A Model of the Realization Propensity of Wisconsin Taxpayers, 1947-59

(cohort data, 8 age groups)

	Regression Coefficients	
	Men	*Women*
Constant	−.00495	−.0986[a]
	(−0.30)	(−4.23)
Birth cohort variables		
Age	.00130[a]	.00262[a]
	(8.21)	(13.3)
Wealth proxy ($000)	.00105[a]	.000487[a]
	(4.48)	(5.00)
Labor and self-employment income ($000)	.00658[b]	.00994[b]
	(2.60)	(2.56)
Market variables		
Baa bond rate	−.480	.392
	(−1.06)	(0.62)
Accruing capital gains in the household sector ($ billions)	−.0000935	.0000485
	(1.27)	(0.46)
R^2	.842	.803
Standard error of estimate	.0245	.0352

NOTE: Figures in parentheses are *t*-ratios.

Age is measured by the difference in calendar year and the average birth year of the cohort, except for those born 1860-74, where age is measured by the difference between the year and 1872.

Baa bond rate is Moody's index of yields on corporate bonds (Source: *Economic Report of the President,* 1971, p. 265).

Accrued gains are those reported by Kul Bhatia, "Accrued Capital Gains, Personal Income and Saving in the United States, 1948-1964," *Review of Income and Wealth,* Series 16, no. 4 (December 1970).

Other variables are defined in the text.

[a] Significant at the $p = .01$ level.

[b] Significant at the $p = .05$ level.

observes the changing character of income and its effects on the realization of gains for the same individual.

The natural correlation between age and accumulation of gains and the amount of gains realized confounds any effort to use the relationship to draw definitive conclusions about a lock-in effect.

The age effect in Table 1 was tested to determine whether a tapering off occurred for increasingly older individuals. None was detected. Holt and Shelton's analysis suggests that lock-in is related to the probability of dying during the year.[11] That probability rises more than in proportion to calendar age. Evidence of attenuation of the age affect would be consistent with the Holt-Shelton model. Augmentation of the age affect might be introduced by the attrition in the tax-paying population, since the model fails to distinguish capital gains arising from self-employment income. Thus, we are left with two interpretations of the result: (1) Lock-in exists but is masked by sufficient bias in the model to (a) make the age effect change sign and (b) to offset the expected nonlinearity associated with increasing mortality rates of older people. (2) Alternatively, no lock-in exists, and the observed increase in propensity to realize gains with increasing age is a real and powerful phenomenon. In either case, the age coefficient serves as a proxy for the period over which assets have been held; and this second role for the age variable confounds inferences about the importance of lock-in as a factor motivating portfolio behavior. It is still a fact that, ceteris paribus, older taxpayers have a greater propensity to realize gains than younger ones.

Although the wealth effect appears smaller in magnitude than the effect of labor and self-employment income, the two variables are not measured in comparable units; wealth is a stock; labor income is a flow. If wealth is converted back to an equivalent annual income flow, given interest rates during the period, the impact of a dollar of rent, interest, or dividends on realization of capital gains is three to four times that of other income for men and one to one and one-half times that of other income for women.

The meaning of the relationships estimated in Table 1 and evaluated in Table 2 can be better appreciated by comparing the difference in realization implied for different individuals in the tax-paying population. A man aged 50 with $20,000 of wealth and $10,000 of income has a probability of realizing gains that is eight percentage points higher than the probability of a man aged 30 with no wealth and $5,000 of income. The difference between

[11] Charles C. Holt and John P. Shelton, "The Lock-in Effect of the Capital Gains Tax," *National Tax Journal* 15 (December 1962):337-52.

TABLE 2 Mean Values and Standard Errors of Explanatory Variables in Table 1

	Means	
	Men	*Women*
Age	49.84	49.84
	(21.12)	(21.12)
Wealth (dollars)	8,687	22,700
	(14,270)	(59,500)
Self-employment and labor income (dollars)	3,356	1,484
	(1,082)	(1,363)
Baa bond rate	.0380	
	(.00593)	
Accrued gains ($ billions)	35.15	
	(33.83)	

NOTE: Figures in parentheses are standard errors.

As each year's observation for a cohort is weighted equally in the regression, means and standard errors do not reflect population values. Also, the ages of men and women are identical despite differences in mortality. The results are shown only to indicate the relative importance of these variables in the relationships estimated in Table 1.

two women with those same characteristics is eleven percentage points.

The differences in the propensity to realize gains between men and women are highly significant and are not readily explained. Because many women work part time and aged women taxpayers are likely to be widows, the average wealth proxy for the women is nearly three times that of the men; the mean of other income for women is less than half as large. In addition, more men than women engage in self-employment or farming. Taken together, these characteristics imply that the failure to isolate the effect of self-employment in estimating b creates less upward bias in the age effect for women than for men. Nevertheless, we observe a propensity to realize gains that increases almost twice as rapidly with age in the case of women as it does for men. This finding supports our second interpretation of the relationship in Table 1, namely, individuals with wealth have an increasing propensity to realize capital gains as they get older.

II. DISAGGREGATION: THE "SECOND LOOK"

One of the most notable features of the preceding section is the extent to which we were forced into speculation regarding the manner in which the aggregations involved had masked some significant results that one might have expected on theoretical grounds. Table 3 presents the results of a similar regression using

TABLE 3 A Model of the Realization Propensity of Wisconsin Taxpayers Estimated with Microdata, 1947-64

	Regression Coefficients	
	Males	*Females*
Constant	.0237	−0.0998
	(2.81)	(−5.55)
Individual variables:		
Age — linear	.000909	.00257
	(6.47)	(15.1)
Age — quadratic[a]	−.0000394	.0000490
	(21.4)	(5.26)
Wealth proxy ($000)	.00348	.00313
	(29.6)	(22.5)
Wages and salaries ($000)	.00168	−.00456
	(2.40)	(−2.81)
Self-employment income ($000)	.00717	.000492
	(8.11)	(0.09)
Other Income ($000)	.00293	.00100
	(0.76)	(0.14)
Market variables:		
Baa bond rate	0.767	0.483
	(2.57)	(1.32)
Accruing capital gains in the household sector ($ billions)	.0000866	.0000156
	(1.91)	(0.09)
R^2	.092	.152
Standard error of estimate	.286	.195

NOTE: Figures in parentheses are *t*-ratios. See notes to Table 1.

[a] Measured as $(x - 46)^2$ where x is age.

disaggregated data and somewhat disaggregated variables. The import of the first type of change is brought home by a realization that it involves a change from 104 to 5,992 degrees of freedom (at the onset) for females, 104 to 12,495 for males. The variable "labor and self-employment income" is now divided into three categories: "wages and salaries"; "self-employment income"; and "other income." The last category does not include interest, dividends, or rent since they are in the numerator of the wealth proxy. "Other income" also excludes capital gains (that will be included in adjusted gross income); gains are excluded to avoid tautological explanation of the dependent variable.

The list of regressors now includes both linear and quadratic terms for age. In the aggregated data, age—being averaged over cohorts for each year—became a close proxy for the simple passage of time, so it is not too surprising that the coefficient of age squared turned out to be insignificantly different from zero. For the disaggregated data, the quadratic term turns out to be highly significant for both sexes, but differs in sign from one to the other. For males, we get a negative coefficient, which is what would be expected if the locking-in hypothesis were true. The positive coefficient for females may be rationalized on other grounds. Presumably, older women are more likely to have their finances handled by others, such as lawyers or trust officers. Perhaps trustees, under the strictures of prudence of management, behave differently than they might in handling their own affairs. Clearly, in the case of a trust in which a widow has a life interest in the income only, and where capital gains are considered part of the income, there may be a definite incentive encouraging realizations. In addition, women live longer and have less income from other sources than men, and the need for cash income to cover expenditures could be considerably greater.

The coefficient for the linear effect of age is virtually the same as for the aggregated relationship for women. It remains substantially positive, increasing the probability of realizing gains by one-quarter of 1 percent per year of age. For men, the coefficient of the linear term is one-third smaller than in the aggregated relationship.

The wealth proxy, which indicates the potential ability to realize gains, increases in significance from the coefficients in the aggregated regression. The coefficients are nearly equal between the sexes in the disaggregated relationship, suggesting that the

wealth proxy captures a real economic characteristic that induces the realization of gains.

One of the most interesting comparisons between the sexes in the disaggregated regression is the high significance of self-employment income for males, and the complete insignificance of this variable for females. This type of income is presumably more likely to involve some form of capital or goodwill, which, in the case of males, might yield a capital gain if the business is terminated or sold.

The coefficients for wage and salary income are signficant for both sexes, but here again there is a difference in sign. For males, the positive sign may indicate that this variable is capturing some residual effect from the wealth proxy. This seems likely in cases involving closely held corporations. For females, the negative sign again may indicate that realization of gains is a necessity for some, in lieu of other forms of income. This explanation is consistent with, and reinforces, that which we gave for the differential quadratic effect of age for men and women.

The macroeconomic variables gain some signficance for the male taxpayers. The coefficient of the bond-yield rate is positive but relatively small, increasing the probability of a realization by only .008 for a change of one percentage point in the interest rate. The positive relationship must be viewed as an indication that the prices of real assets rose with the nominal interest rate during this period.

We do not wish to belabor the obvious with further discussion of the regressions results in detail. However, we would be less than human if we did not mention the great pleasure we felt when the greater analytic power of the disaggregated regression was so dramatically demonstrated. The tremendous personal professional investment (over 10 years) that we have made in developing these microdata has not been for naught. In succeeding sections, we explore further insights into gains realization behavior that we have gleaned from disaggregated data.

III. A LONG-RUN VIEW OF CAPITAL GAINS

The assessment of propensity to realize capital gains provided in Table 1 gives a picture of taxpayer behavior in relation to taxpayer characteristics at the same point in time. To assess the persistence of realized capital gains, analysis of the realization of capital gains

over a period of time is essential. One-period studies can not indicate to what extent realization of gains occurs widely in the population of taxpayers and to what extent realization is concentrated among a few individuals. One-period studies cannot distinguish taxpayers who never realize gains from those whose occasional realizations play a significant role in income in the long run. One-period studies cannot relate variability in capital gains to variability in income sources generally.

Conversely, existing one-period tabulations of capital gains in the *Statistics of Income*[12] provide a peculiar perspective on the role of capital gains in taxpayer income. Tabulations of the amount of capital gains and number of taxpayers reporting capital gains by adjusted gross income class confound the level of realized gains in a single year and the amount of income from other sources. A taxpayer realizing a large gain is classified in a high adjusted gross income class, while another with identical income from other sources and a realized loss may be classified in a relatively low AGI class. Tabulations that report on taxpayers who realize gains in a given year, single out a subgroup from the taxpayers who have potential for realizing capital gains.[13] Thus, a comparison of those who realize gains in one year with all taxpayers tends to understate the difference between those for whom capital gains provisions provide a tax subsidy and those for whom the provisions are irrelevant.

In the following tabulations, the shortcomings of one-period data are overcome in two ways. Information on sources of income refers to the average over a substantial period of time. Secondly, taxpayers are classified according to whether they ever realized gains during the period of observation. Use of the long-term averages avoids the confounding of gains and other income present in the *Statistics of Income.* Discrimination of taxpayers who never realize gains from those who realized gains at any time in the long-run comes closer to identifying the relevant population than the *Statistics of Income* tabulations of those who reported capital gains in a particular year.

To estimate average income, its variability, and the realization of capital gains over a period of time, men who filed tax returns in

[12] U.S., Treasury Department, Internal Revenue Service, *Statistics of Income, Individual Income Tax Returns,* various years.

[13] Martin David, "Alternative Approaches," p. 85.

at least four consecutive pairs of years were sampled from available tax returns for 1947–59. For each man, at least five tax returns were available; for many, thirteen were available. The average and standard error of each income source over the period reported were computed separately for each taxpayer. (If no income was reported from a particular source, its standard error was taken to be zero.)

The first findings that we report provide support for the relationship fit in the previous section and underscore the connection between income from wealth and the realization of capital gains in the long run. Table 4 classifies each of the men in the long-term sample according to the average level of dividends reported over the entire period. Those with no income from dividends are shown at the left; those with substantial income in the second column from the right. For each of the groups defined on average level of dividend income, the distribution of the average capital gain realized is reported. Four-fifths of those with no dividend income reported no capital gains; one-sixth of those will more than $300 of dividends on the average reported no capital gains. The distributions indicate an increasingly positive average gain as the average size of dividend increases.

The pattern shown in Table 4 is also typical of the relationship

TABLE 4 Distribution of Mean Gains by Mean Dividends Received During the Filing Period

(long-term sample, percent)

Mean Capital Gain (Dollars)	*Mean Dividend (Dollars)*				
	None	*1-100*	*101-300*	*301+*	*All*
Less than −100	1.8	3.3	3.1	6.8	2.2
−100–−1	3.8	7.5	10.4	11.3	4.7
0	78.2	52.0	33.3	16.9	71.4
1-100	8.4	18.5	18.8	17.7	10.4
101-200	2.7	5.6	9.4	8.8	3.5
201-500	3.1	9.4	11.5	12.0	4.5
501-1,000	1.4	2.9	8.3	11.3	2.1
1,001+	0.6	0.8	5.2	15.3	1.2
Total	100.0	100.0	100.0	100.0	100.0
Number of filers	3,001	519	96	124	3,740

between mean capital gain and mean interest, and mean capital gain and mean rent. We hypothesize that the relationship results from a strong positive relationship between wealth in all forms and the realization of income in the form of capital gains. Some support for this hypothesis comes from simultaneous consideration of mean dividends and mean rent in relation to mean capital gains. (See Table 5.) Those with no income from either type of property showed less propensity to realize gains than is the case when only dividends are taken into account. In addition, the size of the gains reported were, on the average, smaller.

Self-employment income is also clearly a key factor in the realization of capital gains in the long run (Table 6). While only one-sixth of those with no self-employment income reported capital gains at any time, more than two-fifths of those with any self-employment income reported capital gains. Since self-employment and income dividends and rent are correlated, this finding is not independent of that in Table 5. Nonetheless, the strength of the relationship indicates how unimportant realization of capital gains is for those who have no self-employment income and how strongly correlated the size of average gain is to the size of average self-employment income.

Some additional insights into the long-term consequences of the realization of capital gains come from a further analysis of the impact of capital gains on individuals classified by occupation. Table 7 shows the long-term sample of male taxpayers classified by both birth cohort and principal occupation during the reporting period.

TABLE 5 Mean Gains by Presence of Income from Rent or Dividends (long-term sample, percent)

Mean Capital Gain (Dollars)	*No Rent or Dividend Income*	*Some Rent or Dividend Income*
Less than 0	4.7	11.4
None	83.3	46.9
1-100	7.1	17.2
More than 100	4.9	24.5
Total	100.0	100.0
Number of filers	2,511	1,229

TABLE 6 Mean Capital Gain Within Mean Self-employment

(long-term sample, percent)

Mean Capital Gain (Dollars)	*Mean Self-employment Income (Dollars)*						
	Negative	*None*	*1-1,000*	*1,000-3,000*	*3,000-7,000*	*Over 7,000*	*Total*
Less than −100	6.9	1.1	3.9	2.4	3.2	7.0	2.2
−100–−1	10.0	3.0	7.9	5.0	8.1	11.3	4.7
None	54.7	84.3	55.3	54.5	39.5	12.7	71.4
1-100	14.5	6.3	14.4	18.3	20.5	22.5	10.4
100-200	5.7	2.0	6.0	5.6	5.4	8.5	3.5
200-500	3.8	2.1	7.2	8.0	14.6	15.4	4.5
500-1,000	0.6	0.8	3.2	4.5	5.4	12.7	2.1
More than 1,000	3.8	0.3	2.1	1.7	3.2	9.9	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of taxpayers	159	2,293	568	464	185	71	3,740

TABLE 7 Percent Ever Realizing Capital Gains, by Principal Occupation and Birth Cohort

(long-term sample)

	Principal Occupation	*Birth Cohort*			
		1860-1894	*1895-1904*	*1905-1914*	*All*
1.	Professional	47	54	51	44
2.	Semiprofessional	57	54	47	35
3.	Managers	41	53	39	39
4.	Businessmen	61	56	61	57
5.	Farmers	45	42	41	42
6.	Clerical	32	36	22	19
7.	Sales	45	64	43	40
8.	Service	26	24	23	22
9.	Skilled	25	34	24	23
10.	Semiskilled and unskilled	17	19	21	16
11.	Retired, students	54	50	–	34
	All	35	37	33	29

Reporting of realized capital gains is concentrated heavily on businessmen, professionals, farmers, sales workers, and managers, in that order. We return to the birth-cohort specific rates of realization in the following section.

The Importance of Capital Gains in the Long Run

The foregoing gives little feeling for the role of capital gains in relation to adjusted gross income as a whole. We assess that effect in two stages. First, how prevalent is the realization of capital gains? Second, what share of the adjusted gross income of those who realize gains is accounted for by the capital gains themselves? At the same time, to give a better insight into the age effect reported earlier, we present answers to these questions for six birth cohorts. Table 8 shows that just under a third of the taxpayers in the long-term sample realized gains at some time during the period for which they reported income. (That period averaged more than ten years for the sample of men selected.) At the same time, the average capital gain reported by those who

realized gains accounted for only 4.1 percent of all the adjusted gross income reported.

Table 8 demonstrates an inverse relationship between the importance of capital gains and birth date. (For all but the youngest and oldest cohorts, the rate of filing tax returns was extremely high, so that differences in the realization of gains correspond roughly to population differences as well as to differences between taxpayers.) The older the cohort observed from 1947-59, the greater the likelihood that gains were realized at some time during the period. Among those realizing gains, the ratio of total gain realized to total adjusted gross income reported proved larger, the older the birth cohort observed.

Comparing the proportion ever realizing gains in Tables 7 and 8 makes it clear that a life-cycle, or cohort-related, pattern of realizations is far stronger in some occupations than in others. Farmers and businessmen show little more propensity to realize

TABLE 8 Importance of Realized Capital Gains by Birth Cohort (long-term sample)

	Ever Realized Capital Gain	
Birth Cohort	*Proportion*	*Ratio of Total Gain to Total AGI*
1860-1894	.35 (10.0)	.074
1895-1904	.37 (11.2)	.061
1905-1914	.33 (11.1)	.027
1915-1924	.25 (10.4)	.020
1925-1929	.19 (9.6)	.010
1930-1934	.08 (7.0)	.007
All	.29 (10.1)	.041

NOTE: Figures in parentheses are average number of years filed.

gains when they are in the three oldest cohorts than when they are in the younger group. By contrast, in the cohort just prior to retirement (1895-1904), sales workers, managers, and semiprofessionals demonstrate an extremely high propensity to realize gains relative to the average over all cohorts. What factors lead to that effect is unclear.

The Dynamics of Receiving Capital Gains

Another way to view the realization of gains is to relate the taking of gains over a period of time to the growth in income over time. We have done this for the male taxpayers included in the long-term sample. Essentially the procedure amounts to fitting a trend line to the data reported by each individual.[14] To make the results easier to view against known trends in income due to inflation and changes in life cycle, we computed the trend of the AGI reported relative to the income of the birth cohort to which the individual belonged.

As a result of fitting trends to the 3,740 men in the long-term sample, we obtained a distribution of rates of growth in relative income position (see Table 9). Realization of capital gains was concentrated among those individuals who experienced either extreme growth (more than 5 percent per annum) or extreme decline (less than −10 percent). The least reporting of gains occurs where the rate of increase of relative income position is 1 to 2 percent. The amount of gains realized shows the same pattern.

Additional insight into dynamic analysis comes from classifying individuals by both relative income position in 1959 and rate of growth of relative position. The largest dollar amounts of realized capital gains were recorded by persons whose relative income position projected to 1959 could be expected to be at least 50 percent higher than the average for their birth cohort. Fifty-eight percent of all realized gains were concentrated in that group.

The combination of these findings indicates that more than one-fourth of capital gains are realized by relatively wealthy individuals with systematically increasing income. The tax subsidy to capital gains thus moderates progression on high and rapidly

[14] Martin David, "Lifetime Income Profiles," *Proceedings of the Social Statistics Section of the American Statistical Association, 1971*, pp. 285-92.

TABLE 9 Capital Gains in Relation to Rate of Growth of Income (long-term sample)

Annual Rate of Growth of Income (Percent)	*Distribution of All Long-Term Filers (Percent)*	*Filers Reporting Realized Gains at Some Time*		
		As a Percent of Long-Term Filers	*Average Gain Reported (Dollars)*	*Share of Realized Gains Reported (Percent)*
Less than −10	10.9	33	570	30.4
−10 to −5	10.6	28	182	8.0
−5 to −2	16.5	28	166	11.8
−2 to −1	7.4	25	150	4.1
−1 to 1	17.9	24	119	7.6
1 to 2	7.6	23	65	1.7
2 to 5	17.2	26	106	5.8
5 to 10	9.0	34	205	9.2
More than 10	6.0	50	494	21.8
All	100.0	29	236	100.0

growing incomes. For those with declining incomes, the largest amounts of gains accrue to those with relatively high incomes (25 percent or more above the average of their birth group). Those individuals account for the large average gain reported by those with extreme declines in relative position in Table 9. Again, the tax subsidy is concentrated on those with an advantageous income position.

Another aspect of the dynamics of income is its variability over time. We can report one facet of that variability. For each taxpayer, the variance of both capital gains and adjusted gross income was computed. Table 10 indicates the relative importance of variation in the realization of capital gains relative to variation of all income sources. The column furthest left indicates the proportion of the long-term filers who realized no gains whatsoever. That proportion drops radically as mean AGI arises. For this group, no income variation was accounted for by capital gains.

Looking at taxpayers who realized some gains, we can compute the proportion of all income variation accounted for by capital gains. Only in the top income bracket do more than one-fifth of

TABLE 10 Distribution of Variance of Capital Gains Relative to Variance in AGI Within Mean AGI Groups (long-term sample, percent)

Mean AGI (Dollars)	*Ratio of Variance of Capital Gains to Variance in AGI*								
	0	*.00-.01*	*.01-.05*	*.05-.10*	*.10-.20*	*.20-.40*	*.40-.60*	*.60+*	*All*
Less than 3,000	73.2	6.9	5.9	3.0	2.8	2.3	1.9	3.0	100.0
3,001-4,000	77.6	6.4	5.7	2.2	1.7	2.1	2.0	2.2	100.0
4,001-5,000	78.5	7.3	3.8	2.1	2.6	2.6	1.5	1.7	100.0
5,001-7,000	65.1	11.3	6.0	4.2	3.0	3.9	2.5	3.9	100.0
7,001 or more	28.9	30.4	11.8	4.2	8.0	6.5	4.2	6.1	100.0
All	71.2	9.7	5.9	2.9	2.9	2.8	2.1	3.2	100.0

all filers report that variations in capital gains amount to more than 5 percent of total income variation.

We conclude from this relationship that if capital gains provisions are intended as an ad hoc averaging device to deal with income variation, the provision has badly missed its mark. Only 3 percent of the sample report capital gains variance .6 as large as AGI variance; and it is only for this group that the reduced taxation on capital gains can begin to approach the magnitude of variations in tax progession due to income variability.

The foregoing material characterizes the impact of realized capital gains on taxpayers. Realized capital gains are concentrated on those with sizable incomes from self-employment and dividends. They are concentrated on those whose relative income positions are substantially above the average of their cohort, and to a large extent on the subgroups whose income position is changing rapidly.

Realized gains account for a remarkably small proportion of total adjusted gross income, and for a relatively small proportion of the income variation experienced by taxpayers over an extended period of time. It is still the case that capital gains tend to be relatively more volatile than other sources of income.

This description glosses over many of the characteristics of taxpayers that affect their potential to realize capital gains. In the following section, we highlight the differences between those who realize gains in the long run and those who do not.

Differences Between Recipients and Nonrecipients of Capital Gains in the Long Run

We can characterize the differences between taxpayers who use capital gains and those who do not in terms of the long-term income experience of the population. Table 11 indicates that

TABLE 11 Share of Long-Term Income, by Source
(long-term sample, percent)

	No Gains Reported at Any Time	*Received Gains at Some Time*
Adjusted gross income	62.5	37.5
Interest	34.0	66.0
Dividends	12.5	87.5
Rent	30.4	69.6

persons realizing capital gains at any time during the period received a large share of the total sample income from dividends, interest, and rent. This was certainly to be expected, given the positive correlations among wealth, age, and realization of gains. The share of income sources received by those who realized capital gains at any time during the period provides an interesting contrast with one-year data available from the *Statistics of Income.*[15] In 1962, the first year for which such data were published nationally, taxpayers realizing capital gains received 47.1 percent of interest, 74.6 percent of dividends, and 37.9 percent of rents. The difference between these statistics and those in Table 11 suggests that realizations of gains are undertaken by recipients of rents erratically; the long-term realizers indicate a far greater proportion of total rents than what would be anticipated from the one-year tabulation.

Mean values of rent, interest, and dividends in the long run are shown in Table 12. The large difference in adjusted gross income between those reporting realized gains and those not reporting gains far exceeds the amount of gains realized. The difference is also large by comparison to income from property ownership (rent, interest, and dividends). We must conclude that persons realizing capital gains have large wage and salary or self-employment incomes relative to those who do not.

[15] This comparison relates national data to the Wisconsin sample. Work by Moyer has shown that Wisconsin taxpayers have mean incomes close to the U.S. average but somewhat less broadly distributed.

Comparison of rates of reporting capital gains in the Wisconsin sample with that reported for the U.S. indicates little difference:

	Wisconsin Sample		
Year	*Women*	*Men*	*U.S.*
1947	4	6	4.5
1948	4	7	4.4
1949	4	6	4.1
1950	5	7	4.8
1951	5	6	4.9
1952	4	5	4.8
1953	4	6	4.8
1954	5	7	5.4
1955	5	7	6.1
1956	5	7	6.6
1957	4	6	6.6
1958	5	5	7.4
1959	6	7	8.1

TABLE 12 Difference Between Gains Takers and Nontakers (long-term sample)

Birth Cohort and Report of Gains	*Income Source (Mean Amount in Dollars)*					
	AGI	*Capital Gains*	*Portfolio Income*			
			Interest	*Dividends*	*Rent*	*Total*
1860-94						
No gains	3,215	–	36	46	38	120
Some gains	4,376	355	125	408	209	742
1895-1904						
No gains	3,793	–	17	12	56	85
Some gains	6,883	426	98	347	140	585
1905-14						
No gains	4,105	–	24	7	6	37
Some gains	6,098	140	74	79	59	212
1915-24						
No gains	4,116	–	5	4	4	14
Some gains	5,361	109	29	57	19	105
1925-29						
No gains	3,819	–	3	1	5	9
Some gains	4,134	42	4	39	[a]	43
1930-34						
No gains	3,390	–	3	3	2	8
Some gains	5,216	40	20	9	35	64
All						
No gains	3,767	–	15	11	17	43
Some gains	5,645	237	72	196	99	367

[a] Less than $1.

Scanning the cohort differences in realization of capital gains illustrates the increasing ratio of capital gains to adjusted gross income already cited in Table 8. More surprising is the finding that the ratio of the amount of realized gain declines in relation to the sum of income from rent, interest, and dividends as birth year declines.

To study this relationship more closely, we applied the same model used in the time series analysis of Section I to the aggregated data for the six cohorts in Table 12. While the proxy for wealth and other income both were positively and significantly related to the amount of gains taken, there was no additional variation that could be related to the date of birth of the taxpayer. We conclude that the decline in mean gains for the oldest cohort is adequately explained by declines in other income. Mean gains do not appear to be associated with age of taxpayer in this sample.

Differences between recipients and nonrecipients of capital gains are even more striking when viewed in the context of the principal occupation held by the individual (see Table 13). In the entire sample of long-term filers, recipients of capital gains average 50 percent more adjusted gross income than nonrecipients. In professional and managerial groups, the ratio is nearly two to one. Among farmers and blue collar workers the differentials were much smaller. What these findings suggest is that some occupations include a wealthy echelon that realizes capital gains and a lower-paid group with little or no potential for realizing gain.

This hypothesis is borne out to some extent by the amounts of rent, interest, and dividends received by taxpayers within each occupation group. Individuals who did not realize gains received, on the average, about one-eighth as much income from these sources as those who did realize. In the professional and managerial occupations, that ratio was smaller, while in farm and blue collar occupations it was substantially higher. Thus, realization of capital gains is more selective to the owners of assets that yield income in the former group than in the latter. For farmers, this can be explained by the sale of livestock for breeding purposes and the realization of gains on the sale of equipment, both of which occasion widely experienced sources of realized capital gains. It is not clear why these special provisions do not operate equally strongly for businessmen. Moreover, we can offer no explanation for the relatively nonselective realization of capital gains within the blue collar occupations.

The difference in income from wealth and level of income between individuals who realize gains and those who do not is striking. There can be no doubt that the advantages of the capital gains provisions benefit those with relatively high labor income in addition to their substantial portfolios.

TABLE 13 Difference in Mean AGI and Share of AGI Between Gains Takers and Nontakers by Principal Occupation (long-term sample)

Principal Occupation and Report of Gains	*Mean AGI (Dollars)*	*Share of AGI (Percent)*	*Percent of Filers*	*Mean Gains (Dollars)*	*Total of Rent, Interest, and Dividends (Dollars)*
Professional					
None	5,733	39	56	–	53
Some	11,349	61	44	176	542
Semiprofessional					
None	4,448	43	67	–	180
Some	10,988	57	35	250	678
Managerial					
None	5,889	44	61	–	85
Some	11,578	55	39	977	1,101
Businessman					
None	3,200	30	43	–	71
Some	5,590	70	57	222	440
Farmer					
None	2,292	52	58	–	32
Some	2,978	48	42	258	145

Clerical					
None	3,762	78	81	–	23
Some	4,586	22	19	35	143
Sales					
None	4,385	54	60	–	26
Some	5,624	56	40	17	261
Service					
None	3,258	73	78	–	22
Some	4,251	27	22	88	158
Skilled					
None	4,362	76	77	–	32
Some	4,734	24	23	106	116
Semiskilled and unskilled					
None	3,529	83	84	–	22
Some	3,729	17	16	72	115
Retired					
None	2,162	52	66	–	305
Some	3,908	48	33	506	1,650
All					
None	3,767	62	71	–	43
Some	5,645	38	29	237	367

IV. CONCLUSIONS

The foregoing data support four generalizations about the realization of the capital gains and the concomitant tax subsidy:

1. Realization of gains is concentrated among persons with incomes that are far above average for their birth cohort.

2. To a great extent realization of gains is associated with substantial long-term growth or substantial decline in relative income position.

3. Realizations account for a small fraction of all income variance.

4. Other factors being equal, realizations do not appear to decline in frequency for women taxpayers over the age of 46. For men, ceteris paribus, realizations appear to decline in frequency beyond that age.

A study of this type cannot reveal the incentives to save and invest that are created by favorable treatment of capital gains. It can only assess the resulting distribution and utilization of the tax incentives. The data presented here clearly reveal the favorable income and wealth position of taxpayers realizing gains. The data suggest that gains play a different role in the incomes of men and women, and suggest that elderly women taxpayers are the recipients of income from professionally managed portfolios to a greater extent than men.

We urge further study of the data underlying this paper and attention to the changes in tax liability and portfolio structure that might be induced by a change in capital gains taxation.