Tax Impact From Elimination of the Retirement Test

by Josephine G. Gordon and Robert N. Schoeplein *

The OASI eligibility provisions include a retirement test (or earnings test), and in 1979 aged beneficiaries who are under age 72 give up $1 in current benefits for each $2 of annual earnings above $4,500. If the retirement test were eliminated, total OASI payouts would increase because aged workers would no longer forfeit benefits. Aged workers also might increase earnings or delay retirement if this penalty on work effort were removed. Increased earnings would generate additional OASDHI taxes and individual income taxes. This article examines the fiscal effects on OASI benefit payouts and increased tax receipts if the retirement test were eliminated.

This article estimates the initial-year net changes in social security (OASDHI) tax receipts and Federal individual income-tax receipts if the social security retirement (or earnings) test were eliminated for individuals aged 65–69. Individuals under age 65 are not considered. [1] The expenditure and tax estimates shown are for 1978 but with the 1982 earnings ceiling adjusted to 1978. Persons aged 70 and 71 will not be subject to an earnings test in 1982 and are therefore excluded from the study. Thus, in 1978 levels, the budget impact of changing the 1982 retirement test for persons aged 65 and over is estimated.

Under the present provisions of the Social Security Act, elderly workers insured to receive OASI benefits at age 65 who earn income above an allowable amount will forfeit their current benefits at a rate of $1 for each $2 of excess earned income. Workers aged 62–64 who retire early and forfeit OASI benefits are compensated by actuarially adjusted future benefit increases equivalent to current benefits forgone, but the adjustments to workers aged 65 and over represent only a fraction of benefits forgone because of the retirement test.

The tax impact estimates shown here are based on a 1978 sample population but incorporate known 1982 tax provi-

* Office of Research and Statistics, Office of Policy, Social Security Administration. The cooperation of Roy Wyscarver, Office of Tax Analysis, Department of the Treasury, in programming and providing tax revenue estimates from the Treasury Individual Income Tax Model is acknowledged, as is the constructive criticism and suggestions from Rudolph Penner, member of Consultant Panel of Actuaries and Economists, and from Benjamin Bridges, Jr., Lucy Mallan, and David Podoff of the Office of Research and Statistics.

[1] The labor-force response of the group aged 62–64, since many are not receiving early retirement social security benefits, poses additional estimating problems. For working couples where the principal wage earner is aged 65–69, the working spouse, regardless of age, is considered in some specific calculations.

sions. Current individual income-tax statutes are assumed to remain in effect in 1982, and the $6,000 allowable earnings ceiling in 1982, adjusted to 1978, is used. The 1982 social security tax rates are used. The simulated net changes in the budget are therefore designed to reflect two 1982 provisions of social security law: (a) A liberalization of the retirement test under the 1977 amendments between now and 1982 that reduces benefit costs in eliminating the test and (b) higher OASDHI tax rates that increase the tax revenue per dollar of additional taxable earnings generated by removing the earnings test.

The social security actuaries estimate that the additional benefit payout cost to the OASI trust fund, if the retirement test were eliminated for workers aged 65–69, is approximately $2.1 billion for the 1982 earnings ceiling adjusted to 1978. It is estimated here that the net changes in work effort by elderly workers still actively employed (part time and full time), if the test were eliminated, will generate $139 million in OASDHI tax receipts and $191 million in individual income-tax receipts or about 16 percent of the $2.1 billion increase in outlays. If 10 percent of workers aged 65–69— either fully retired or contemplating retirement—were to be fully employed in the labor force in 1978, these workers would generate an additional estimated $540 million in social security taxes and $786 million in individual income taxes. With these elderly current workers and continuing or returning fully retired workers considered together, the estimated net increase in social security tax receipts represents about 32 percent of additional benefit payouts, and individual income taxes generate about 47 percent of additional benefits. The projected increases represent about 79 percent of estimated increased OASI benefits.

The study's methodology reflects the precedent of others who recently have studied the retirement test. Because there

is no previous experience with the elimination of this test, cross-sectional data based on elderly workers' responses to net wage-rate changes under other circumstances, such as the effects on net earnings under negative income-tax experiments, are used. No evaluation of labor-market demand conditions is made. That is, it is assumed that elderly individuals who want to expand work effort or seek new employment because of the elimination of the retirement test will find jobs and that other labor-force participants will not be displaced or have their wage rates depressed by an expanded number of elderly workers.

In this study, workers aged 65–69 who are active in the labor force are treated separately from fully retired workers (former workers who have no earned income in 1978). Most earlier studies considered only the response of elderly workers still active in the labor force. About 70 percent of the workers aged 65–69 covered under social security are fully retired. Some individuals now fully retired may return to the labor force if the earnings test is eliminated; other workers now reaching age 65 and contemplating retirement may postpone their retirement 1 or 2 years. A working assumption that, in a given year, 10 percent of such individuals either will return to work or continue working full time is adopted here.[2] (Estimates are also presented for a 5-percent assumption.) This assumption is critical to the tax-impact estimates, as these returning or continuing workers would account for about 80 percent of the total estimated net tax increases under the 10-percent assumption.

Previous studies also limited the tax-impact estimates either to surveys of married men or to projections based on average earnings of the aggregate labor force. This study uses the Individual Income Tax Simulation Model of the U. S. Treasury (1975 data base, statistically adjusted to 1978 levels and tax law).[3] This simulation model provides a basis for analyzing earnings of individuals, couples with only a single wage earner, and working couples as tax units. (See Technical Note No. 2 for further description of Treasury tax simulation model.)

The following section of the article focuses on possible responses by workers aged 65–69 who are still active in the labor force. The impact on individuals aged 65–69 who are fully retired in 1978 is discussed next. The concluding section integrates the tax-impact estimates for both working and currently retired individuals and examines the sensitivity of critical working assumptions.

Response by Working Individuals Aged 65–69

If the earnings of an elderly worker exceed the permissible earnings ceiling, the penalty tax of 50 percent is imposed

[2] Phillip Cagan, **Effect of the Elimination of the Retirement Test on OASDI Revenues** (Working Paper for the Panel of Actuaries and Economists, 1974 Advisory Council on Social Security), Social Security Administration, September 18, 1974.

[3] Department of the Treasury, Office of Tax Analysis.

until the worker's social security benefits under the current law are exhausted. The net wage concept used here is the gross wage minus individual income taxes, social security taxes, and the allocated forfeited social security benefits. A repeal of the current retirement test, therefore, would have the effect of more than doubling the net wage rate over the range of taxed earnings.[4]

When hourly wages of workers rise, two components determine consequent labor-supply response. The more attractive wage rate encourages an individual to expand work effort and thus to substitute more work hours for reduced leisure hours. At the same time, individuals in the taxed range realize more income for a given amount of work effort. This income effect induces workers to reduce the amount of labor they supply because of their higher incomes. The direction of change in an individual's work effort, if any, is the net of these two opposite-direction effects. Workers with high annual earnings who previously forfeited the entirety of current social security benefits then would receive these benefits. These high-earnings workers, therefore, would be wealthier by the amount of the retirement benefits and might reduce work effort in response to higher family incomes.

The behavior of workers following changes in net (after-tax) wages depends on sex, age, marital status, unearned income sources, assets, and other considerations.[5] A wife, for example, has been shown to respond more dramatically in adjusting work effort to a change in family income than the husband. The wife might, in fact, drop out of the labor force altogether as her husband's earnings increase.

The literature on labor-supply response to earnings changes is vast.[6] In narrowing the range of worker response to provide some guidance for policy, one must evaluate why the estimates differ from one study to another. Some studies focus on the estimated or actual effects of negative income-tax experiments. Although older workers were included in some negative income-tax analyses, subjects tended to be young and observed earnings tended to be lower than the earnings range relevant for the retirement test. Other studies focus on worker response to wage-rate changes at all earn-

[4] Income-tax deductions will vary among individual workers. In converting net wage elasticities to labor-response multipliers, abstracts were made from income taxes and it was assumed that removal of the 50-percent implicit earnings-test tax penalty would double the net wage. The net wage multipliers and the consequent net increase in taxes were therefore understated somewhat, although the understatements are not believed to be significant. Given the procedure in selecting net wage elasticities, such further fine tuning would be pretentious.

[5] The net change in work effort is further referred to as a labor-supply multiplier. The value of this multiplier can be thought of as an average response over all workers in a particular class to a wage change.

[6] Summary tables appearing in Glen C. Cain and Harold W. Watts (editors), **Income Maintenance and Labor Supply**, 1973, table 9.1, and Stanley Masters and Irwin Garfinkel, **Estimating the Labor Supply Effects of Income Maintenance Alternatives**, 1977, table 5.7, demonstrate the wide range of labor-supply elasticities estimated in 13 separate recent studies. Though the methodological and econometric problems inherent in estimating labor-supply elasticities have become an intriguing academic subject, this is no solace to policy analysts who must make tax-revenue estimates based on some specific elasticity figures.

ings levels within the sample, but the highest individual or family earnings sampled were constrained to a low ceiling. Some studies use as "wage rates" the individual's wage rate as reported for the week before an interview; other reports employ wages and fringe benefits as reported over a longer period such as 6 months. These considerations are taken into account together with the availability of elasticity estimates specific to elderly individuals and elderly couples with one or both spouses working. The rationale for the specific labor-response multipliers is discussed later.

All labor-supply effects presume a set of underlying assumptions about labor-demand conditions and underlying labor-market structure. In this study it is assumed that the economy will provide increased employment for the elderly without concurrent adverse effects on other workers. It is also assumed that the structure of the labor market for elderly workers remains unchanged from the recent past. That is to say, new government incentives to hire the elderly are not assumed. Consequently, the emphasis is placed on the labor-supply side of the market, given the above demand conditions.

Stratification

All empirical evidence of workers' labor-supply response to a change in the wage rate indicates that annual earnings as well as marital status are important determinants of the change in hours worked. The data file of the Department of the Treasury makes possible identification of the earnings both of principal wage earners and working spouses, so that each may be treated independently and also as a joint household with regard to labor-supply response. The sample of workers has been divided into three broad categories according to marital status and current labor participation. Each broad category, in turn, is subdivided into four relevant income classes.

Initially, the elderly population is divided into three all-inclusive groups of principal taxpayers (or potential taxpayers): Individuals, principal taxpayer with spouse earning zero income, and principal taxpayer with spouse earning greater than zero income.[7] To account for the variation in behavior related to the level of earnings, the three groups are further divided into four earned-income categories.

Workers earning below the $4,500 earnings ceiling would not receive any additional social security benefits if the retirement test were to be eliminated. Thus, they would experience no income effect. The labor-market behavior of workers earning between $1-3,600—substantially less than $4,500—would not be expected to change as a result of a change in the net wage rate. These workers are therefore assumed to be unaffected by elimination of the test.

The labor market may not be perfectly flexible, however, as workers may not be able to control their hours of work so that earned income is just below the $4,500 ceiling or to accept work effort that would generate earnings above $4,500. Moreover, workers exceeding the allowable earnings ceiling have burdens in the form of social security forms, disrupted social security benefits, and other considerations.

This group who would be potentially affected by elimination of the earnings test because of their proximity to the earnings ceiling is represented by workers currently earning $3,601-4,500. These individual workers, having forfeited no benefits, would then experience only a substitution effect on the portion of their earnings above the $4,500 ceiling that would have been taxed before the repeal.[8]

The third class is composed of those workers earning more than the $4,500 ceiling who are subject to the tax on the earnings above the ceiling but not enough to lose all their benefits. This group would experience both a positive substitution effect and a negative income effect.

Because some families have one beneficiary and others have two beneficiaries and because of the way the social security law treats beneficiaries with a working spouse, determination of the upper boundary on this classification is more complex.[9] The figure $10,464 represents the level of 1978 earnings at which all benefits are forfeited by single individuals who would receive the current average annual social security benefits when benefits are not reduced because of the current earnings test.[10]

This figure would thus become the upper boundary for all individuals not filing joint returns. Since spouses not qualifying for their own benefits receive half the benefits of the worker, the figure $14,482 is the level at which benefits disappear for worker and nonworking spouse, on the average; $14,482 has therefore been chosen as the upper boundary for this group. When both worker and spouse are employed, however, the earnings of the wife above the ceiling will only affect the amount of her benefits and not those of the husband. Both workers in families affected by the earnings ceiling were therefore treated separately, and the lower $10,464 level at which all benefits are exhausted was applied to each of them.

The fourth class of workers aged 65-69 consists of all workers with earnings above their respective upper boundaries. These are individuals earning more than $10,464, primary wage earners earning more than $10,464 with a working spouse, and couples with joint returns and only one worker with earnings above $14,482. This class of workers currently would receive no OASI benefits because of their

[7] The division of workers is based on type of individual income tax return rather than on sex. The individual returns include those of unmarried men and unmarried women. The relevant literature (specifically, Boskin) indicates that labor-supply elasticities of single elderly women workers are approximately equal to single elderly male workers. No adjustments for sex are necessary in this instance.

[8] For two-worker couples, cross-elasticity effects also must be considered.

[9] Although it is possible for families to have more than two beneficiaries, for purposes of the study, the two relevant members are the worker and the spouse.

[10] The figure of $10,464 is the adjusted $4,500 allowable earnings plus twice the SSA-estimated 1978 average OASI benefits for retired individual workers aged 65-69.

high earnings. They would receive the entirety of their benefits if the retirement test were eliminated and would therefore be subject to an income effect, reducing work effort.

Estimates

To estimate new tax revenues generated from elimination of the retirement test, one must make specific assumptions regarding labor-supply responses to wage changes for the sample of elderly workers. These assumptions are selectively chosen from studies on labor-supply behavior.

As indicated, previous studies on labor-force response in work effort to changes in net wages have been confined to cross-section analyses of observed or constructed negative income-tax experiments or to statistical analyses of general labor-force behavior. Two rather extensive studies are a collection of independently authored articles edited by Cain and Watts and a more recent analysis by Masters and Garfinkel. [11]

Age, sex, race, and marital status each affect worker response to net wage rates. One labor-supply study that includes labor elasticity estimates based on the above considerations is by Michael Boskin. [12] Boskin's study in the Cain and Watts collection includes a detailed section on elderly workers. He also considers cross-wage effects on labor supply where both husband and wife are working. In this area of study where the range of labor-supply elasticity estimates is so large, one must exercise personal judgment in identifying those studies that seem "reasonable." The elasticity estimates for studies most frequently cited and used tend to cluster in a significantly narrower range than for all such studies as a group. It is believed that Boskin's labor-supply elasticities are median or representative of the findings in these "more reliable" studies.

The Boskin study nevertheless has some specific data limitations or other characteristics in research design that necessitate adjustments for this article. Boskin's elderly workers are aged 60 and over. The net wage effects of changing wages on hours worked decrease with age. The presence of workers aged 60–64 in Boskin's elderly-worker estimates may tend to overstate labor responses by workers aged 65–69. Likewise, the presence of workers aged 70 and over may be a downward bias. No effort is made to adjust the Boskin estimates solely because his study population is aged 60 and over.

Moreover, the Boskin estimates of the substitution effects of elderly working wives must be reevaluated in the context of Masters and Garfinkel. The question is one of relative magnitudes. Boskin found the relative sensitivity be elderly

working wives to changing net wage rates to be eight times that of their respective husbands. Masters and Garfinkel estimated the same response by elderly working wives to be two and one-half times that of their respective husbands. Boskin's estimates on this specific subgroup are not clear, although the present authors feel that use of this specific elasticity estimate would significantly distort and discredit the overall tax-revenue effects outcome. In this study, therefore, the estimated substitution effects of elderly working wives were recalculated using Boskin's methodology for consistency and Masters and Garfinkel's estimates of relative net changes for working spouses in their hours worked. [13]

Summarized below are the direct total labor-supply elasticities as used to estimate the tax impact on workers aged

Type of worker aged 65–69	Elasticity coefficient [1]		
	Total direct wage	Labor-supply income	Elasticity substitution
Unmarried men and women and working husbands	0.16	–0.02	0.25
Working wives.............	.40	–.05	.52

[1] Income elasticity is wage elasticity minus substitution elasticity. Income elasticity estimates reproduced here differ from the general rule because of unique specification used in regression analyses of changes in work effort.

65–69 and still active in the labor force, if the retirement test were eliminated. Other than the changes mentioned above, the elasticity estimates represent those that appear in Boskin, [14] with both races aggregated by the weights of black and white workers in the sample population.

The labor-supply wage elasticity (sometimes identified as the "net wage" elasticity) is the combination of the substitution effects and income effects when the net wage rate is changed. The wage-elasticity coefficient is an estimate of a relative change in hours of work effort in response to a specified relative change in net hourly wages. The wage-elasticity coefficient of .16 for unmarried men and women and for working husbands can be interpreted to mean that a doubling of the net wage rate will cause an average 16-percent increase in work effort for these individuals taken as a group.

It is assumed that the gross wage rates of workers would remain unaffected by the elimination of the retirement test. With this assumption the labor-supply elasticities can be converted to labor-response multipliers, with respect to the net wage effects alone. For two-worker couples, changes in work effort were jointly determined, thereby taking into

---

[11] Glen G. Cain and Harold W. Watts (editors), **Income Maintenance and Labor Supply,** Institute for Research on Poverty, 1973, and Stanley Masters and Irwin Garfinkel, **Estimating the Labor Supply Effects of Income Maintenance Alternatives,** Academic Press, 1977.

[12] Michael J. Boskin, "The Economics of the Labor Supply," in Glen G. Cain and Harold W. Watts (editors), **Income Maintenance and Labor Supply,** Institute for Research on Poverty, 1973.

[13] This integration of two separate studies with somewhat different population sample bases for purposes of adjusting only one labor-supply elasticity estimate is open to criticism. Masters and Garfinkel do not provide husband-wife cross-elasticity estimates (they assume such cross-substitution effects are relatively unimportant) and have other limitations. In the absence of other alternatives, it is believed that the recalculated Boskin estimate of working wives' substitution effect response is a reasonable approximation.

[14] Michael J. Boskin, **op. cit.**

account cross-elasticity effects of changes in the earnings of the principal worker (or in social security benefits) on the other spouse's work effort. The relevant labor-response multipliers and adjustments necessary to estimate net changes in work effort and tax liabilities for individuals and couples in each earnings class are also presented in the preceding tabulation.

One can see from table 1 that for 1978 the simulated work behavior of those persons aged 65-69 and presently working and of working spouses would generate $138.7 million of payroll tax receipts if 1982 payroll tax rates were employed. This amount represents 6.6 percent of the estimated $2.1 billion increased benefit-payout costs of eliminating the earnings test for persons aged 65 and over. The distribution of payroll tax revenues among OASI, DI, and HI trust funds are shown in table 2.

It should be recognized that this 6.6 percent reflects the conceptual approach most often used in previous studies. It does not include individual income-tax revenues that would

Table 1.—Number of workers and change in earned income, income taxes, and OASDHI taxes resulting from elimination of retirement test, by earned income of workers aged 65-69, 1978

[Estimates in thousands]

Earned income	Number of workers [1]	Change in—		
		Earned income	Individual income taxes	OASDHI taxes [2]
Total............	3,072,875	$1,035,358	$191,324	$138,736
Individual:				
$1-3,600	466,909	0	0	0
3,601-4,500	35,003	20,029	3,162	2,684
4,501-10,464	227,450	252,363	51,296	33,817
10,464 or more......	128,210	-11,282	-3,679	-1,512
Married, principal wage earner with nonworking spouse:				
$1-3,600	427,643	0	0	0
3,601-4,500	42,087	24,231	2,028	3,246
4,501-14,482	302,114	432,633	79,614	57,973
14,482 or more......	197,178	-26,028	-9,100	-3,488
Married, principal wage earner with working spouse:				
$1-3,600	149,252	0	0	0
3,601-4,500	22,208	12,361	1,187	1,656
4,501-10,464	130,464	155,043	27,322	20,776
10,464 or more......	146,966	-19,400	-5,559	-2,600
Working spouse: [3]				
$1-3,600	329,024	(4)	(4)	(4)
3,601-4,500	62,124	33,502	3,222	4,489
4,501-10,464	263,536	184,078	44,234	24,666
10,464 or more......	142,707	-22,172	-2,403	-2,971

[1] Includes all workers aged 65-69 classified as individuals or principal wage earners for income-tax purposes, and all working spouses of principal wage earners aged 65-69. All working spouses, regardless of age, could be affected by changes either in total household income or earnings of the principal wage earner.

[2] Based on 1982 combined employee-employer tax rate of 13.4 percent.

[3] Total number of working spouses equals total number of principal wage earners with working spouse when the 348,501 principal wage earners with zero earned income are included; for discussion, see section beginning in next column.

[4] No change in work behavior is assumed because the computer program, when applied to this specific group, uses an assignment of income that results in small income-tax increases even though earnings would decline.

Table 2.—Change in earned income and OASDHI taxes resulting from elimination of retirement test of retired workers aged 65-69, by type of worker, 1978

[Estimates in thousands]

Type of worker aged 65-69	Earned income	Change in—			
		OASDHI taxes			
		Total	OASI	DI	HI
Total............	....	$678,614	$463,382	$83,561	$131,671
Current worker	$1,035,358	138,736	94,734	17,083	26,919
Retired worker—10 percent of selected workers	4,028,933	539,878	368,648	66,478	104,752
Percent of change in taxes [1]..........	....	13.4	9.15	1.65	2.6

[1] Based on 1982 combined employee-employer tax rates.

accrue to the general fund of the Treasury. When the $191.3 million in income-tax revenues are included, the recoupment of benefit payments rises to 15.7 percent. In addition, not included are any tax revenues that would be generated from the group of persons who are currently retired but may choose to return to work or continue working.

Impact of Test on Retired Workers

An estimated 5.7 million retired workers aged 65-69 received OASI benefits in 1978. One criticism of previous studies (other than Cagan [15]) on the impact of eliminating the retirement test is that possible reactions by these retired workers are ignored. The rationale in other studies for ignoring retired workers is based on the assumption that markets for labor services are reasonably competitive. If conditions were competitive, individuals could freely adjust the number of hours they work in response to changing wage rates. Retired workers alternatively could work up to the earnings ceiling without penalty. It follows from the basic assumption that these retired individuals prefer retirement to any work at all.

Alternatively, one can argue that many labor markets place serious institutional constraints on individuals in the adjustment of their hours of work. Some workers in their sixties may be confronted with "all or nothing" options. Opportunities for reasonable part-time employment for older workers may be scarce in some local labor markets. Workers approaching age 65 may have to choose between continuing current full-time employment for at least one more year, switching to an alternate occupation (perhaps at reduced hourly wages) close to full time, or stopping work completely.

Under these circumstances, the worker aged 65-69 may face the current forfeiture of most or all of social security benefits if he or she continues working full time. Worker

[15] Phillip Cagan, op. cit.

attitudes toward retirement might change if the test were eliminated at age 65 (and maintained for covered workers aged 62–64).

Sparse information is available on retired workers' attitudes toward returning to work or on what the effect on workers' retirement plans would be if the retirement test were eliminated. Two recent studies based on the Social Security Administration Retirement History Study focused on the availability of retired persons for work and on determinants of retirement. Both studies indicate that few persons who retire would return to work if net wage rates were increased, but these studies are handicapped because respondents were interviewed about retirement or work while under the cloud of an existing retirement test. Dena Motley [16] in reporting on former workers aged 62–67 concludes that it appears that no more than 12 percent of such retirees would be very likely or even able to return to work. Joseph Quinn [17] in studying the determinants of early retirement noted that he could discern no evidence that an individual's wage rate or change in wage rate was an important determinant of retirement status. Quinn was cautious in interpreting this particular observation, however, as the insignificance of wage rates in the retirement decision may be a consequence of the earnings restriction itself. Other facets of the decision to retire as highlighted by Quinn also complement Motley's findings on the decision to return to work after retirement.

What about workers who have not yet retired? It is known that in 1975 a total of 484,000 workers aged 62, or 32.7 percent of all permanently insured workers aged 62, elected reduced early retirement benefits. More than 209,000 additional workers aged 63 and 123,000 workers aged 64 elected early retirement during that year. Cumulatively, 54.1 percent of permanently insured workers aged 64 were receiving early retirement benefits in 1975. [18]

Social Security Administration data from 1975 indicate that 69.5 percent of retired workers aged 65–69 and receiving OASI had elected early retirement benefits. [19] The vast majority of retired workers in this age class, therefore, have been out of the labor force 2–7 years. In the first year of impact of eliminating the retirement test, what percentage of these retired individuals would be able to find gainful full-time employment?

If the retirement test were eliminated, the policy action might affect early retirement decisions of individuals who are not yet aged 62. Some individuals who view the test as a

barrier to work at age 65 may see it as a further impetus to an early retirement decision. (Early retirement is not effectively penalized under the Social Security Act, since the OASI benefits are actuarially adjusted.) Other individuals may increase their work effort in the years immediately before age 65 because they feel that the presence of the current test precludes further work after age 64. Again, no definitive basis exists for predicting the response of those potentially retiring early if the test were removed.

In summary, it can be expected that some retired workers aged 65–69 would reenter the labor market if the retirement test were eliminated. Some workers approaching a decision to retire early or to retire now could also be expected to continue their current employment at least through age 65. No previous studies were available that would provide any basis to estimate the relative magnitudes of individuals involved.

Estimates

The Treasury Department's statistically merged file of the SOI–SIE survey [20] provides estimates of all individuals and couples who file an income-tax return and of those who do not file a return. The sub-file for this study, therefore, approximates the total population aged 65–69. One difference is that the sub-file of the present study includes all couples where the principal wage earner is aged 65–69 although the spouse is not necessarily in this age bracket.

Each individual in the population must be counted either in individual (including all categories not joint) tax returns or joint tax returns, whether actually filed or constructed. A specification of "retired" is used for workers aged 65–69 with zero earned income in 1978. [21] The OASI benefits of the completely retired workers are reported in the SOI-SIE survey and statistically merged with Treasury records.

The principal wage earner on joint returns is identified as the retired individual with the greater OASI benefits. This individual in most instances is the husband. One cannot discern from the OASI benefits of the spouse (most likely the wife) whether he or she has previously worked or is drawing benefits as the wife or husband of a retired worker. [22] The spouse with zero earned income in 1978 is excluded from the base of retired workers who might return to the labor force. The basis for the estimates of retired workers returning to employment because of the elimination of the test is therefore restricted to all retired individuals and all joint-return retired principal wage earners.

This exclusion of spouses with zero earned income in

[16] Dena K. Motley, "Availability of Retired Persons for Work: Findings From the Retirement History Study," Social Security Bulletin, April 1978.

[17] Joseph Quinn, "Microeconomic Determinants of Early Retirement," Journal of Human Resources, summer 1977.

[18] The number of individuals aged 64 with early retirement benefits in 1975 is the sum of early retirees (aged 62) in 1973, aged 63 in 1974, and aged 64 in 1975. Disabled workers are excluded from consideration.

[19] Two separate groups of retired workers in 1975 are viewed. The first group are OASI permanently insured workers aged 64 in 1975. Within this group, 54.1 percent were receiving early retirement benefits. The second group consists of permanently insured workers aged 65–69 in 1975 who are retired; 69.5 percent of this group were receiving early retirement benefits.

[20] Office of Tax Analysis, Department of the Treasury, Statistics of Income; Bureau of the Census, Survey of Income and Education, 1978.

[21] This is a most stringent specification of "retired" and may differ from alternative concepts of "retired" as used in some Social Security Administration tabulations.

[22] Spouses with positive 1978 earnings are discussed in the section on individuals still active in the labor force. The principal taxpayer in this study must be aged 65–69; spouses may be any age.

1978 does introduce some biases in estimation. The pool of retired workers is understated by the number of previously working spouses. The average earnings of workers who would return or remain in the labor force is biased upward by restricting the analysis to principal wage earners. Moreover, one spouse may be more likely to defer retirement if the other spouse is still active in the labor force.

Only retired workers who are qualified as permanently insured for OASI benefits are potentially affected by the presence of a retirement test. All retired individuals and retired principal wage earners who are not receiving OASI benefits therefore are also excluded from the pool of potential workers. Some of these workers are retired on government pensions. The noncovered retirees in 1978, however, tend to be dominated by low-wage and part-time workers. Exclusion of these retirees also further biases the potential worker pool toward individuals with higher average wages. In addition, for some retired workers presently receiving old-age benefits, the constructed average annual earnings when projected to 1978 would be less than the current $4,500 retirement earnings ceiling. For these low-wage retired workers, presumably, the decision to return to work is unaffected by the presence or elimination of the test, and they have been excluded from the tax effects estimates. These three considerations mutually reinforce the bias in the subfile of retired workers who potentially would continue work or return to work toward those workers with records of median or greater than median previous earnings. The opportunities for further employment also may be greater for this sub-group than for total retired workers.

An estimated 3 million retired workers are the basis for potential reentrants into the labor force if the retirement test is eliminated, as the figures that follow show.

Item	Estimates (in millions)
Retired workers:	
Permanently insured [1]	5.7
Individuals or principal wage earner [2]	3.8
Individuals or principal wage earners with constructed annual earnings above $4,500 [3] . . .	3.0

[1] Adjusted from Social Security Administration 1977 preliminary data.

[2] As classified in Treasury merged file. Excludes retired spouses.

[3] As classified in Treasury merged file. Excludes retired persons with low earnings.

Since these individuals are identified as "retired" because they showed no earned income in 1978, potential full-time earnings have to be constructed. The first step is to use annual OASI benefits received as the basis to determine "average monthly earnings" (AME) under the Social Security Act. The available AME for each retired worker aged 65–69 is an average of covered earnings for 14–19 years before retirement and therefore understates representative earnings for 1978. The AME, in turn, is adjusted upward by the annual percentage increase in average hourly earnings of workers covered by the social security program in each of

the 9 years 1970–78. The 1978 average of the consequent constructed average earnings of all relevant retired workers (spouses with previous work history and constructed low-wage workers excluded) is $13,470. This amount can be compared with the Office of the Actuary estimate of $10,480 for the average annual earned income of workers currently contributing to the system in 1978 (with no distinction between part time and full time), based on average taxable earnings for the first quarter.

The income-tax returns of the sample individuals (individual and joint returns) were recalculated on the assumption that the individual or the primary household wage earner would realize his constructed earnings based on the adjusted AME if the retirement test were removed. The fact that the AME is calculated on OASI taxable earnings will understate the potential of high-wage workers whose previous earned incomes exceeded the taxable maximum. In the other direction, elderly individuals might not be able to continue work or resume work at wage rates as high as those enjoyed in the years immediately before retirement age.

Net tax-liability changes were calculated for all fully insured retired workers with constructed annual earnings above $4,500 who were classified as individuals (and all other returns not joint) and primary household wage earner on joint returns, whether or not such returns actually were filed. One-tenth of the net changes in income tax and payroll tax liabilities is then taken as representative of 10 percent of this select group of retired workers who defer retirement or return to work at annual earnings estimated from their adjusted AME. The taking of one-tenth of total tax-liability changes attributed to these retired entitled workers assumes that the 10 percent of retired workers who do return to work are representative of this group as a whole. This may not be the case. Dena Motley [23] noted that the maximum 12 percent of retirees who would be very likely or even able to return to work is biased toward the less-educated who had worked predominantly in blue-collar jobs with more modest earnings.

Table 3 summarizes the tax effects in eliminating the retirement test for permanently insured retired individuals and primary wage earners aged 65–69. The selection of 10 percent as an upper boundary—as the proportion of the select group of retired workers aged 65–69 (including retiring workers aged 65) who would continue full-time employment—is a personal judgment. Phillip Cagan [24] also based his estimates on the assumption that 10 percent of such retired workers continued or returned to employment full time. He notes, "As an illustration of what seems a large number but which is still conceivable, suppose 1/10 (of retired workers with no earnings) worked full-time. . . . Some of the panel find this far too high an estimate, but it does illustrate a range of possibilities for this large group for which no firm basis for an estimate exists."

[23] Dena K. Motley, op. cit.

[24] Phillip Cagan, op. cit.

Table 3.—Number of workers, change in earned income, and increase in income taxes and OASDHI taxes resulting from elimination of retirement test, by income-tax filing status of retired worker aged 65–69, 1978

[Estimates in thousands]

Income-tax filing status	Number of workers [1]	Change in earned income	Increase in—	
			Individual income taxes	OASDHI taxes [2]
Total.............	299,000	$4,028,933	$786,450	$539,877
Individual [3]............	148,000	1,294,485	211,130	173,461
Married principal wage earner............	151,000	2,734,448	575,320	366,416

[1] Represents 10 percent of filed and nonfiled returns of retired workers with constructed annual earnings of above $4,500.

[2] Based on 1982 combined employee-employer tax rate of 13.4 percent.

[3] Includes filed and nonfiled returns of single persons, married persons filing separately, and heads of households.

The present study stresses that the suggestion is not necessarily that all the workers in this group would come out of complete retirement and return to the labor force full time because of the elimination of the retirement test. Ten percent of the select group represents 299,000 workers aged 65–69 who otherwise would be in full retirement. It could be suggested that, with 1975 data used to determine relative weights, the interpretation could mean that about 25 percent (111,000) of the estimated 446,000 permanently insured workers who retired in their sixty-fifth year in 1978 would continue full time for one more year (with one-half, or 56,000, of these "extended" workers continuing for 2 more years) and that about 5 percent, or 132,000, of the remaining relevant permanently insured retired workers would return to the labor force full time, solely because of the elimination of the retirement test.

Since these figures are merely illustrative, other combinations are possible—those continuing work beyond age 65 and retired workers returning to the labor force—that will add to the total of 299,000. The above illustration does show, however, the importance of relative weights of different decisions that individuals within this age class must make: To continue current employment, to seek alternate employment, to retire, or to return to the labor force from retirement.

It is felt that the aggregate 10 percent of these retired workers aged 65–69 returning to or continuing work full time for at least one more year because of the elimination of the test is a reasonable upper boundary. Even in the absence of mandatory retirement provisions, elderly workers who now are retiring are constrained by many considerations from continuing employment or returning to the labor force. No basis for an alternate figure is apparent.

Conclusion

One can combine the net tax-revenue changes of current elderly workers returning or continuing in the labor force to

Table 4.—Increase in OASDHI taxes and individual income taxes resulting from elimination of retirement test, by type of worker aged 65–69, 1978

[Estimates in thousands]

Type of worker aged 65–69	Increase in—	
	OASDHI taxes [1]	Individual income taxes
Total...........................	$678,613	$977,774
Current worker	138,736	191,324
Retired worker—10 percent of selected workers........................	539,877	786,450

[1] Based on 1982 combined employee-employer tax rate of 13.4 percent.

obtain the total estimated tax-revenue effects in eliminating the retirement test. These estimates are contingent on the key assumptions used in selecting labor-response multipliers for current elderly workers—the assumption that 10 percent of retired workers aged 65–69 would either return to or continue in the labor force—and other judgments. Table 4 summarizes the net tax-revenue effects.

The Office of the Actuary estimates OASI benefit payouts in 1978 as $2.1 billion if the retirement test were eliminated for those aged 65–69. The $678.6 million increase in payroll taxes is calculated with a 1978 data base and 1982 OASDHI tax rates. The 1982 OASDHI tax rates are applied because of the known statutory increases in tax rates for 1982. [25]

The increase in payroll taxes, as calculated, represents a 32-percent offset to the estimated increase in social security payouts. Note that, although the OASI trust fund will bear all the additional cost benefit payments, only a portion of the estimated payroll taxes generated will flow into this fund. The balance will be distributed between the DI and HI trust funds as table 2 shows.

The estimate that increased payroll tax receipts would be 32 percent of increases in OASI benefits can be compared with estimates by Cagan. [26] Cagan noted that when one also considers retired workers, his calculated $830 million increase in payroll taxes (OASDI only) would be 33.2 percent of his $2.5 billion increase in OASI benefits payouts in 1975. He used the 1975 retirement test and OASDI tax rates. Since that time the test has been liberalized and is to be eliminated for beneficiaries aged 70–71 so that the number of workers affected by the test will be reduced and the estimated OASI benefit payout is down to $2.1 billion in 1978.

The estimated increase in individual income-tax receipts because of increased earned income is $977.8 million. If one were to add the estimated increase in payroll taxes and individual income taxes, the combined figure of $1,656

[25] Given the decoupled system, increases in benefits and wages between 1978 and 1982 for the new cohort aged 65–69 should be roughly equal. The increase in the tax rate represents a "net" increase in the proportion of the increase in benefits offset by additional tax revenues.

[26] Phillip Cagan, op. cit.

million for increased receipts in the "unified budget" represents about 79 percent of the increase in OASI benefit payments with the retirement test eliminated for workers aged 65–69. The $977.8 million in additional individual income-tax receipts presumably would be part of general funds, with the $678.9 million payroll tax receipts credited to the respective social security trust funds.

The response by retired workers to elimination of the retirement test is crucial to the tax revenue estimates. Removal of the test may affect the decision to retire as well as considerations to return to the labor force from retirement status. The potential pool of affected workers is a select subset of all retired workers aged 65–69 receiving OASI benefits in 1978. Note that an assumption of workers continuing or returning to the labor force equal to 10 percent of select current retired individuals aged 65–69 may be interpreted as 25 percent of workers currently retiring at age 65 and continuing full-time work for at least one more year, with one-half of these workers continuing for a second year, and 5 percent of the remaining retired workers returning to the labor force. Likewise, an assumption of 5 percent of select retired workers continuing or returning to work may be interpreted as 13 percent of retirees aged 65 continuing at least one more year, with one-half of these individuals maintaining employment a second year, and 2 percent of select retired workers returning to the labor force. Other allocations are possible. Three cases are presented in table 5 that represent alternative assumptions regarding select, current retired workers aged 65–69 who would continue in or return to the labor force if the retirement test were abolished.

Technical Note No. 1

The labor-supply multipliers applied to earnings after elimination of the retirement test are given below by earnings class, according to the amount of earned income of the principal taxpayer.

Earnings of principal taxpayer—$1–3,600

1. Unmarried. Workers in this class could have increased their earnings to $4,500 without losing benefits but chose not to. Consequently, no change in the hours worked by this group is expected after elimination of the test. (See relevant part of text for choice of $3,600 as class boundary.)

2. Married, spouse earnings—0
   a. Principal taxpayer, no change.
   b. Spouse, no change.

3. Married, working spouse. In this case, the response of the spouse to the increased wage rate, as well as that of the principal taxpayer, must be considered. Labor-supply multipliers for the spouse are specific to the prerepeal earnings of the spouse.
   a. Spouse earnings—$1–3,600. Since both members of the couple were not influenced by the retirement

Table 5.—Increase in OASDHI taxes and individual income taxes, increased OASI benefits, and percent of benefits recovered as a result of eliminating the retirement test, by alternative work behavior cases of retired workers aged 65–69, 1978

[Estimates in thousands]

| Alternative work behavior cases of retired workers aged 65-69 | OASDHI and individual income taxes | | | Increased OASI benefit | Percent of benefits recovered |
| | Total | Increase in— | | | |
		OASDHI taxes	Individual income taxes		
Case 1: Only current workers who alter their work behavior........	$330,060	$138,736	$191,324	$2,100,000	15.7
Case 2: Same as case 1 and 5 percent of current workers	993,224	408,675	584,549	2,100,000	47.3
Case 3: Same as case 1 and 10 percent of current workers [1]	1,656,387	678,613	977,774	2,100,000	78.9

[1] Individuals or principal wage earner with constructed annual earnings above $4,500.

test, no changes in hours worked by either would be expected.

b. Spouse earnings—$3,601–4,500. Since the principal taxpayer's earnings were not influenced by the retirement test, no change in his work behavior is assumed. If the spouse is aged 65–69, an earnings multiplier of 1.35 is chosen to apply to the spouse's current earnings. This figure represents a downward adjustment of the 1.4 multiplier applied to working spouses' earnings above the test ceiling. (See text tabulation on page 25.) The adjustment is made to reflect the fact that the portion of increased earnings below the $4,500 ceiling would not have been subject to the 50-percent marginal tax before elimination of the test.

c. Spouse earnings—$4,501–10,464. No change is assumed in the principal taxpayer's tax effort, but the spouse realized a net wage effect of 1.4 times his or her original earnings.

d. Spouse earnings—above $10,464. Assume no change in the principal taxpayer's work effort, but the spouse realized an income effect from the increase in family income. This negative income effect is calculated by multiplying .05 times the average annual benefit for an individual.

Earnings of Principal taxpayer—$3,601–4,500

1. Unmarried. Multiply earnings by 1.14. This multiplier reflects a downward adjustment of Boskin's 1.16 multiplier, which is applied to all principal wage earners earning more than the retirement test ceiling in effect before its elimination. The adjustment is made because earnings less than $4,500 before elimination are not subject to marginal tax.

2. Married, spouse earnings—0. Multiply current earnings by 1.14 as in item 1 above.

3. Married, working spouse. Where both persons are working and at least one is earning beyond $3,600 and therefore sensitive to the retirement test, both the positive substitution effect and the negative income effect must be accounted for as well as their interaction in producing the joint family income. Again, the spouse response will vary depending on the level of earnings.

a. Spouse earnings—$1–3,600. Here one would expect the spouse to experience only an income effect in response to the principal taxpayer's new level of earnings since he or she probably was not choosing the level of work effort based on the retirement test. Therefore, to determine new family earnings, multiply the principal taxpayer's earnings by 1.14, add the earnings of the spouse, and subtract from that .05 times the change in the principal taxpayer's earnings.

b. Spouse earnings—$3,601–4,500. In this case the spouse is likely to be choosing a level of work effort in response to the retirement test. For that reason, the same multiplier (1.35) for spouses aged 65–69 as was used for this class of spouse of the principal taxpayer with earnings of $1–3,600 is chosen to increase spouse earnings. The principal taxpayer's earnings are multiplied by 1.14, and the combined earnings and social security benefits of worker and spouse aged 65–69 are then reduced by .05 times the change in principal taxpayer earnings to account for the income effect.

c. Spouse earnings—$4,501–10,464. The same multipliers are used as in the item immediately above, except that 1.4 instead of 1.35 is used because all previous spouse earnings were subject to the tax.

d. Spouse earnings—above $10,464. Principal taxpayer earnings are multiplied by 1.14. The spouse realizes a double income effect as a response to increased family income from previously withheld benefits as well as from the increase in earnings of the principal taxpayer generated by his increased work effort.

Earnings of principal taxpayer—$4,501–10,464 ($14,482)

1. Unmarried. Multiply current principal taxpayer earnings by 1.16 ($10,464 relevant maximum).

2. Married spouse earnings—0. Multiply current principal taxpayer earnings by 1.16 ($14,482 relevant maximum).

3. Married, working spouse ($10,464 relevant maximum).

a. Spouse earnings—$1–3,600. Same as under principal taxpayer with earnings of $3,601–4,500 at the similar level of spouse earnings, except principal taxpayer earnings multiplied by 1.16 instead of 1.14.

b. Spouse earnings—$3,601–4,500. Same as under principal taxpayer with earnings of $3,601–4,500 at the similar level of spouse earnings, except for modification of principal taxpayer earnings at this level.

c. Spouse earnings—$4,501–10,464. Same as under principal taxpayer with earnings of $3,601–4,500 at the similar level of spouse earnings, except for modification at this level.

d. Spouse earnings—above $10,464. Same as under principal taxpayer with earnings of $3,601–4,500 at the similar level of spouse earnings, except for modification at this level.

Principal taxpayer earnings greater than $10,464 ($14,482)

1. Unmarried ($10,464 relevant minimum). At this level of earnings one expects the income effect to dominate and work effort to be reduced slightly. To obtain new earnings the change in income due to receipt of previously withheld benefits (average annual benefits for 1978) was multiplied by .02 and subtracted from current earnings.

2. Married, spouse earnings—0 ($14,482 relevant minimum). Multiply the change in income due to the receipt of previously withheld family income by .02 and subtract from current earnings.

3. Married, working spouse ($10,464 relevant minimum).

a. Spouse earnings—$1–3,600. The principal taxpayer experiences the same income effect as in the item immediately above. The spouse responds by reducing his or her earnings by .05 times the net change in principal taxpayer income as stated in the preceding item.

b. Spouse earnings—$3,601–4,500. The principal taxpayer reduces his or her work effort as for married taxpayer with zero spouse earnings. The total effect on the spouse aged 65–69 is found by multiplying his or her earnings by 1.35 and then subtracting .05 times the net change in principal taxpayer income. For spouses under age 65, earnings are reduced by .05 times the change in principal taxpayer income.

c. Spouse earnings—$4,501–10,464. The same as preceding item, except for upward adjustment of 1.35 to 1.4.

d. Spouse earnings—above $10,464. The principal taxpayer experiences an income effect, and the spouse responds by reducing his or her earnings by .05 times the change in combined family incomes.

Technical Note No. 2 *

The estimates presented here are based on an extract of the 1978 MATCH sample of the Department of the Treasury. The extract covers the population of all tax units, both filing and nonfiling, in which at least one individual in the tax unit was in the age interval 65–69. The 1978 MATCH sample is constructed from essentially two data sources:

(1) The 1975 Statistics of Income (SOI), a stratified sample of more than 200,000 unaudited tax-return forms 1040 and 1040A filed by U. S. citizens and residents during calendar year 1976 for calendar year 1975; [27] and

---

* Prepared by Roy A. Wyscarver, Office of Tax Analysis, Office of the Secretary of the Treasury.

[27] For a more detailed description of this sample and the sampling procedures, see **Internal Revenue Service, Statistics of Income—1975 Individual Income Tax Returns,** Department of the Treasury, 1978, pages 180–181.

(2) The 1975 Survey of Income and Education (SIE), a sample survey containing data on demographics, housing, health, money and noncash income, and assets for 151,195 U. S. households. [28]

Neither of these data sources, however, is used in its original form.

Sample Design

The actual methodology used to produce the 1978 MATCH sample is still in the development stage, and the documentation that exists covers several hundred pages. The sample design is described briefly here.

Beginning with the 1975 SOI, the Office of Tax Analysis draws a 50,000 subsample of annual tax returns, stratifying in order to optimize the estimate of taxes paid. This sample is edited and corrected to generate a production 1975 SOI subsample. To the tax-return data on each record is appended exact age, race, and sex through an identifier match with social security earnings records.

The 1975 SIE sample is also subsampled to yield 50,829 households. Each household in the 50,829 subsample is disaggregated into tax units, thus producing a 1975 SIE subsample of 76,692 tax units. The 1975 SIE subsample of tax units is then further divided into a set of filers (60,094 tax units) and nonfilers (16,598 tax units).

Since the 1975 SOI subsample and the set of filers from the 1975 SIE subsample are both on a tax-unit basis, these files could be "matched" if an attribute existed on each file that would permit an "exact match." No such attribute exists. Common attributes on the two samples can be used to perform an attribute match, given some criterion for determining which "match" in the set of all feasible matches is the "best" match.

This determination is made by constructing a *distance function* that yields a weighted measure of the information dissimilarity between an SOI tax return and a filing SIE tax unit. In other words, the distance function assesses a penalty that varies directly with the degree of mismatching.

Given the distance function, [29] the task of matching the two samples can be formulated as a classical transportation problem where the 1975 SOI subsample represents the "source" and the set of filers in the 1975 SIE subsample represents the "sink," and the distance function is to be minimized.

The size of this problem—50,000 nodes and up to 62 million admissible arcs—is extremely large and required the use of an extended transportation system algorithm [30] that matches tax returns with SIE tax units. The algorithm is designed so that a tax return in the 1975 SOI subsample may be "split" or matched with more than one tax unit in the set of filers in the 1975 SIE subsample. [31] Since it is required that the adjusted weights sum to the original weights, however, the statistical properties of both samples are maintained while achieving the lowest possible information dissimilarity, as measured by the distance function.

The actual output from the transportation algorithm is a set of linkages that identifies the tax filing SIE records in the 1975 SIE subsample of filers that will be "matched" with each tax return in the 1975 SOI subsample. These linkages are employed to append selected data from the appropriate tax filing SIE record in the 1978 SIE sample (as aged by the MATH Model [32]) to each tax record in the 1975 SOI subsample. Thus, each filing tax-unit record contains 1975 law-and-levels SOI data and extrapolated 1978 law-and-levels SIE data.

Once the 1978 SIE has been linked with the 1975 SOI, a process known as the "post merge" is performed. In the "post merge," each 1975 SIE tax unit that was a member of the set of nonfilers is retrieved from the 1978 SIE sample. Since none of these SIE tax units was matched with a SOI tax return, a synthetic 1978 SOI tax "return" is created from the available SIE data. Thus, each nonfiling tax unit contains a synthetic SOI tax return and selected SIE data. The nonfiling tax units are merged with filing tax units to produce a sample of 126,663 tax units.

At this point, the full MATCH sample still contains 1975 law-and-levels SOI data for all of the tax-filing population. In the final adjustment, the 1975 law-and-levels SOI data is extrapolated to 1978 law and levels by employing the Department of the Treasury's personal individual income-tax model extrapolation.

---

[28] For a more detailed description of this sample, see **Data Access Descriptions—Microdata from the Survey of Income and Education** (No. 42), Bureau of the Census, January 1978.

[29] The distance function used 13 common attributes: Age, race, sex, family size, gross income, wages and salaries, self-employment nonfarm income, self-employment farm income, property income, wife's wages and salaries, State code, schedule code, and original weight.

[30] Developed for Office of Tax Analysis by Analysis, Research and Computation, Incorporated, Austin, Texas.

[31] "Splitting" a tax-return record means that a tax-return record may be linked as many times as necessary as long as the weights on the linked tax returns sum to the original weight. For example, a tax return with a weight of 1,000 may be split into three records with weights of 100, 200, and 700, or any other combination whose sum equals 1,000. The number of times a tax return is split and the apportioning of the original weight among the split returns depends on the SIE tax units that the tax return is matched with and the weight of those SIE tax units.

[32] The MATH (Micro Analysis of Transfer Households) Model developed by Mathematica Policy Research is a software package used to simulate the impact of tax and transfer programs by aggregating over household level data. Aging or extrapolating a data file entails reweighting the records and adjusting each record's income and deductions to make the sample representative of the personal income-tax-paying population in a year other than the year for which the observations actually relate.