
The Impact of the Unit of Observation on the Measurement of the Relative Importance of Social Security Benefits to the Elderly

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Introduction

Financial adequacy in retirement largely depends on Social Security, pensions, and savings—commonly referred to as the “three-legged stool” of retirement income. Correspondingly, the elderly who receive all of their income from Social Security benefits are recognized as being economically vulnerable. *Income of the Population 55 or Older, 2004* reports that 21 percent of beneficiary aged units 65 or older received all of their income from Social Security. Other publications using the same data source as *Income of the Population 55 or Older, 2004* have produced different statistics that appear contradictory. The primary purpose of this article is to explain how the choice of the unit of observation plays a role in our perception of the relative importance of Social Security benefits for the elderly.

The unit of observation may be a person, family, marital unit, or other grouping of persons. The unit of observation is important because it performs two functions. First, it is the unit that gets counted and is the base for computing percentages. For example, consider two families—a poor family of two persons and a nonpoor family of six persons. Half of the families (one of two) are poor, but only 25 percent of the persons (two of eight) are poor. Second, the unit of observation may also dictate the boundaries for the income

being considered. A married person may have no personal income while his or her spouse does. Many would assume that spouses share income, making statistics based only on personal income undesirable when the objective is to consider the resources available. Others may want to know what income each person contributes to their unit, which would make statistics based on personal income preferred.

Data and Concepts

The Social Security Administration (SSA) has been producing two series of publications on the income of the elderly and near-elderly—*Income of the Population 55 or Older*, since 1976, and the *Income of the Aged Chartbook*, since 1990. Both series are derived from the Annual Social and Economic Supplement, also known as the March Supplement, to the Current Population Survey (CPS), conducted every March by the U.S. Census Bureau.¹ For comparability with data in *Income of the Population 55 or Older, 2004* (SSA 2006), this article uses data on 2004 income from the March 2005 Supplement to the CPS.²

Research about the income of the elderly often asks one of two types of questions: what income do elderly persons *provide* for themselves and those they live with, and what income is *available as a resource* for the elderly? Different units of observation can be

useful for answering one question or the other but also can be misleading if an unsuitable unit is chosen.

Statistics for *persons* are based solely on the income and demographic attributes (age, sex, race, or Hispanic origin) of each person; no spousal or other family income is included. Statistics on person income provide information on the resources an aged person contributes to his or her living unit. These statistics do not necessarily answer questions on the resources available to an aged person.³

Statistics for the *family income of persons* are also based on the demographic attributes (age, sex, race, or Hispanic origin) of each person. Total income from all family members (related through blood, marriage, or adoption) is treated as another attribute of the person. If any person in the family has income from a specific source, the aged person is considered to be in a recipient family. These statistics are designed to answer questions on the resources available to an aged person.

Statistics for *aged units* treat each marital unit (married couple or nonmarried individual) as one unit.⁴ A nonmarried individual has only his or her own income and demographic attributes. In SSA's two data series (cited earlier), aged units classified as "65 or older" are defined as follows:

- nonmarried persons 65 or older, or
- married couples in which either
 - the husband is 65 or older, or
 - the husband is younger than 65 and the wife is 65 or older.⁵

All other demographic characteristics for a married couple, including the sample statistical weight, are that of the husband. Income for the married couple is the sum of both spouses' income; if either spouse has income from a specific source, the married couple is considered to be a recipient unit. The aged unit focuses

on the income of the aged, whether they live with other family members or not, while still recognizing married couples as economic units that share resources (Fisher 2005).

Statistics on aged-unit income are intended to be flexible enough to answer a variety of questions, but with a couple of qualifications. First, unlike person statistics in which each person counts as a unit, aged-unit statistics treat each married couple as one unit and each nonmarried person as one unit. Interpreting aged-unit statistics in the same way as person statistics will emphasize the economic well-being of nonmarried persons relative to that of married persons. Second, aged-unit statistics exclude the income of other family members, which may not provide a complete picture of the resources available to the unit.

Table 1 illustrates the differences across units for median total money income. Median income is higher for aged units than it is for aged persons because aged-unit income includes the combined income of two persons for married couples. Median family income of persons 65 or older is higher still because it includes income from all family members, not just a spouse. The number of units is the same for persons and family income of persons because only the attribute of interest (person versus family income) has changed. The number of aged units is lower than that for persons because a married couple is counted as one unit, not two persons.

The Unit of Observation and the Relative Importance of Social Security

The choice of unit of observation and the choice of whose income to include as a resource have large effects on the estimation of the sources and amounts of income available to the elderly. Tables on the relative importance of Social Security in *Income of the Popula-*

Table 1.
Median income, by unit of observation, 2004

	Persons 65 or older	Aged units 65 or older	Family income of persons 65 or older
Median income (dollars)	14,710	20,481	28,698
Number of units (thousands)	35,213	26,865	35,213

SOURCES: Social Security Administration; author's calculations using the March 2005 Supplement to the Current Population Survey.

NOTE: Standard errors can be computed using data from U.S. Census Bureau (2005).

tion 55 or Older and *Income of the Aged* have reported statistics for aged units. In addition to being a unit of observation, the aged-unit designation in this article bounds the resources being considered as income received by the individual or couple and excludes income from other, nonspouse family members.

As a point of comparison, official poverty statistics are calculated for persons on the basis of family income. The poverty statistic compares a person's total family income to a poverty threshold on the basis of the number and ages of persons in the family. If the same methodology were used for the reliance measure, a person would be considered 100 percent reliant on Social Security if all of his or her family's income came from Social Security. This differs from the current measure based on the aged unit in two ways: (1) the aged unit excludes income from family members other than a spouse (resource bounds); and (2) the aged-unit definition counts a married couple as one unit, just as a nonmarried person counts as one unit (unit of observation).

To illustrate the importance of the unit of observation, consider the following example based on three elderly persons (Table 2). Alice receives all of her income from Social Security benefits, while Bob and Cindy receive other income in addition to their Social Security benefits. If the person is the unit of observation and the income basis, then 33.3 percent of the elderly are 100 percent reliant on Social Security benefits. If the aged unit is the unit of observation and the income basis, the 100 percent reliance on Social Security statistic changes according to marital status:

- If all three persons are not married, then one of three units (33.3 percent) is completely reliant on Social Security (Example A);

- If Alice and Bob are married, then no units (0 percent) are completely reliant on Social Security (Example B); or,
- If Bob and Cindy are married, then one of two units (50.0 percent) is completely reliant on Social Security (Example C).

Finally, as illustrated in Examples D and E, if the person is the unit of observation and the family is the income basis, scenarios in which Alice is a relative of Bob or Cindy results in a 0 percent rate of complete reliance on Social Security; if Alice is a one-person family, the rate of complete reliance on Social Security is 33.3 percent.

In this example, the difference between the two measures with the person as the unit of observation comes solely from what income basis is considered. Comparing the cases for the aged unit in which all persons were nonmarried with the case in which only the completely reliant individual (Alice) was unmarried illustrates how counting a married couple as one unit places emphasis on the economic resources of nonmarried persons.

Using the aged unit as a unit of observation also requires additional choices as to which spouse's characteristics are attributed to a married unit. In *Income of the Population 55 or Older*, the aged unit's race and ethnicity are the husband's race and ethnicity. The age of the married unit is the husband's age, unless the husband is under age 55, in which case the married unit's age is the wife's age. Also, the sample weight applied to the married aged unit is the husband's sample weight. Finally, a considerable number of spouses differ in age; men in particular are more likely to marry a younger woman, as shown by the estimate

Table 2.
Example of relative importance of Social Security benefits, by unit of observation and income basis (in percent)

Example	Person income of person	Aged-unit income of aged unit	Family income of person
A. Alice, Bob, and Cindy are not married and are not family members	33.3	33.3	33.3
B. Alice and Bob are married; Cindy is not married	33.3	0	0
C. Bob and Cindy are married; Alice is not married	33.3	50.0	33.3
D. Alice and Bob are a nonspouse family; all are not married	33.3	33.3	0
E. Bob and Cindy are married; Alice is a nonspouse family member	33.3	50.0	0

SOURCE: Social Security Administration; author's calculations.

NOTE: Alice receives all of her income from Social Security benefits. Bob and Cindy receive other income in addition to their Social Security benefits.

Table 3.
Receipt of income of persons or units aged 65 or older, by marital status and sex, 2004

	All persons	Married		Nonmarried		Married couples	All aged units
		Men	Women	Men	Women		
Number (thousands)	35,213	10,858	8,420	4,292	11,643	10,930	26,865
Percent with—							
Earnings	18.0	25.1	15.7	17.9	13.1	36.9	23.5
Retirement benefits	91.0	92.1	90.2	90.5	90.9	93.1	91.7
Social Security	88.2	88.1	87.8	87.3	88.8	90.1	89.1
Public pensions	11.6	14.3	8.6	12.6	10.9	18.5	14.2
Private pensions	23.8	32.4	11.8	29.2	22.4	36.5	29.2
Asset income	55.6	64.1	61.7	47.8	46.3	67.4	55.1
Public assistance	3.5	1.5	1.7	4.7	6.1	2.4	4.4
Supplemental Security Income	3.3	1.5	1.5	4.7	5.9	2.2	4.2

SOURCES: Social Security Administration; author's calculations using the March 2005 Supplement to the Current Population Survey.

NOTE: Standard errors can be computed using data from U.S. Census Bureau (2005).

of 10.9 million married men aged 65 or older and only 8.4 million women aged 65 or older.⁶

Table 3 compares the percentages receiving income from various sources for the different units of observation and income bases. Married persons and couples are more likely to receive income from sources other than Social Security benefits than are nonmarried persons, except for public assistance.⁷

These differences based on sex and marital status are responsible in part for the lower rates of 100 percent reliance on Social Security when using the person as the unit of observation based on family income (Table 4). In March 2005, approximately 23.6 percent of elderly aged units and 21.3 percent of elderly persons in the CPS were living with nonspouse family members; inclusion of nonspouse family income is

responsible for the remainder of the drop in complete reliance on Social Security benefits.⁸

Conclusion

The unit of observation has a large effect on the perceived well-being of the elderly. Earlier editions of the Social Security Administration's publication *Income of the Population 55 or Older* that were published before the 2004 edition have only shown statistics on the relative importance of Social Security for aged units.⁹ But the aged unit focuses on the income of aged persons and married couples alone and not on that of the families in which they live.

Beginning with the expanded 2004 edition, *Income of the Population 55 or Older* will add statistics using the person as the unit of observation and treating

Table 4.
Heavy reliance on Social Security of persons or units 65 or older, by unit of observation and income basis, 2004

Unit of observation	Income basis	90 percent or more from Social Security	100 percent from Social Security
Person	Person	36.2	22.1
Aged unit	Aged unit	31.1	19.5
Person	Family	23.3	13.3

SOURCE: Social Security Administration; author's calculations using the March 2005 Supplement to the Current Population Survey.

NOTE: Standard errors can be computed using data from the U.S. Census Bureau (2005). To calculate standard errors, the following base populations should be used: persons based on person income (33,679,000); aged units (25,891,000); and persons based on family income (34,418,000).

family income as an attribute of the person to provide additional information on the economic well-being of the elderly. The official poverty measure considers all income received by all members of the family when considering whether a person is in poverty; that is, the assumption is that family members can pool their resources, regardless of whether or not they do. Considering persons on the basis of family income would be consistent with current and recommended poverty measures and would provide an additional interpretation of the relative importance of Social Security benefits.

Notes

¹ The Annual Social and Economic Supplement was formerly called the Annual Demographic Survey.

² All calculations from the CPS are weighted.

³ The use of person income can be problematic. First, some sources of income may be jointly received by a married couple but allocated to only one spouse in survey data (for example, interest income from a jointly held account). Second, some surveys, including the CPS, ask a representative of the household (called the reference person) about each individual's income. Preliminary research indicates that the reference person may report income received by one person as being received by another (for example, a husband is reported as having received both his and his wife's Social Security benefits). Income for married couples or families is less likely to be distorted by these kinds of survey errors. Although SSA does not generally report statistics on person income in its *Income of the Population 55 or Older* series, such measures are included in this analysis to place SSA statistics in context with other reports that use person income. For examples, see Chapters 6 and 7 of Employee Benefit Research Institute (2006) and Whitman and Purcell (2006).

⁴ The aged unit is used in the *Income of the Population 55 or Older* and *Income of the Aged Chartbook* series.

Persons who are widowed, divorced, never married, separated, or married but living apart from their spouse are classified as nonmarried persons.

⁵ In both the *Income of the Population 55 or Older* and *Income of the Aged Chartbook* series, the age of a married couple is the age of the husband if he is 55 or older; otherwise, the age of the married couple is the age of the wife if she is 55 or older.

⁶ Similar choices would need to be made if the family or the household were the unit of observation. Using the family (or household) income of a person eliminates the need for these choices.

⁷ Pensions are the exception for women, most likely because nonmarried women may be receiving survivor's benefits from a deceased husband's pension.

⁸ In the CPS, 24.0 percent of married couples and 41.1 percent of nonmarried persons who reported 100 percent reliance on Social Security benefits were living with nonspouse family members.

⁹ The 2004 expanded publication is forthcoming and will be available on the Web only. Future editions (2006 and forward) will follow the expanded format.

References

- Employee Benefit Research Institute. 2006. *Income statistics of the population ages 55 and over* (chapter 6) and *Sources of income for persons ages 55 and over* (chapter 7), updated October 2006. EBRI Databook on Employee Benefits. <http://www.ebri.org/publications/books/index.cfm?fa=databook> (accessed November 28, 2006).
- Fisher, T. Lynn. 2005. Measurement of reliance on Social Security benefits. Paper presented at the Federal Committee on Statistical Methodology Research Conference, Washington, DC, November 15.
- [SSA] Social Security Administration. 2006. *Income of the Population 55 or Older, 2004*. Washington, DC: Office of Policy, Office of Research, Evaluation, and Statistics.
- U.S. Census Bureau. 2005. *Source and accuracy of estimates for income, poverty, and health insurance coverage in the United States: 2004*. http://www.census.gov/hhes/www/income/p60_229sa.pdf (accessed June 21, 2007).
- Whitman, Debra, and Purcell, Patrick. 2006. *Topics in aging: Income and poverty among older Americans in 2005*. Congressional Research Service Report for Congress RL32697, updated September 21, 2006.