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ALTERNATIVE ESTIMATES OF ECONOMIC WELL-BEING BY AGE USING DATA ON WEALTH AND INCOME

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Social Security Administration

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Division of Economic Research

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We have critically read and approved the attached manuscript. The tables, computations, statistical methodology, and the citations have been examined in this Division, and we believe all to be correct and in proper form.

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Social Security Administration

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ALTERNATIVE ESTIMATES OF ECONOMIC WELL-BEING BY AGE USING DATA ON WEALTH AND INCOME*

I. Introduction

Most analyses of economic status use only income as the measure of resources. It is clear, however, that wealth also plays an important role in economic well-being. The existence of both income and asset tests for eligibility purposes in several government transfer programs (e.g., Supplemental Security Income, Aid to Families with Dependent Children, food stamps) suggests the importance of both wealth and income. Units of the same age, income, and needs are not equally well off if they have different amounts of wealth. A fully satisfactory way of taking differences in wealth into account in a combined income-wealth measure is not available. Particularly controversial is the comparison of different age groups when such measures are used. This exploratory paper examines the use of income-wealth measures for the analysis of the distribution of economic well-being for age groups in the current period.

The scarcity of data perhaps has been one reason for the relative neglect of wealth. For many years, little information on the distribution of wealth among households was available in the U.S. There was some information on the wealth of wealthy persons from estate tax returns and from special household surveys (e.g., Smith 1974; Lampman 1962; Barlow, Brazer, and Morgan 1966). Information for the vast majority of households,

however, was very scarce. The Federal Reserve Board's 1962 Survey of Financial Characteristics of Consumers was an important exception (Projector and Weiss 1966). That survey obtained information on wealth for the entire distribution, although the sample size was quite small.

In recent years several data sources that contain information on wealth for the household population have become available. Examples of recent household surveys that contain extensive information on wealth include the Federal Reserve Board's 1983 and 1986 Surveys of Consumer Finances (Avery et al. 1984, Avery and Kennickell 1988), the University of Michigan's Panel Study of Income Dynamics (Curtin, Juster, and Morgan 1989), and the Census Bureau's Survey of Income and Program Participation (SIPP)(U.S. Bureau of the Census 1986b). The distribution of wealth has been examined using these surveys. Because these surveys also collected information on income, both wealth and income can be analyzed jointly. This increase in available data has sparked some renewed interest in analyses of economic status that take both wealth and income into account (e.g., Radner 1984, Radner and Vaughan 1987, Wolff 1987, Chollet and Friedland 1988, Crystal and Shea 1989).

The best way of using income and wealth data together is controversial. The appropriate method depends on the use to which the estimates will be put. Combining income and wealth is a complex problem, primarily because income is a flow, while wealth is a stock. This paper discusses several ways in which income and wealth data have been used together in the analysis of

economic status. The effects of using different methods of taking wealth into account on the well-being of age groups in the current period are analyzed. How much difference the choice of a method makes is discussed. The emphasis here is on the economic status of age groups, with the focus on the aged. Thus, measures that are appropriate for the comparison of age groups are needed here. Economic status in the current period, rather than from a longer (e.g., lifetime) perspective, is emphasized. It should be noted that, in addition to the problems of taking account of wealth and income jointly, income-wealth measures have all of the problems encountered when income (or wealth) is used to assess economic well-being. For example, the appropriate recipient unit, definition of income (and wealth), and adjustment for differential needs must be specified. The data used are from the 1984 SIPP.

When the economic status of age groups is compared, the question usually is how well off each age group is now, not at some past or future time. Current incomes are often compared and inferences made about how well off each group is. It would be useful to be able to make similar comparisons using current income and current wealth. The focus on such comparisons in this paper leads to the use of the current period as the appropriate time period.

Section II of the paper contains a summary of the basic elements of measures that use wealth and income data together to measure economic status in the current period. Examples of measures that have been used are discussed. Several desirable

properties for a current-period income-wealth measure are suggested and the extent to which various measures have those properties is discussed. Estimates of current-period economic well-being are presented for several measures in section III. These estimates are used to compare the relative positions of different age groups when various measures taking both wealth and income into account are used. Median amounts for several measures are presented and discussed. Then the lower part of the distribution is examined by showing, for several measures, the proportion of each age group that is in that part of the distribution. The paper concludes with a summary and conclusions in section IV.

II. Income-Wealth Measures

There are several basic ways in which wealth has been taken into account in assessing economic well-being. The first method considers only money income. Thus, wealth is included only as the money return on assets. Only income data are needed for this method. Assets that have no return in the form of money income (e.g., equity in owner-occupied homes and motor vehicles, some real estate) have no effect on such a measure. One modified version of this measure that requires some wealth data includes in income an imputed income flow from home equity. The second method looks only at the stock of wealth. Only wealth data are needed here (unless Social Security wealth, pension wealth, and/or human capital are included in the definition of wealth).

Methods that consider only wealth will not be discussed in this paper. The other methods discussed here use data on both income and wealth.

A. Basic elements of income-wealth measures

Several elements of income-wealth measures discussed in this paper can be identified. It is important to note that, although these elements are discussed separately here, they are interrelated.

The treatment of wealth is the most important element. The most widely used method is the conversion of wealth into an annuity. That method of taking wealth into account is discussed in some detail below, along with other methods.

The wealth that is included is a second element. Some asset types might be excluded. For example, home equity has been excluded because it produces a service flow. Amounts of wealth can also be excluded for bequests and/or the financing of expenses related to contingencies.

The income that is included is a third element. Some income types might be excluded. Property income is often excluded from current income because it is taken into account in the valuation of wealth.

The time horizon is a fourth element. The current period is used in this paper, but a longer (e.g., lifetime) period can be used. One year is usually chosen as the income period, but a

shorter or longer period can be used. Future earnings have been taken into account in some cases.

B. Examples of measures used

The most widely used income-wealth measure in the analysis of the distribution of economic well-being is the conversion of wealth into an annuity and the summing of that annuity and current money income excluding property income. The stock of wealth is converted into a constant annuity income stream in this measure (e.g., Murray 1964, Weisbrod and Hansen 1968, Taussig 1973, Moon 1977, Wolfson 1979). The interest rate and the time period for which the annuity will continue must be specified to compute the factor that is applied to current wealth to obtain the annuity value. Various interest rates, both real and nominal, have been used. The time period chosen has usually been the expected remaining lifetime of the unit. Where the unit is larger than one person, this time span often takes into account the expected remaining lifetimes of both the unit head and spouse of the head. The surviving spouse is often assumed to receive an annuity that is two-thirds of the annuity received by the couple.

Several researchers have commented on problems associated with a measure that sums the annuity value of wealth (using expected remaining lifetimes) and current nonproperty income. Projector and Weiss (1969) emphasized that life-cycle patterns of spending and saving should be taken into account in such a measure. Although young units generally have little wealth

currently, their wealth can be expected to increase as they age. Such life-cycle increases are ignored by a measure of this type. Young units are assumed to draw down their wealth just as aged units are assumed to do. Thus, such a measure is considered by them to be inappropriate for the comparison of age groups.[1]

For a given amount of current wealth, the annuity measure (using expected remaining lifetimes) has the property that the shorter the expected remaining lifetime, the higher the annuity value of that wealth. That is, for given amounts of current income and current wealth, the older the unit is, the better off it is considered to be. This property is present when comparing persons of different ages at the same time or comparing the same person at different times. Taussig (1973) cited this property as a problem for the annuity-based estimates that he presented. This property is even a problem within the aged group as usually defined (age 65 and over) because of the wide range in ages included in that group.[2,3]

Another issue is the possible inconsistency between the annuity formulation and people's actual behavior. The existing evidence suggests that many people do not draw down their assets after retirement.[4] Also, purchase of annuities is relatively rare. Several researchers (e.g., Murray 1964, Weisbrod and Hansen 1968) stated that the annuity method was appropriate as a measure of potential consumption regardless of people's actual behavior.

Several researchers have used a modified version of the ordinary annuity method. In this version the annuity allows the

unit to reach the same indifference curve as the unit's optimal consumption path, rather than the highest constant real consumption path. It has been claimed that the modified version is more firmly grounded in economic theory and is less mechanical than the usual annuity method because the modified method takes into account the unit's consumption choices (Beach 1981). Some researchers have used this type of annuity in conjunction with estimates of future earnings (Nordhaus 1973, Irvine 1980), while others have combined it with current income (Beach 1981).

Several other measures have also been used. In looking at current potential consumption, wealth and income have been summed (e.g., David 1959, Steuerle and McClung 1977, Radner 1990). In this case, ordinarily a subset of total wealth is used. Home equity is usually excluded because it is not considered to be readily available for current consumption.

An arbitrary fraction of wealth has been added to income to illustrate the effects of different weighting of wealth relative to income (Steuerle and McClung 1977). Income flows have also been converted to stocks of wealth (e.g., Hurd and Shoven 1983). Imputed rent from equity in owner-occupied homes has been included in income by many researchers (e.g., Wolff 1987).

Wealth and income have also been considered jointly in a two-dimensional classification (e.g., Habib, Kohn and Lerman 1977; Radner 1984, 1989a, 1989b; Wolff 1987). For example, Radner and Vaughan (1984, 1987) examined the percentage of each age group that had both relatively low income and relatively low wealth. In a related use, amounts of wealth have been compared

with poverty income gaps for poor units and the impact on measured poverty of including the drawing down of wealth to eliminate those gaps has been calculated (Projector and Weiss 1966, Ruggles and Williams 1989). Also, the percentage of households that had financial assets greater than a given number of months of that household's income has been computed (Radner 1989a).

C. Desirable properties of a current period measure

It can be concluded from the discussion of income-wealth measures that have been used that no satisfactory measure for the analysis of the economic well-being of age groups in the current period has been found. In this section, three simple desirable properties for such a measure are suggested.

In the usual comparisons of economic well-being that are based on current income, it is ordinarily assumed that if one unit has more income than another unit, then the unit with more income is better off (assuming identical needs). If the two units have identical incomes, then they are equally well off. Analogous properties for a current period income-wealth measure are suggested here.

Confining the analysis to the current period means that many life-cycle factors are not considered. For example, prospects for future income have no effect on the measure. Also, the fact that the aged have had more time to accumulate wealth than other age groups have had is not taken into account. Ordinary

comparisons of income also do not take life-cycle factors into account.

Three properties are suggested. Identical needs are assumed.[5]

(1) If two units have identical amounts of income and identical amounts of wealth, then they should have identical values of the income-wealth measure.

(2) If two units have identical amounts of income, but one has more wealth than the other, then the unit having the higher amount of wealth should have a higher value of the income-wealth measure.

(3) If two units have identical amounts of wealth, but one has more income than the other, then the unit having the higher amount of income should have a higher value of the income-wealth measure.

Annuity measures that use expected remaining lifetimes do not have any of these three properties. The first property is violated because persons with different expected remaining lifetimes will have different annuity values for wealth. The second property is violated because a young person with higher wealth could have a lower annuity value than an older person with lower wealth. The third property is violated because the younger person could have an annuity value of wealth that was lower by enough to offset the income difference between the younger person and the older person. In fact, a younger person who has more

income and more wealth than an older person could have a lower value for the expected remaining lifetime annuity income-wealth measure than the older person.

Income-wealth measures that use expected remaining lifetimes (whether or not in an annuity formulation), or that use differing lengths of time for different units in other ways, do not have any of these three properties. Measures that consider only income or only wealth have only two of the three properties. Measures that sum income and a fraction of wealth (e.g., those shown later in this paper) have all three properties. In those measures, a difference in income or wealth always produces a difference in the same direction in the income-wealth measure. It should not necessarily be assumed, however, that those measures are the most appropriate. These properties could be considered necessary for an appropriate measure, but they certainly are not sufficient.

III. Estimates

A. Data and definitions

The estimates in this paper were made using data from Wave 4 of the 1984 SIPP.[6] That wave contained information from interviews conducted in September through December 1984. The household is the unit of analysis. The estimates shown here are based on information for 18,701 households. Households are classified by age according to the characteristics of the

householder, the person (or one of the persons) in whose name the residence is owned or rented.[7] It should be noted that, when this classification method is used, some aged persons are included in nonaged households and some nonaged persons are included in aged households.

Two definitions of wealth, net worth and financial assets, are used in this paper. Financial assets are generally considered to be more liquid than net worth, primarily because net worth includes equity in owner-occupied homes.[8] Net worth is defined to be equity in assets minus unsecured debt. Equity in assets consists of the following five items: (1) Equity (market value minus debt) in owner-occupied homes; (2) equity in motor vehicles; (3) equity in business, professional practice, or farm; (4) equity in rental property, vacation homes, and other real estate; and (5) financial assets. Financial assets include passbook savings accounts, money market deposit accounts, certificates of deposit, interest-earning checking accounts, money market funds, U.S. government securities, municipal or corporate bonds, stocks and mutual fund shares (less associated debt), U.S. savings bonds, IRA and Keogh accounts, regular checking accounts, mortgages held for sale of real estate, amount due from sale of business or property, other interest-earning assets, and other financial assets. The reference date for asset amounts was the last day of the month preceding the interview. It should be noted that social security wealth and pension wealth are not included in assets.

Unsecured debt includes credit card and store bills, doctor, dentist, hospital and nursing home bills, loans from financial institutions and individuals, and educational loans. The reference date for debt amounts was also the last day of the month preceding the interview. Although the value of household durables is not included in wealth, debt incurred to purchase those items is included in unsecured debt.[9]

It is important to note several problems with the SIPP wealth data. Aggregate amounts of home equity and vehicle equity appear to be overstated substantially, while financial assets, equity in business and rental property, and unsecured debt appear to be underestimated substantially (U.S. Bureau of the Census 1986b, table D-3). Although there is uncertainty about the accuracy of the independent aggregates used in these comparisons, the size and pattern of the differences suggest a problem. There is also general agreement that the SIPP estimates of the upper tail of the wealth distribution are not very good. The emphasis in this paper is on households that are not wealthy. Thus, the accuracy of the estimates of the upper tail is not an important concern here. Also, item nonreponse rates were high for amounts of many financial assets. Missing amounts were imputed by the Census Bureau. Nonresponse rates for asset ownership were low.

The income estimates used here are 4-month amounts that have been annualized (by multiplying them by three). The income information is for the 4 months preceding the interview month. Thus, the amounts are for the May through November 1984 period. Income is defined to be money income before taxes or other

deductions. The definition includes wages and salaries, nonfarm and farm self-employment income (both measured as the salary or other income received from the business by the owner, rather than as net profit), interest, dividends, rent, royalties, Social Security and railroad retirement benefits, Supplemental Security Income payments, unemployment compensation, veterans' benefits, workers' compensation, Aid to Families with Dependent Children, government and private pensions, alimony, income from estates and trusts, and other income types. Lump-sum and one-time payments, such as inheritances or insurance settlements, are included. Capital gains or losses are excluded, as are accrued interest on IRA's, Keogh plans, and U.S. savings bonds. A definition that will be used in this paper, nonproperty income, excludes interest, dividends, rent, and royalties from total money income.

The amounts of income and wealth used in this paper have been adjusted to take into account differential need associated with differences in household size and age of householder. Each household's income and wealth were divided by the appropriate value from an equivalence scale based on the scale implicit in the U.S. poverty thresholds.[10] A one-person household (all ages) was used as the base for the scale.[11]

B. Measures compared

Five measures are compared in this section. Variations of some of those measures are shown later. The principal purpose of these comparisons is an examination of the sensitivity of the

results to differences among the methods of taking wealth into account. The first measure includes only income and consists of total money income before taxes (TMI). This is the definition of resources ordinarily used in the analysis of income.[12]

The other four measures are income-wealth measures that combine data on income and wealth in various ways. One measure sums nonproperty income (NPI) and the annuity value of wealth (NPI+ANW).[13] The expected remaining lifetime of the householder and a real interest rate of 2 percent were used in computing the annuity.[14] The assumption that the interest rate was a real rate produced an annuity that was fixed in real terms.[15]

The second measure sums nonproperty income and one-third of wealth (NPI+W/3). The fraction used is arbitrary and merely serves to illustrate this type of measure. The use of a fraction of one-third is equivalent to the use of an annuity of about 3.1 years for all age groups (with a 2-percent interest rate).

The third measure sums nonproperty income and a fraction of wealth (NPI+W/x), where the fraction 1/x is chosen so that the aggregate value of the fraction of wealth is equal to the aggregate value of the annuities for the current year. The fraction is much lower than the one-third used in the previous measure; the fraction is about 1/14 for financial assets and 1/15 for net worth. Using 1/x is equivalent to the use of an annuity for all age groups of 16.5 years for financial assets and 18.0 years for net worth (with a 2-percent interest rate). Comparisons between NPI+W/x and NPI+ANW show the effect of the

use of different expected remaining lifetimes for different households.

The fourth measure also sums nonproperty income and a fraction of wealth (NPI+W/c). The fraction is 1/c, where c = 10 for the first $6,000 of wealth and c = 3 for the excess of wealth over $6,000.[16] A smaller fraction is added in for the first $6,000 in order to allow for wealth set aside for contingencies. In this formulation, $5,400 (roughly the poverty threshold for one person in 1984) of the first $6,000 of wealth is excluded. The fractions and cutoff amount used are arbitrary and are used for purposes of illustration.[17]

Property income is excluded from income in all four income-wealth measures. The annuity method makes this exclusion and the exclusion is made for the other three measures discussed in this section in order to simplify the comparisons.[18,19] As noted earlier, NPI+ANW does not have any of the three desirable properties discussed earlier. The other three income-wealth measures shown here, however, do have all three properties.

The four income-wealth measures differ in the proportion of wealth that is considered to be available for consumption in the current period. The NPI+ANW measure takes account of both the asset amount and an interest component. This measure assumes that a constant real amount of wealth plus interest that is consistent with exhausting that wealth over the expected remaining lifetime of the unit is available in the current period. The NPI+W/3 measure assumes that one-third of wealth is available in the current period. No interest component is

included. The NPI+W/x measure assumes that the fraction 1/x of wealth is available, where x is 13.94 for financial assets and 14.97 for net worth, while the NPI+W/c measure assumes that the fraction 1/c of wealth is available (where c is 10 for the first $6,000 of wealth and 3 for the excess over $6,000).

In contrast to the income-wealth measures, TMI includes only the money income flow from the wealth. This income flow is a nominal flow, not a real flow. When the price level is rising, the nominal flow includes compensation for inflation, as measured by the decline in the real value of the asset. That part of the value of the wealth is counted as "being available for consumption" if the nominal flow is used. The size of the percentage decline in value is approximately the same as the rate of inflation.[20] The inflation rate was about 4 percent in 1984.

The differences among these income-wealth measures can also be viewed in terms of the relative weights assigned to wealth as opposed to income. The relative weight assigned to wealth can be put in terms of a fraction applied to the household's amount of wealth. Of the four specific income-wealth measures used here, NPI+W/3 assigns the highest relative weight to wealth. That measure includes 33.3 percent of financial assets and net worth (table 1). In this measure, the weight applied to wealth does not vary among households. The NPI+W/c measure has the next highest weight for wealth. That measure includes 29.4 percent of financial assets and 31.2 percent of net worth. The weight applied to wealth varies among households by size of wealth; the weight is lower for small amounts of wealth than for large

amounts.[21] The NPI+ANW and NPI+w/x measures assign the lowest relative weight to wealth. (By construction the weights for these two measures are equal.) These measures include 7.2 percent of financial assets and about 6.6 percent of net worth. In the NPI+ANW measure, the weight varies by age group. The older the age group (or, more precisely, the shorter the expected remaining lifetime), the higher the weight. The weights vary from about 0.03 for the youngest households to about 0.18 for the oldest.[22] In this method, the interest rate chosen affects the relative weight assigned to wealth. The higher the interest rate used, the higher the annuity value, ceteris paribus. The weight for the NPI+W/x measure does not vary among households. The overall weight for wealth in TMI is the ratio of aggregate annualized property income to aggregate wealth. The ratio of annualized property income (as defined in this paper) to financial assets (as defined in this paper) was 0.081. The ratio of annualized property income to net worth (as defined in this paper) was 0.027.[23]

C. Medians

Medians by age of householder for NPI, financial assets (FA), and net worth (NW) (adjusted for household size) are shown in table 2. The NPI medians peak in the 45-54 age group, while the financial asset and net worth medians peak in the 65-74 age group. Thus, combining NPI and FA or NW would be expected to

improve the relative status of the aged compared with the relative status shown by NPI.

Medians by age of householder for the five measures discussed above are shown in table 3 and figures 1 and 2, and the corresponding relative medians (using all ages as 1.00) are shown in table 4 and figures 3 and 4. All amounts have been adjusted for household size.

1. Using financial assets

The all ages median is highest for NPI+FA/3 ($16,600), followed by NPI+FA/c ($16,000).[24] The NPI+ANFA and TMI measures have lower medians ($14,600), and NPI+FA/x has the lowest median ($14,500). These rankings are generally consistent with the relative weights assigned to wealth in the different measures.

The pattern of median TMI by age is a familiar one. Amounts are relatively low at the two age extremes and relatively high in the middle age groups. Median TMI peaks in the 45-54 age group at $18,700, and is lowest in the 75 and over age group at $9,300 (figure 1). The relative median for the 75 and over age group (0.63) is roughly one-half of the relative median for the 45-54 age group (1.28) (figure 3 and table 5). The two aged age groups have lower medians than all other age groups except the youngest one.

The economic status of the aged relative to other age groups is improved substantially when the definition of resources is changed from TMI to NPI+FA/3. The median of NPI+FA/3 rises with

age to a peak in the 45-54 age group ($20,600), then falls. The relative medians for the 65-74 age group (0.98) and the 75 and over age group (0.79) are substantially above the TMI values. Despite these increases, however, the median for the 75 and over age group is still only 63 percent of the peak median. The median for the 75 and over age group is still below all medians in the 25-64 age range, while the median for the 65-74 age group is still below all medians in the 35-64 age range.

The NPI+ANFA measure would be expected to show the relative economic status of the aged to be lower than the NPI+FA/3 measure showed because the relative weight assigned to wealth in NPI+ANFA is much lower. On the other hand, the lower expected remaining lifetime of the aged applied in NPI+ANFA would be expected to make the aged relatively better off. The results show that, for the specification used here, the relative weight differences between the two measures are much stronger than the differences produced by the expected remaining lifetime differences among age groups.

When the NPI+ANFA measure is used, the median rises with age to a peak in the 45-54 age group ($18,400), then falls. The peak is in the same age group as it was for TMI. The lowest median is found in the 75 and over age group ($10,200), and the relative median for that age group is only 0.70. The median for that age group is only 55 percent of the median for the peak age group. The median for the 75 and over age group is high relative to the median for the 65-74 age group for this measure (figure 1). As is the case for TMI, the two aged age groups have lower medians

than all the age groups in the 25-64 age range. The relative medians for NPI+ANFA are quite close to the relative medians for TMI except in the 75 and over age group, where the NPI+ANFA relative median is somewhat higher. That group has the shortest expected remaining lifetime. For the aged age groups, the NPI+ANFA relative medians are below the relative medians obtained for those age groups when NPI+FA/3 is used.

It should be noted that, for each age group under age 65, the NPI+ANFA median is less than or equal to the TMI median. The difference is largest in the 55-64 age group. The medians are also equal in the 65-74 age group. For each of those age groups, the aggregate annuity value of financial assets is less than the aggregate amount of property income. This comparison is quite sensitive to the interest rate used in computing the annuity and to the level of actual interest rates in 1984. As discussed earlier, a 2-percent real interest rate is used in NPI+ANFA, while annualized property income was about 8 percent of financial assets.

The aged would be expected to be relatively less well off when NPI+FA/x is used than when NPI+ANFA is used. This should be the case because in NPI+FA/x all age groups have the same fraction of wealth included, while in NPI+ANFA the aged have a higher fraction included than other age groups. Wealth has the same overall weight in both measures. The aged should also be less well off when NPI+FA/x is used than when NPI+FA/3 is used because the weight applied to wealth is much higher in NPI+FA/3. The aged should show about the same relative position when

NPI+FA/x and TMI are used because the weights applied to wealth are about the same.

When NPI+FA/x is used, the median rises with age to a peak in the 45-54 age group ($18,500), then falls. The lowest median is in the 75 and over age group ($9,000), and the relative median for that age group is only 0.62. The median for that age group is only 49 percent of the median for the peak age group. The two aged age groups have lower medians than any age group in the 25-64 age range.

When NPI+FA/x is used, relative medians are very similar to those obtained when TMI is used. The relative median for the 75 and over age group is lower when NPI+FA/x is used than when NPI+FA/3 or NPI+ANFA is used. The relative median for the 65-74 age group is about the same (0.83-0.84) when NPI+FA/x, TMI, and NPI+ANFA are used. The relative median for that age group when NPI+FA/3 is used, however, is substantially higher (0.98).

The final measure examined is NPI+FA/c. Because of the relatively high weight assigned to wealth, it is expected that the aged would be relatively better off when this measure is used than when TMI, NPI+ANFA, or NPI+FA/x is used. It is not clear whether NPI+FA/c or NPI+FA/3 would be expected to be more favorable for the aged.

When NPI+FA/c is used, the median rises with age to a peak in the 45-54 age group ($20,000), then falls. The lowest median is in the youngest age group ($11,800), with the median for the 75 and over age group slightly higher ($11,900). The relative median for the 75 and over age group is 0.74. The median for the

75 and over age group is only 60 percent of the median in the peak age group. The median for the 75 and over age group is below the median for each age group in the 25-64 age range, while the median for the 65-74 age group is below the median for each age group in the 35-64 age range.

2. Using net worth

Median net worth is higher than median financial assets for each age group, and the differences are substantial dollar amounts for the groups age 35 and over (table 2). The age patterns for the four income-wealth measures when net worth is used, however, generally are similar to those found when financial assets are used. Medians rise with age, then fall (tables 3 and 4 and figures 2 and 4). For NPI+NW/3 and NPI+NW/c, however, the median peaks in the 55-64 age group rather than in the 45-54 age group.

Because amounts of net worth usually are much larger than amounts of financial assets, net worth generally has a higher weight relative to income than financial assets do. Thus, relative medians for the aged are higher when net worth is used. For the 75 and over age group, the relative median is highest for NPI+NW/3 (1.09) and NPI+NW/c (1.08). These values are high because of the high weight assigned to wealth in these measures. For that age group the relative median is 0.93 for NPI+ANNW. Although the weight assigned to wealth in this measure is low, this value is high because of the effect of the relatively short

expected remaining lifetime. The relative median for that age group is only 0.70 for NPI+NW/x because that measure combines the low weight for wealth with a constant factor applied to wealth for all age groups. The relative median for the 75 and over age group for TMI is 0.63.

Although the relative medians for the 75 and over age group are high for three of the four income-wealth measures, the ratio of the median for that age group to the median for the 45-54 age group is far lower. That ratio is highest for NPI+NW/3 (0.82) and NPI+NW/c (0.81) (table 5). But the ratio is only 0.75 for NPI+ANNW and 0.54 for NPI+NW/x. The ratio is 0.50 for TMI.

For the NPI+ANNW measure, the median for the 75 and over age group is high relative to the median for the 65-74 age group. The ratio of those medians is 0.96, whereas that ratio is no higher than 0.86 for any of the other measures. This difference results from the impact of the relatively short expected remaining lifetime of the oldest age group.

3. Several alternative specifications

Two alternative specifications of the annuity measure and one alternative specification of the W/3 measure are shown in table 6 in order to provide further information about the sensitivity of the results to changes in the specification. The first alternative annuity specification uses expected remaining lifetimes, but a 5 percent real interest rate in the annuity computation (Radner 1989c). This alternative assigns a higher

weight to wealth than the 2 percent interest rate version does. The shift from a 2 percent rate to a 5 percent rate produces only small changes in relative medians. For example, the relative median for the 75 and over age group rises from 0.70 to 0.71 when financial assets are used and from 0.93 to 0.95 when net worth is used.

The second alternative annuity uses a 2 percent real interest rate, but a time period for the annuity that is longer than the expected remaining lifetime that was used. In this version the time period is defined to be 100 minus the age of the householder. For example, the time period for a 65-year-old would be 35 years, rather than the 17 years expected remaining lifetime. When expected remaining lifetime is used, roughly half of householders can be expected to outlive the time period used for the annuity. When this alternative version is used, only very few can be expected to outlive the time period. This alternative version provides evidence about the sensitivity of the results to the expected remaining lifetime specification.

The relative medians for this specification are lower for the aged than when the expected remaining lifetime is used. For the measure that uses financial assets, the relative median for the 75 and over group is only 0.63, which is similar to the TMI (0.63) and NPI+FA/x (0.62) relative medians for that age group. When net worth is used in the measure, the relative median is only 0.73, which is far below the 0.93 obtained when expected remaining lifetimes are used, and somewhat above the 0.70 obtained when NPI+NW/x is used. The aggregate value of wealth

for this alternative is only 56-58 percent of the aggregate obtained when expected remaining lifetimes or W/x are used. The value of wealth assigned in this alternative is less concentrated in the aged group than when expected remaining lifetimes are used, but more concentrated in the aged group than in W/x. The combination of these two differences produces the differences in relative medians.

The alternative specification of the W/3 measure uses TMI in place of NPI. This alternative assumes that all property income is available in the current period, rather than none (as is assumed when NPI is used). The impact of this change on relative medians is small for the young age groups and moderate for the aged. When financial assets are used, the relative median of the 75 and over age group rises from 0.79 to 0.84. When net worth is used, the increase is smaller, from 1.09 to 1.12 for that age group.[25]

D. Lower part of the distribution

The previous section examined medians and relative medians for different measures of economic status. It is also useful to consider more than just a measure of central tendency of the distribution. In this section the proportions of households in each age group that are in the bottom of the distribution when several alternative measures are used are discussed.

In addition to two of the income-wealth measures shown in the previous section, a two-dimensional income-wealth

classification is used here. Interest in such a measure results from the lack of a fully satisfactory measure that combines income and wealth. In this low income and low wealth (LILW) measure, the bottom portion of the distribution is defined to be those households that have total money income that is less than one-half median total money income (for all ages) and wealth that is less than one-half median wealth (for all ages).[26] Both income and wealth are adjusted for household size in these comparisons. Estimates are shown using financial assets and net worth as the definitions of wealth (table 7). The two-dimensional classification does not produce a complete ordering of households by size of income-wealth as the other income-wealth measures do. The two-dimensional classification can, however, identify a portion of the joint distribution such as the portion with both low income and low wealth. The measure shown here has only the first of the three desirable properties discussed earlier.

In the LILFA (low income and low wealth, using financial assets) measure, quite low amounts of financial assets can disqualify a household from being in the bottom of the income-wealth distribution. This happens because median financial assets, and therefore one-half the median, are quite low. One-half the median, after adjustment for household size, was only $871. Thus, although income and wealth are assigned equal weight as classifiers in this measure, because of the shape of the distribution of financial assets, many aged (and other) households are excluded from the bottom category even though they have amounts of financial assets that are quite small. About 42

percent of all households and 25 percent of aged households had financial assets that were less than one-half the median (table 7). One-half the median income (annualized) was $7,312 after adjustment for household size. About 20 percent of all households and 29 percent of aged households had income that was less than one-half the median.

When net worth is used instead of financial assets, the wealth cutoff is substantially higher. Median net worth, after adjustment for household size, was ($21,400). Thus, the cutoff of one-half the median was $10,700. About 39 percent of all households and 21 percent of aged households had net worth that was less than one-half the median.

The comparisons between LILW and the other measures are carried out by tabulating the weighted number of households of all ages that have both low income and low wealth as defined above and then identifying that weighted number of households at the bottom of the distribution when each of the other measures is used. The LILFA group consisted of 13.293 million households (15.2 percent of all households). Thus, the bottom 13.293 million households when each of the other measures was used was identified in the comparison that used financial assets. When net worth was used, the LILNW group consisted of 11.636 million households (13.3 percent of all households).

1. Using financial assets

The percentage of each age group that is in the bottom 15.2 percent of the distribution is shown for LILW, TMI, NPI+ANW, and NPI+W/3 in table 8 and figure 5. The age pattern for LILFA shows high percentages at young ages that decline to a low in the 45-54 age group (11.7 percent) and rise in the older age groups. The 75 and over age group has 16.4 percent in this bottom group, while the under 25 age group has 25.3 percent. This pattern is similar to patterns found earlier by Radner (1984, 1989a, 1989b) and Radner and Vaughan (1987) when a slightly different formulation, and, in some cases, earlier data were used.[27]

The relatively high percentages for the aged age groups result from the relatively high percentages with low income for those groups (table 7). The 75 and over age group shows 35.9 percent with low income and 23.7 percent of the 65-74 age group are counted as having low income. These percentages are higher than for any age group in the 25-64 age range. The percentages with low financial assets, however, are lowest for the aged age groups (23.4 percent for the 75 and over age group and 25.7 percent for the 65-74 age group). For the 75 and over age group, only 46 percent of households with low income also had low financial assets, the lowest percentage of any age group. In contrast, 91 percent of households in the under 25 age group that had low income also had low financial assets.

Both of the other income-wealth measures show a similar pattern of high percentages at young ages followed by a decline

to a low in the 45-54 age group and then a rise in the older age groups (figure 5). The TMI measure also shows a similar pattern. The similarity of these patterns reflects the fact that many households have no financial assets or very small amounts of those assets. If the amounts are zero or very small, then the method used to take them into account will make little or no difference. About 15 percent of all households and 12 percent of aged households had no financial assets (Radner 1989a).

Although the results are generally similar for the various measures, there are some differences. For this part of the distribution, the LILFA measure makes the aged relatively better off (i.e., shows a lower percentage) and the young worse off than when the other income-wealth measures shown are used. The NPI+ANFA measure makes the aged relatively worse off and the young relatively better off than when the other income-wealth measures are used. The NPI+FA/3 measure has relatively high percentages for the aged age groups. If TMI were included in these comparisons, TMI would have the lowest percentages for the four age groups under age 55 and the highest for the 65-74 and 75 and over age groups.

The percentages for the 45-54 age group are similar for all of the measures (including TMI). The spread is only 0.6 percentage points (11.1 to 11.7 percent). The spread in the estimates for the under 25 age group is 2.9 percentage points. The differences for the 75 and over age group are much greater. The spread for those estimates is 9.4 percentage points. This sensitivity for the 75 and over age group is primarily due to the

low estimate for LILFA and is related to the presence of households that are just above the cutoff points for inclusion in the bottom group for that measure.[28]

2. Using net worth

The pattern when net worth is used is generally similar to the pattern found when financial assets are used (table 8 and figure 6). The age pattern shows high percentages at young ages that decline to a low in the middle age groups and rise in the older age groups. For the LILNW and NPI+NW/3 measures, however, the lowest percentage occurs in the 55-64 age group, rather than in the 45-54 age group. Also, the NPI+ANNW and NPI+NW/3 measures show substantially lower percentages for the 75 and over age group than when financial assets were used. The LILNW measure has the highest percentage of the three income-wealth measures for that age group. When financial assets were used, LILFA had the lowest percentage in that age group. For the 75 and over age group, there is less difference among the measures than when financial assets were used. For example, the spread among the measures (including TMI) for the 75 and over age group is only 6.8 percentage points when net worth is used. The spread for the under 25 age group, however, is larger (6.0 percentage points) when net worth is used.

As in the case of financial assets, the relatively high percentages for the aged age groups result from high percentages with low income. Only 22.2 percent of the 75 and over age group

had low net worth, and only 44 percent of households in that age group that had low income also had low net worth. The 55-64 age group shows fewer with low net worth (19.1 percent) than with low financial assets (28.4 percent). Thus, the percentage in the LILNW group (8.2 percent) is lower than the percentage in the LILFA group (12.6 percent) for that age group.

3. A three-dimensional classification

The results obtained when a three-dimensional classification is used were also examined. The three dimensions are income, home equity, and wealth excluding home equity. This represents a different way of taking home equity into account. Because home equity plays a unique role in personal portfolios (as a place of residence as well as an asset), it is useful to treat home equity differently from other assets. Home equity is not taken into account in LILFA, but is a part of net worth in LILNW.

In this three-dimensional classification, the income classification was defined as above. Presence or absence of equity in owner-occupied home was used as the home equity classifier -- if the household had positive home equity, then that household was excluded from the bottom group. This is clearly a strong condition. The third dimension, wealth excluding home equity, was applied in two forms -- financial assets and net worth excluding home equity. The financial assets classification was defined as above. The net worth excluding home equity classification was defined in an analogous way.

Households that have net worth excluding home equity that is less than one-half median net worth excluding home equity (for all ages) are considered to be in the lower group. Net worth excluding home equity was adjusted for household size for this comparison.

When financial assets are used, 10.3 percent of all households were in the bottom part of the distribution when the three-dimensional classification (LILFA3) is used (table 9). The percentages are high for the youngest age groups (23.3 percent in the under 25 age group), decline through the 55-64 age group (6.0 percent), and rise slightly for the aged (8.3 percent). For the 75 and over age group, only 23 percent of households with low income also had low financial assets and no home equity. This classification shows that more than 8 percent of aged households have low income, low financial assets, and no home equity. This is a more stringent classification than either LILFA or LILNW.

A comparison of the LILFA and LILFA3 percentages shows that 68 percent of LILFA households had no home equity (10.3/15.2). In the 75 and over age group, 50 percent of LILFA households had no home equity, with the percentage rising to 57 percent in the 65-74 age group. Only 48 percent of the LILFA households in the 55-64 age group had no home equity, but 92 percent of LILFA households in the under 25 age group had no home equity.

When net worth excluding home equity is used, the results are very similar to those obtained when financial assets are used. The bottom group consists of 10.0 percent of all households when LILNW3 is used. The general age pattern is the

same as before. The percentages for the aged age groups, however, are slightly higher than before. For the 75 and over age group, 9.7 percent are in the bottom classification, while 8.8 percent of the 65-74 age group are in the bottom group. For the 75 and over age group, only 27 percent of households with low income also had low net worth excluding home equity and no home equity.

The results obtained when these two variations are used would be expected to be similar because financial assets and net worth excluding home equity are very similar for many households. Business equity, motor vehicle equity, and real estate other than own home are the major asset types that are included in net worth excluding home equity but are excluded from financial assets. Unsecured debt is also subtracted from assets in net worth excluding home equity.

IV. Summary and Conclusions

This paper has examined several methods in which data on both income and wealth were used in the assessment of the economic well-being of age groups in the current period. Basic elements of such measures were discussed and examples of measures that have been used were presented. Three desirable properties of a current period income-wealth measure were suggested. Estimates of the economic well-being of age groups obtained when several methods were used were presented and compared in order to examine the sensitivity of the results to the choice of method.

Medians and the proportion of each age group that was in the bottom of the distribution were analyzed. Data from the 1984 SIPP were used.

One important finding was that the general results were not very sensitive to the income-wealth measure chosen. This was particularly the case when wealth was defined to include only financial assets. Some detailed results, however, were sensitive to the measure chosen, even when financial assets were used. Differences among measures were somewhat larger when medians were examined than when the bottom of the distribution was examined.

The differences among income-wealth measures, however, were generally not very large for medians. For every income-wealth measure used, the median rose as age increased, then fell. This was true when either financial assets or net worth was used. The steepness of the rise and fall varied somewhat among the measures.

The relative economic status of the aged generally improved when the measure of resources was changed from income to a combined income-wealth measure and medians were used, although there were exceptions. The change in relative status of the aged depended on the income-wealth measure used and on whether financial assets or net worth was used. There was a small improvement when most of the specifications of measures that included the annuity value of financial assets were used; one specification, however, produced a very small decline in the relative status of the aged. There was a much larger improvement when the measure that included one-third of net worth was used.

Several other measures produced less improvement than including one-third of net worth, but more than the annuity specifications. Another specification, however, also produced a small decline in the relative position of the aged.

When the bottom of the distribution was examined using a two-dimensional low income and low wealth measure and three other measures, the differences among measures were small. The percentages of households in the 65-74 and 75 and over age groups that were in the bottom of the distribution were higher than the percentages for the 35-64 age groups for each of the measures when financial assets were used. When net worth was used, the 75 and over age group had a higher percentage than the 35-64 age groups for each measure. The percentages for the aged age groups fell when the measure was changed from income to any of the combined income-wealth measures. In general, these percentages were relatively high for the young and old age groups, and relatively low for the middle age groups for each measure. A three-dimensional measure (that considered home equity separately) substantially reduced the percentage of aged households that were in the bottom group.

This is an exploratory paper that has examined several aspects of the very complex problem of combining data on income and wealth into a single measure of current economic well-being. Several income-wealth measures were compared. No generally acceptable measure was identified.

The treatment of income-wealth measures for age groups was quite limited here. Possible differences in levels of need among

age groups were ignored. For example, the aged face a significant probability of large medical expenses and may try to accumulate assets to protect against that contingency. Also, a current period perspective is only one of several possible approaches. Life-cycle issues are ignored by confining the discussion to the current period. For example, the aged have had much more time to accumulate wealth than the young have had, and may have "sacrificed" in order to accumulate that wealth.

A better understanding of the issues involved in combining income and wealth into a single measure is needed before satisfactory income-wealth measures can be constructed. The data (e.g., SIPP) are now available to explore different possibilities for new and better income-wealth measures. In future years more information about changes in wealth should be available, thus allowing combined income-wealth measures to be used for the examination of changes in economic status.

Table 1.--Amounts of wealth included in income-wealth measures, expressed as aggregates and as percentages of total wealth, adjusted for household size, 1984

Item	Definition of Wealth: Financial assets	Definition of Wealth: Net worth
	Aggregates	
Property income	117	117
ANW	103	286
W/3	478	1,434
W/x	103	288
W/c	422	1,342
Wealth	1,436	4,306
TMI	1,541	1,541
NPI	1,424	1,424
	Percentage of Wealth	
Property income	8.1	2.7
ANW	7.2	6.6
W/3	33.3	33.3
W/x	7.2	6.7
W/c	29.4	31.2
Wealth	100.0	100.0

Note: Aggregates are in billions of dollars. See the text for definitions.

Table 2.--Median income and wealth for households, adjusted for household size, 1984

(thousands of dollars)

Age of householder	NPI	Financial assets	Net worth
		Measure	
Under 25	11.6	.3	1.6
25-34	14.3	.5	5.3
35-44	15.6	1.3	19.5
45-54	18.1	2.6	34.4
55-64	15.2	7.2	51.7
65 and over	8.9	10.3	54.2
65-74	10.4	10.5	55.9
75 and over	7.3	9.6	52.0
All ages	13.6	1.7	21.4

Note: See the text for definitions.

Table 3.--Medians of income-wealth measures for households, adjusted for household size, 1984

(thousands of dollars)

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
		Measure			
		Financial Assets			
Under 25	11.6	11.6	11.8	11.6	11.8
25-34	14.5	14.4	15.1	14.5	14.7
35-44	15.9	15.8	16.9	15.9	16.4
45-54	18.7	18.4	20.6	18.5	20.0
55-64	16.8	16.3	20.4	16.5	19.5
65 and over	11.1	11.7	15.0	10.9	14.0
65-74	12.3	12.3	16.3	12.0	15.2
75 and over	9.3	10.2	13.0	9.0	11.9
All ages	14.6	14.6	16.6	14.5	16.0
		Net Worth			
Under 25	11.6	11.8	12.9	11.9	12.3
25-34	14.5	14.7	17.7	15.2	16.8
35-44	15.9	16.7	23.8	17.5	22.5
45-54	18.7	20.3	31.7	21.3	30.4
55-64	16.8	19.4	35.2	19.8	33.8
65 and over	11.1	15.6	28.2	13.5	26.8
65-74	12.3	16.0	30.4	14.8	29.0
75 and over	9.3	15.3	26.0	11.5	24.6
All ages	14.6	16.4	24.0	16.3	22.7

Note: See the text for definitions.

Figure 1
Medians of Alternative Measures
Using Financial Assets, 1984

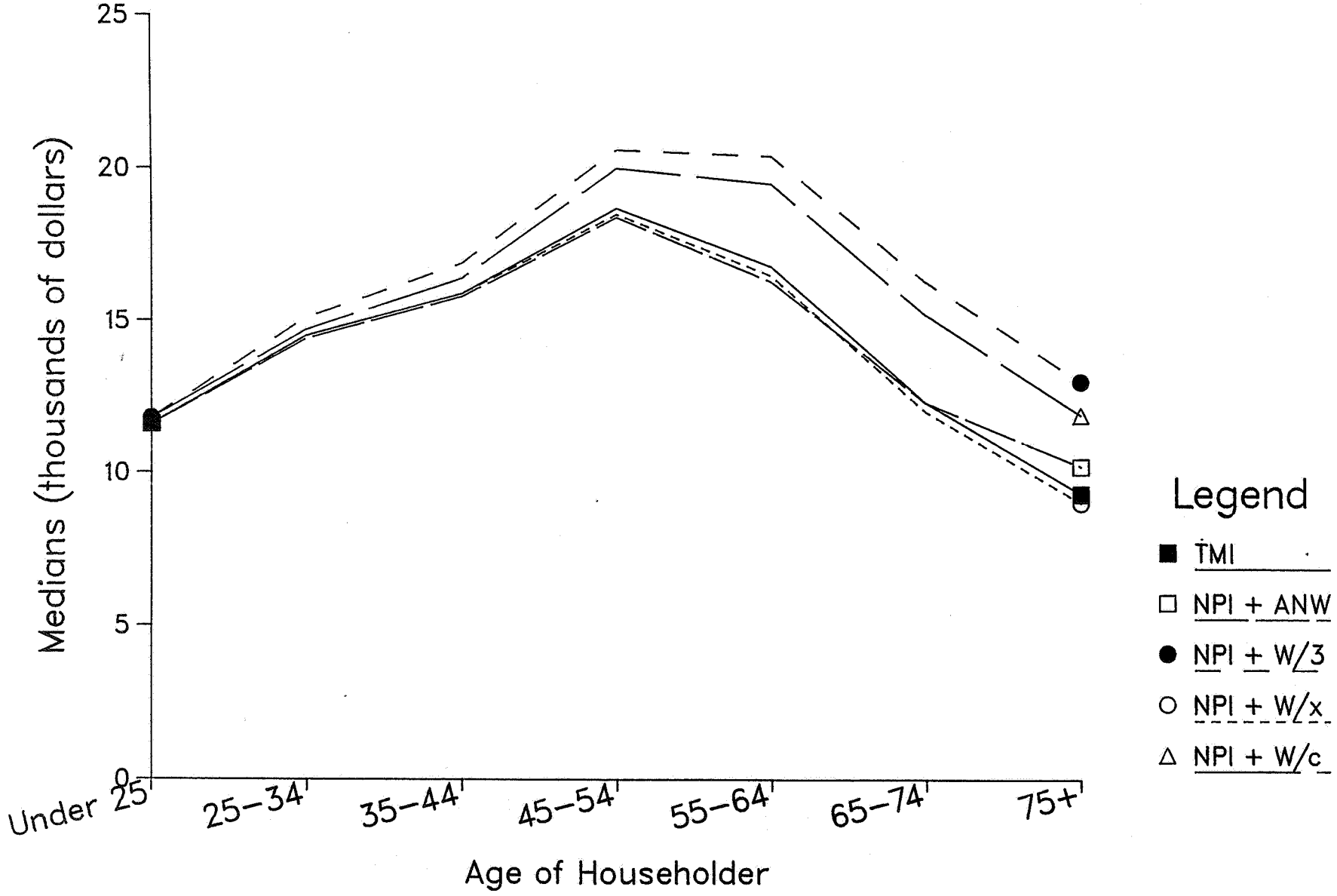

Figure 2
Medians of Alternative Measures
Using Net Worth, 1984

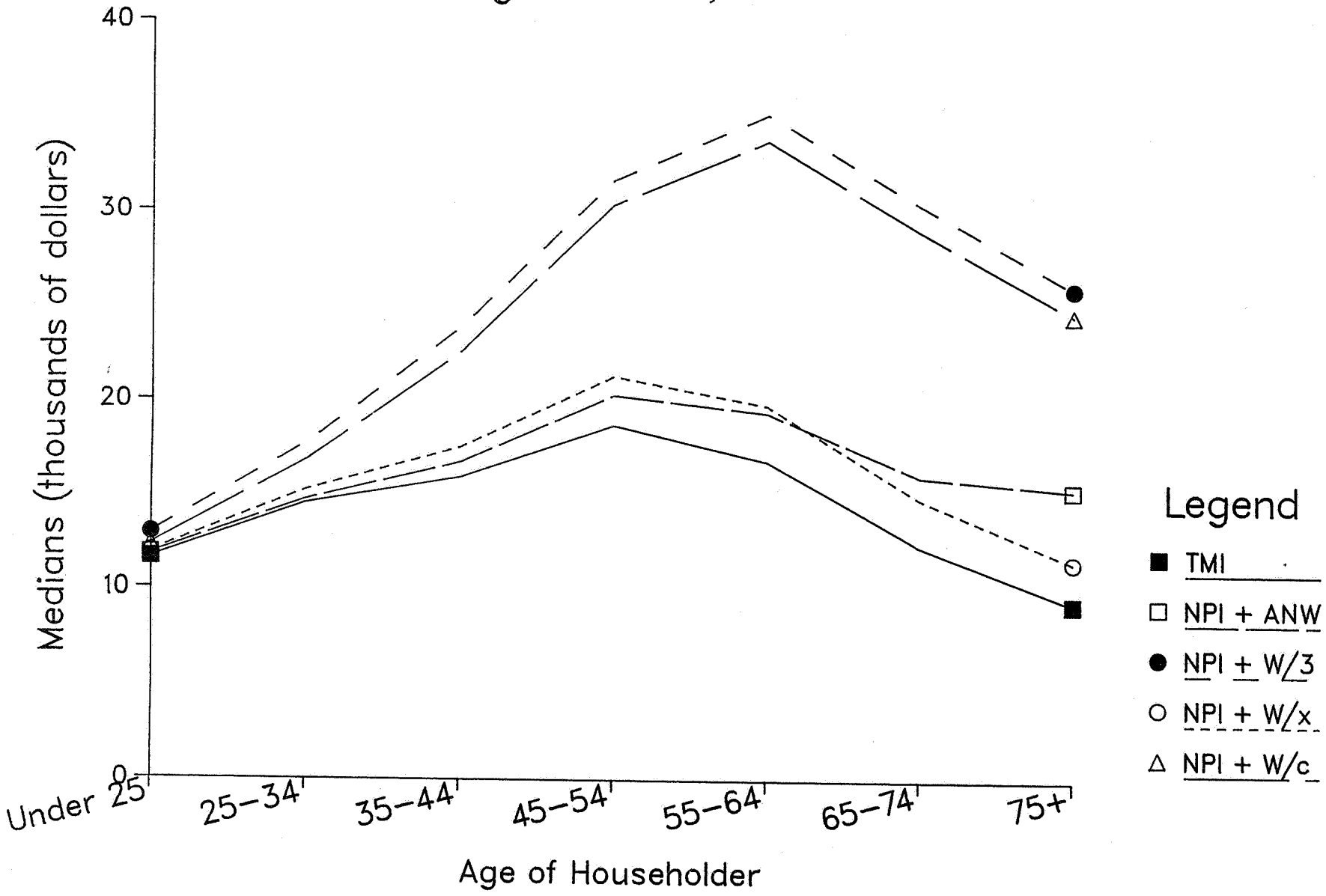

Table 4.--Relative medians of income-wealth measures for households, adjusted for household size, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
			Measure		
			Financial Assets		
Under 25	.79	.80	.71	.80	.73
25-34	.99	.99	.91	1.00	.92
35-44	1.09	1.09	1.02	1.10	1.02
45-54	1.28	1.26	1.24	1.28	1.25
55-64	1.15	1.12	1.23	1.14	1.22
65 and over	.76	.80	.91	.75	.87
65-74	.84	.84	.98	.83	.95
75 and over	.63	.70	.79	.62	.74
All ages	1.00	1.00	1.00	1.00	1.00
			Net Worth		
Under 25	.79	.72	.54	.73	.54
25-34	.99	.90	.74	.94	.74
35-44	1.09	1.02	.99	1.07	.99
45-54	1.28	1.24	1.33	1.31	1.34
55-64	1.15	1.18	1.47	1.22	1.49
65 and over	.76	.95	1.18	.83	1.18
65-74	.84	.97	1.27	.91	1.28
75 and over	.63	.93	1.09	.70	1.08
All ages	1.00	1.00	1.00	1.00	1.00

Note: See the text for definitions.

Figure 3
Relative Medians of Alternative Measures
Using Financial Assets, 1984

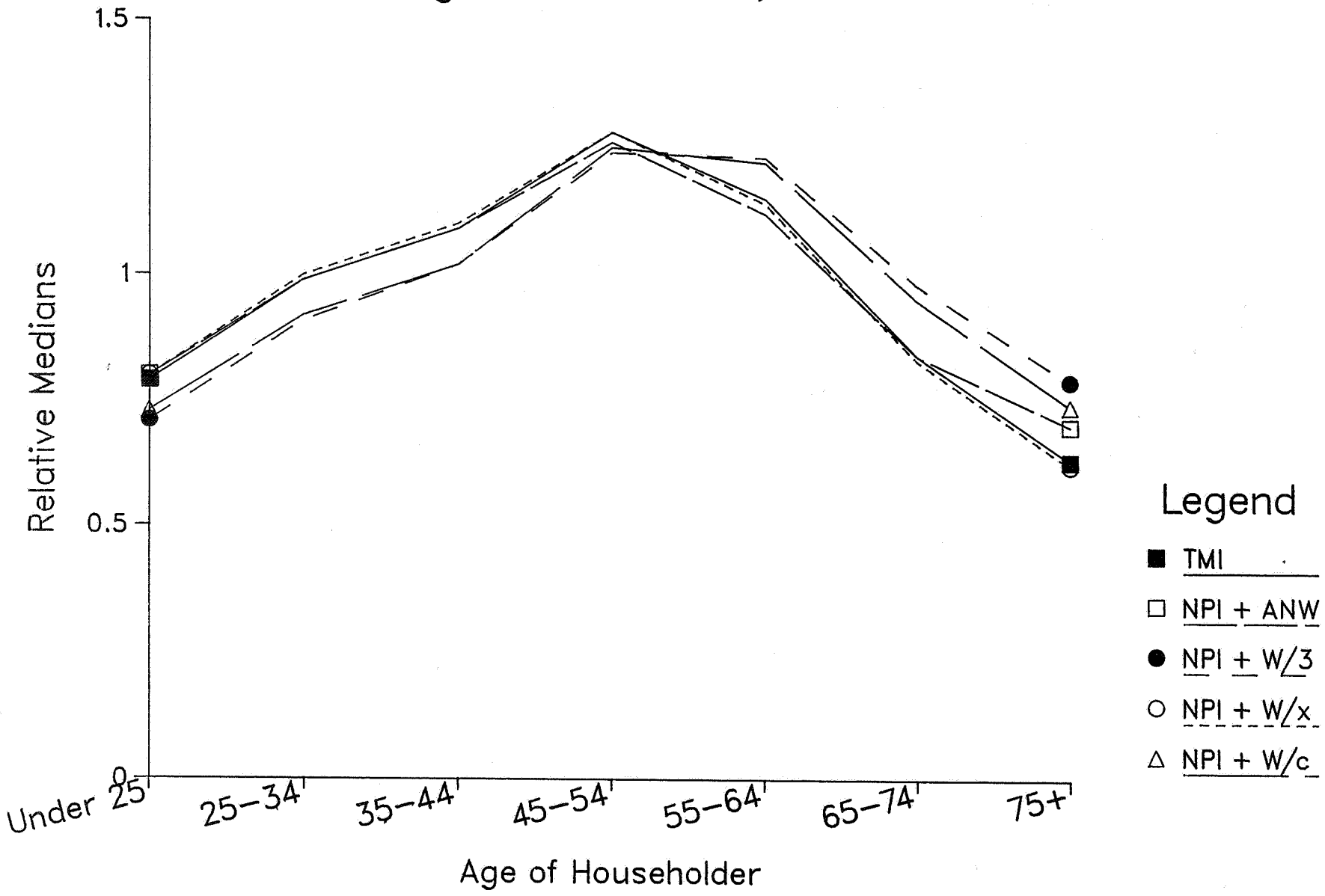

Figure 4
Relative Medians of Alternative Measures
Using Net Worth, 1984

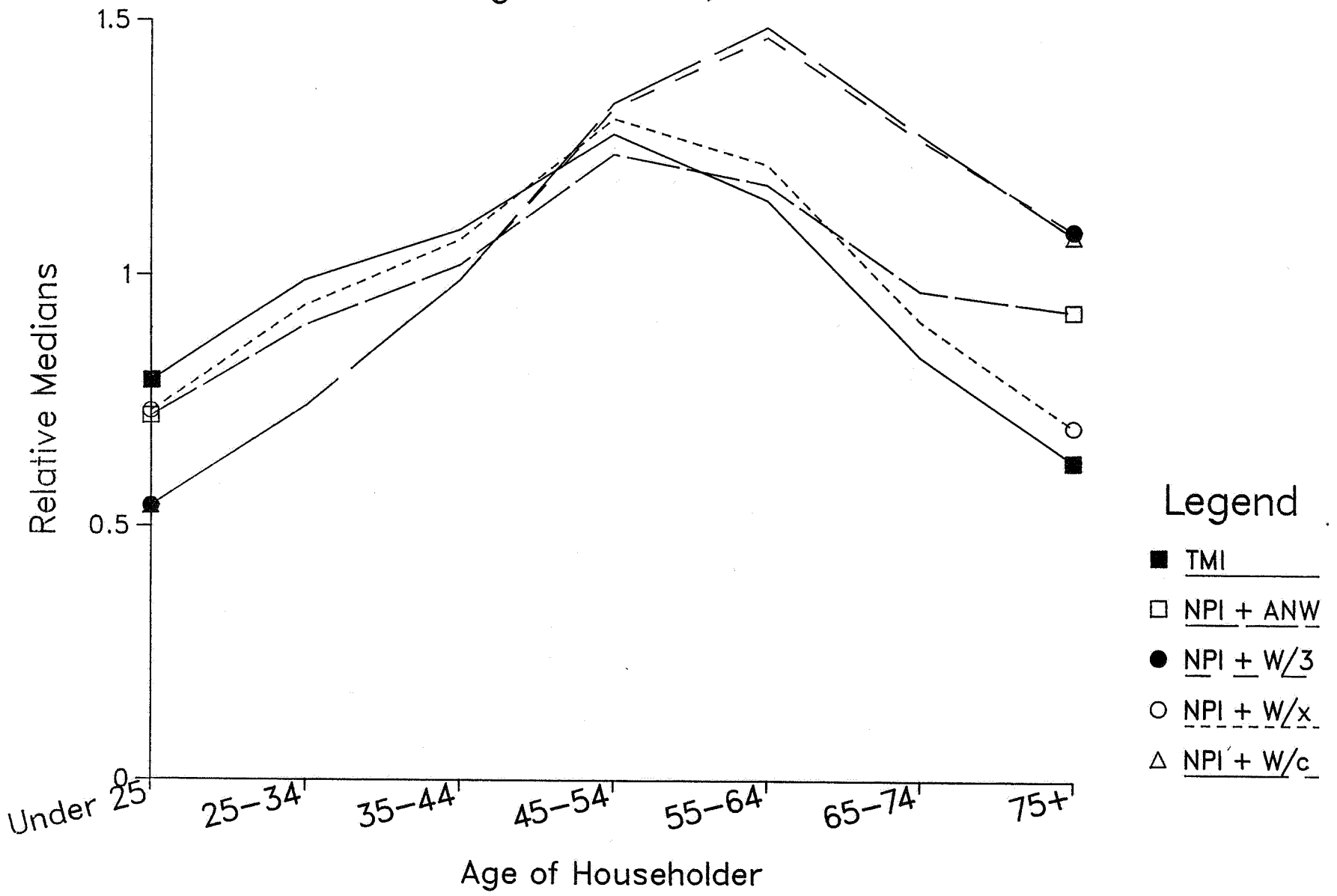

Table 5.--Medians for aged age groups as a percent of the median for the 45-54 age group, adjusted for household size, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
		Measure			
		Financial Assets			
65 and over	59	64	73	59	70
65-74	66	67	79	65	76
75 and over	50	55	63	49	60
		Net Worth			
65 and over	59	77	89	63	88
65-74	66	79	96	69	95
75 and over	50	75	82	54	81

Note: For NPI+NW/3 and NPI+NW/c, the peak median was in the 55-64 age group. For all other measures, the peak median was in the 45-54 age group.
See the text for definitions.

Table 6.--Relative medians of alternative specifications of income-wealth measures, adjusted for household size, 1984

Age of householder	Measure: NPI+ANW r=2%, ERL	NPI+ANW r=5%, ERL	NPI+ANW r=2%, 100-a	NPI+ W/3	TMI+ W/3
			Financial Assets		
Under 25	.80	.79	.82	.71	.70
25-34	.99	.98	1.02	.91	.89
35-44	1.09	1.08	1.12	1.02	1.01
45-54	1.26	1.25	1.30	1.24	1.25
55-64	1.12	1.12	1.14	1.23	1.26
65 and over	.80	.82	.74	.91	.96
65-74	.84	.86	.82	.98	1.03
75 and over	.70	.71	.63	.79	.84
All ages	1.00	1.00	1.00	1.00	1.00
Median ($1,000)	14.6	14.8	14.1	16.6	17.0
			Net Worth		
Under 25	.72	.69	.77	.54	.54
25-34	.90	.89	.96	.74	.73
35-44	1.02	1.01	1.07	.99	.99
45-54	1.24	1.25	1.28	1.33	1.32
55-64	1.18	1.21	1.15	1.47	1.48
65 and over	.95	.98	.83	1.18	1.22
65-74	.97	1.00	.88	1.27	1.29
75 and over	.93	.95	.73	1.09	1.12
All ages	1.00	1.00	1.00	1.00	1.00
Medians ($1,000)	16.4	17.1	15.3	24.0	24.4

Note: ERL = expected remaining lifetime.
100-a = 100 minus the age of the householder.
See the text for other definitions.

Table 7.--Percentage of each age group with low income, low wealth, and low income and low wealth, 1984

Age of householder	LILW	<1/2 median income	<1/2 median wealth	LILW as % of col. 2
		Financial Assets		
Under 25	25.3	27.9	72.7	91
25-34	17.7	19.6	57.9	90
35-44	13.9	16.8	44.9	83
45-54	11.7	14.2	36.7	82
55-64	12.6	17.5	28.4	72
65 and over	15.4	28.7	24.8	54
65-74	14.6	23.7	25.7	62
75 and over	16.4	35.9	23.4	46
All ages	15.2	20.4	41.9	75
		Net Worth		
Under 25	26.4	27.9	86.7	95
25-34	17.1	19.6	63.5	87
35-44	11.6	16.8	36.3	69
45-54	9.2	14.2	25.9	65
55-64	8.2	17.5	19.1	47
65 and over	13.4	28.7	20.9	47
65-74	11.9	23.7	20.0	50
75 and over	15.7	35.9	22.2	44
All ages	13.3	20.4	38.6	65

Note: See the text for definitions.

Table 8.--Percentage of each age group in the bottom of the distribution, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	LILW
		Financial Assets		
Under 25	22.4	22.6	23.5	25.3
25-34	15.0	15.0	15.9	17.7
35-44	13.1	13.4	13.8	13.9
45-54	11.1	11.6	11.7	11.7
55-64	13.2	13.9	12.5	12.6
65 and over	19.9	18.6	18.0	15.4
65-74	15.8	15.5	15.5	14.6
75 and over	25.8	23.1	21.6	16.4
All ages	15.3	15.3	15.3	15.2
		Net Worth		
Under 25	20.6	23.3	26.6	26.4
25-34	13.5	15.5	17.3	17.1
35-44	11.8	12.7	11.7	11.6
45-54	10.1	10.4	9.9	9.2
55-64	11.2	10.4	8.0	8.2
65 and over	16.3	12.8	12.8	13.4
65-74	13.4	12.1	11.7	11.9
75 and over	20.5	13.7	14.2	15.7
All ages	13.4	13.4	13.4	13.3

Note: See the text for definitions.

Figure 5
Percentage of Households in Each Age Group
in the Bottom of the Distribution, Financial Assets, 1984

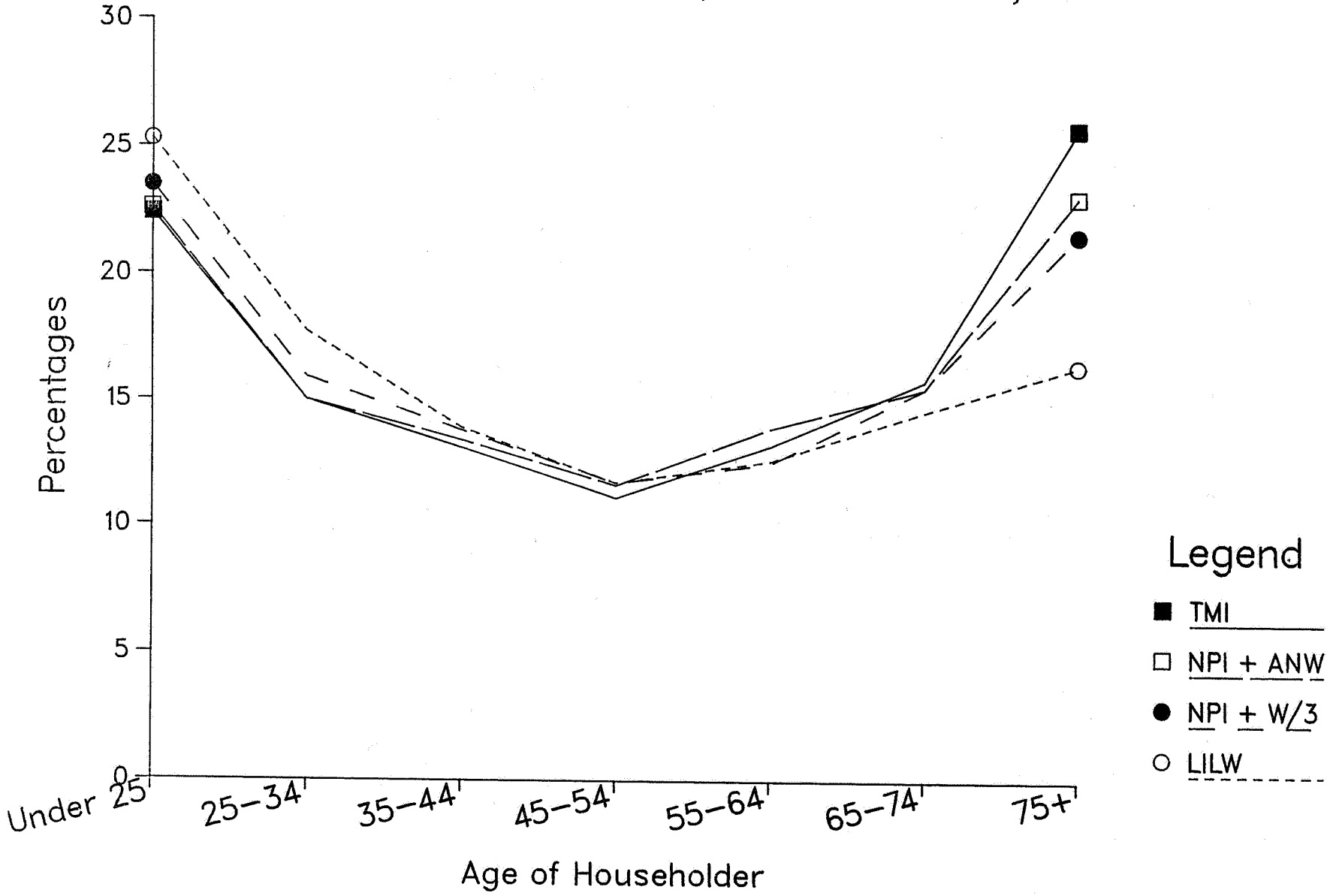

Figure 6
Percentage of Households in Each Age Group
in the Bottom of the Distribution, Net Worth, 1984

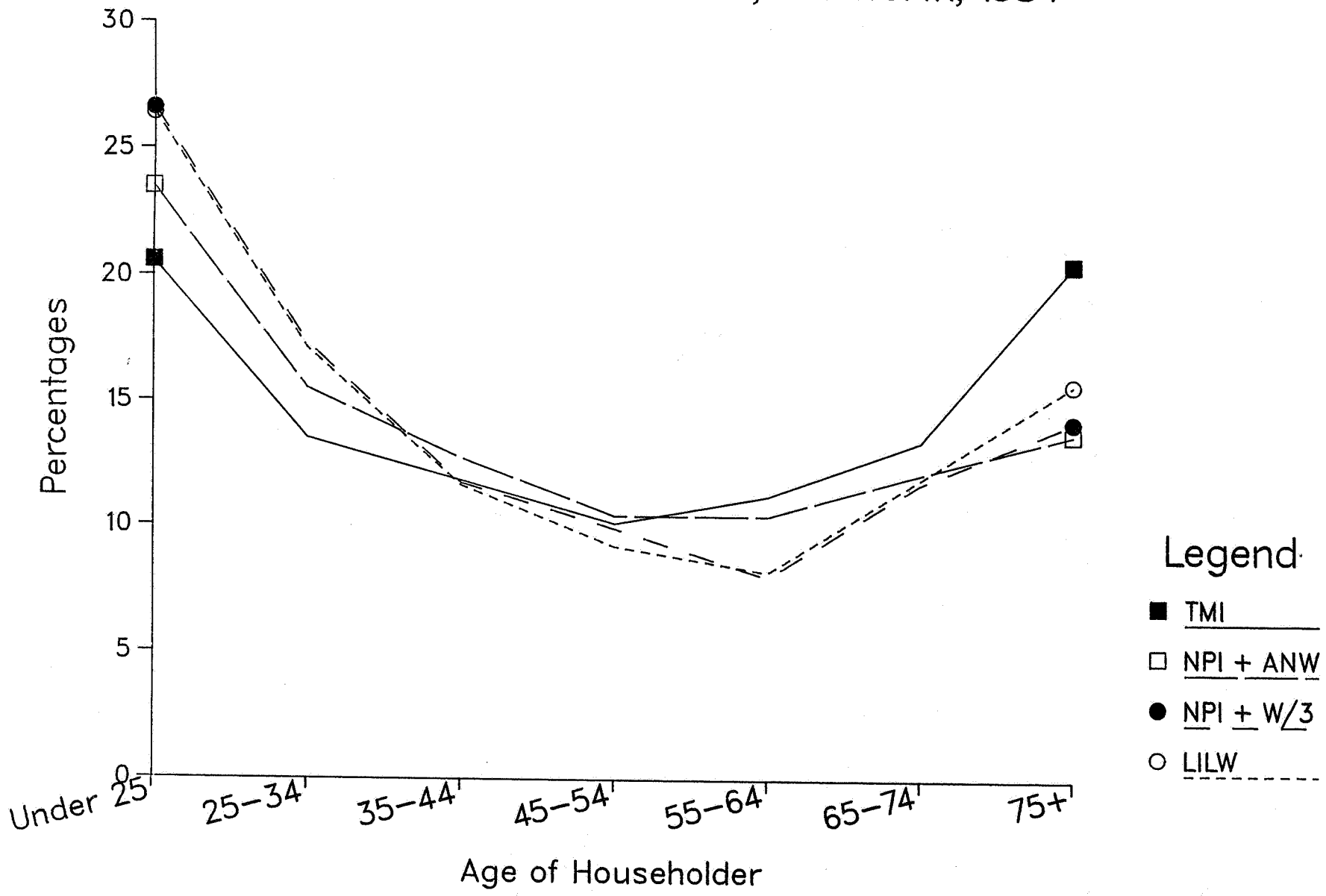

Table 9.--Percentage of each age group with low income, low wealth, and no home equity, 1984

Age of householder	LILW and home eq.=0	Col.1 as a % of <1/2 median income
	Financial Assets	
Under 25	23.3	84
25-34	14.0	71
35-44	9.0	54
45-54	7.4	52
55-64	6.0	34
65 and over	8.3	29
65-74	8.3	35
75 and over	8.2	23
All ages	10.3	50
	Net Worth	
Under 25	22.5	81
25-34	13.5	69
35-44	8.4	50
45-54	7.1	50
55-64	5.5	31
65 and over	9.2	32
65-74	8.8	37
75 and over	9.7	27
All ages	10.0	49

Note: Net worth excludes home equity.
See the text for definitions.

FOOTNOTES

* A revised version of this paper is scheduled to appear in **Research in Economic Inequality**, Volume 4, Edward N. Wolff, editor, JAI Press. The author is greatly indebted to Sharon Johnson, who prepared the estimates, and to Benjamin Bridges, Dean Leimer, and Selig Lesnoy for their many helpful comments.

1. It could also be assumed that the young generally would have a higher proportion of their wealth "available" in the current period than the old do because the young are more likely to be able to replace that wealth with additional wealth accumulation. In this view, the aged are more likely to view their wealth as a fixed amount that cannot be replaced if used. No current period measure has used a higher proportion of wealth for the young than for the aged. Of course, the young generally have little wealth, so the effect of such an assumption might be small.

2. Where the annuity method and the expected remaining lifetime are used, a technical problem has been mentioned (Wolfson 1979). The relationship between wealth levels and the expected remaining lifetime generally is ignored, even though it is known that these two variables are not independent. In general, wealthier persons tend to live longer, ceteris paribus. Thus, wealthier persons are not as well off as they appear to be in this measure because their wealth should be spread out over a longer expected remaining lifetime than is used.

3. Wolfson (1979) raised the issue of using the distribution of life expectancies rather than the expected remaining lifetime. Because roughly one-half of all persons live longer than their expected remaining lifetime, it might be better to use a longer period than the expected remaining lifetime. People are not likely to plan to draw their assets down to zero if they have roughly a 50 percent chance of living beyond that time. A version of the annuity method that computes the annuity for the period from the person's present age to age 100 is shown later in this paper. In that variation the annuity is computed to an approximation of a maximum lifetime.

4. For recent summaries of the evidence on life-cycle saving, see Modigliani (1988) and Kotlikoff (1988).

5. It is assumed here that all types of income are treated identically and all types of wealth are treated identically.

6. See U.S. Bureau of the Census (1986b) for more information about definitions and the data.

7. Age was topcoded at age 85 in the SIPP file used.

8. Although home equity is generally considered to be an illiquid asset, in recent years the availability of home equity loans and lines of credit has become widespread. The general issue of borrowing is not discussed in this paper.

9. Negative amounts of net worth were treated as zero in this paper. There were no negative amounts of financial assets.

10. There is no general agreement on the best equivalence scale to use. No adjustment and a per capita adjustment are usually considered to be extreme treatments. Some adjustment is needed, but the per capita method provides more adjustment than is appropriate, primarily because economies of scale in household consumption are ignored. The use of the scale implicit in the poverty thresholds is an intermediate adjustment, but other intermediate adjustments could have been used instead.

11. The scale values used were: one person (under age 65), 1.023; one person (age 65 or older), 0.943; two persons (under age 65), 1.323; two persons (age 65 or older), 1.190; three persons, 1.568; four persons, 2.010; five persons, 2.381; six persons, 2.692; seven persons, 3.050; eight persons, 3.403; and nine persons or more, 4.026. It should be noted that, for units of size one and two, aged units are assumed to need slightly less than nonaged units. These values were derived from the weighted thresholds in table A-2 in U.S. Bureau of the Census (1986a).

12. Some researchers have included noncash income in the definition of income and/or subtracted taxes from income. The inclusion of noncash income is controversial. Tax data were not available in the SIPP file used.

13. Property income is excluded from current money income here because a property income component is included in the annuity value of wealth that is calculated.

14. The annuity value of $1 of wealth was computed as: $r/[1-(1+r)^{-n}]$, where r is the interest rate and n is the expected remaining lifetime. Expected remaining lifetime for single years of age (ignoring the sex of the householder) was used. For purposes of the general comparisons in this paper, taking into account the sex of the householder and the age of the spouse were unnecessary complications. The expected remaining lifetime values were taken from National Center for Health Statistics (1987).

15. The rate chosen is essentially arbitrary. The 2 percent rate used here is, for example, roughly a long-run average real rate on a portfolio consisting primarily of long-term corporate bonds, with a small proportion of the portfolio in common stocks. Radner (1989c) used a real rate of 5 percent in the annuity calculation.

16. The comparison with the $6,000 cutoff was made after the amounts of wealth were adjusted for household size.

17. Another measure, the sum of nonproperty income and financial assets, was included in Radner (1989c). This is clearly a more extreme measure than the measures shown here. Such a measure is particularly extreme when net worth is used because it assumes that all net worth is "available" in the current period.

18. For the annuity method (with property income excluded from income), asset values should be measured as of the beginning of the income period used. In Wave 4 of the 1984 SIPP, however, asset values were measured as of the end of the income period. This difference is not important for the purposes of this paper. For the NPI+W/3, NPI+W/x, and NPI+W/c measures, strictly speaking, the exclusion of all property income is inconsistent with the assumption that not all of wealth is "used."

19. There is a relatively minor inconsistency between the definitions of nonproperty income and financial assets used. Rent and royalties are excluded from nonproperty income (i.e., are included in property income) even though they are not returns on assets that are included in financial assets. This inconsistency occurred because those income types were not shown separately in the household data on the SIPP file, but were included in a summary property income item.

20. If all households face the same rate of inflation, then this percentage decline is the same for all households.

21. For amounts less than or equal to $6,000, the weight is 1/10. For amounts greater than $6,000, the weight is a weighted average of the 1/10 for the first $6,000 and the 1/3 for the excess over $6,000.

22. For example, at the 2-percent interest rate used here, the factor applied to the wealth of a household with 10 years expected remaining lifetime (roughly 75 years old) is 0.111, while the factor applied to the wealth of a household with 50 years expected remaining lifetime (roughly 25 years old) is 0.032.

23. These ratios were based on aggregates that have been adjusted for unit size.

24. For clarity, where appropriate the names of the measures will reflect whether financial assets (FA) or net worth (NW) is being discussed. Thus, NPI+FA/3, rather than NPI+W/3, is used here.

25. Radner (1989c) showed relative medians for a measure that was the sum of nonproperty income and financial assets (NPI+FA). When that measure was used, relative medians for the aged were much higher than the relative medians shown in this paper for measures that used financial assets. For example, the relative

median for the 75 and over age group was 1.04. The median for that group, however, was only 75 percent of the median for the 55-64 age group (the peak age group).

26. If property income is excluded from income to avoid counting both the asset and the income from that asset, the pattern by age group is very similar to the pattern shown here.

27. The other formulation used the household's relative position in the income distribution and in the wealth distribution. To be counted in the bottom of the distribution, the household had to be in the bottom 20 percent of the (all ages) income distribution and the bottom 40 percent of the (all ages) wealth distribution (in both cases after adjustment for household size). In the 1984 SIPP the income cutoff was 49 percent of the median and the financial assets cutoff was 43 percent of the median when that formulation was used. The results obtained when that formulation was used are close to the results shown here. Several of the papers cited used data from the 1979 Income Survey Development Program, which was similar to SIPP.

28. The percentages of aged households that are in the LILFA group differ greatly by the marital status of the householder. Households in which the householder is married with spouse present show a much lower percentage than other aged households. For example, for the 65 and over age group, 7.1 percent of married aged households and 21.8 percent of other aged households were in the bottom group (Radner 1990).

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March 9, 1990

WORKING DRAFT: PLEASE DO NOT QUOTE

THE ELDERLY AND THEIR SOURCES OF INCOME: IMPLICATIONS FOR RURAL DEVELOPMENT

by
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ABSTRACT

The elderly can have an economic impact in rural areas, because they receive substantial property and transfer income from various sources. Elderly migrants have apparently contributed to rural economic growth in the recent past. However, attracting retirees to stimulate rural economies is limited by the number of elderly of adequate means who are willing to move. Providing the local elderly poor with services may be a more pressing issue for some rural areas. Finally, anyone devising strategies based on the elderly's income must recognize the importance of the Social Security trust fund, now and in the future.

Keywords: Elderly, aged, transfer payments, Social Security, property income, investment income, unearned income, economic development, rural development, poverty, rural poverty, nonmetro areas, rural areas.

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SUMMARY

Transfer payments (largely from government programs), and property income (dividends, interest, and rent), have become large sources of income and are particularly important to the elderly. According to the new Survey of Income and Program Participation (SIPP), these sources provided about a quarter of total income in the early 1980s. Nationally, households with an elderly head receive nearly half of the income from transfers and property, although such households form only 21 percent of total households. Obviously, the elderly's large transfer and property income can have an important impact on nonmetro areas that can attract migrating elderly. It also can be important in nonmetro areas where the elderly form a large share of the population because of outmigration of younger people.

Many elderly are poor, however, particularly in nonmetro areas. For some nonmetro areas, finding ways to provide services to the local elderly poor may be a more pressing issue than finding ways to attract elderly people with income to spend. Most elderly are in good health, both physically and financially. As they age, however, many become more frail, and some may outlive their assets. They, too, may eventually need help.

Nevertheless, attracting elderly migrants has contributed to rural economic growth in the recent past. The per capita income gap between metro and nonmetro counties declined only in nonmetro retirement counties that experienced substantial inmigration of people at least 60 years old during the 1970s. The potential for attracting the elderly as

a development strategy, however, is limited by the number of elderly of adequate means who are willing to move to rural retirement areas.

The elderly's property and transfer income can have beneficial effects on local economies. For example, income from these sources may make local economies more stable and less susceptible to variations in employment by local industries. Property and transfer income also has multiplier effects in nonmetro counties. By spending their income, the elderly create local jobs.

Not all the effects may be beneficial, however, The jobs created by the elderly's spending may be relatively low-paying. Much spending by elderly households is for items purchased from retail stores and service firms, which often do not pay their workers particularly well.

Regardless of the wages paid by the jobs created, some counties with a small population and business base may not be able to benefit much from potential multiplier effects. If sufficient local businesses do not exist, elderly cannot shop locally very much.

Not all property income goes to elderly people of modest means who are drawing interest to use in their retirement. Some of it also goes to people of all ages in the upper income brackets who have accumulated property. Over time, a more unequal income distribution could develop in those nonmetro areas with a heavy dependence upon property income.

Finally, about a third of the income of the elderly comes from Social Security and in nonmetro areas the fraction is even higher, about two-fifths. Thus, the future of the Social Security program is critically important to rural areas dependent on retirement income from either migrating or native elderly. Anyone devising development

strategies based on the income of the elderly must recognize the importance of Social Security's financial status, now and in the future.

GLOSSARY

Dividends. Payments to people holding stock of corporations that were organized to make a profit.

Earned income (or earnings). Income from work. The work can be for others (a wage or salary job), or it can be for oneself (self-employment). (See unearned income.)

Elderly. Anyone 65 years old and older.

Family. A group of two or more people related by birth, marriage, or adoption who live together.

Government transfer payments. Transfers provided by government programs. Among the categories of government transfer payments examined in this report are: retirement and related programs, income maintenance, and veterans' benefits.

Household. All the people living in a housing unit. A house, an apartment, or a single room is considered a housing unit if it is occupied as a separate living quarters. The occupants do not live or eat with any other people in the building, and there is direct access from outside or indirect access through a common hall.

Income maintenance. Programs targeted at low-income people. These programs do not require a work history for eligibility. Supplemental Security Income (SSI) provides income to needy disabled, blind, and elderly people. The Food Stamp Program provides coupons to use when purchasing food. Other income maintenance programs include: Aid to Families with Dependent Children (AFDC); Women, Infants, and Children (WIC); general assistance, refugee assistance, and foster home care payments.

Interest. Includes interest people receive from saving accounts, money market deposit accounts, certificates of deposit, and interest-bearing checking accounts held at banks, savings and loan associations, and credit unions. It also includes interest people receive from mortgages, money market mutual funds, and municipal and corporate bonds. Depending on the data source, interest may or may not include imputed interest. Imputed interest consists of the value of services provided without charge to depositors by financial institutions and income credited to people's accounts by life insurance companies and uninsured private pension funds.

Medical Payments. Benefits from three medical programs: Medicare, Medicaid, and Civilian Health and Medical Plan of the Uniformed Services (CHAMPUS). Medicare pays for the medical care of aged and disabled Social Security recipients. Medicaid pays for the medical care of certain groups of poor people. CHAMPUS pays for the treatment (at civilian medical facilities) of active military personnel's dependents, retired military personnel, and retired military personnel's dependents.

Metro areas. Metro areas are defined by the U.S. Office of Management and Budget as geographic areas with a large population nucleus, plus adjacent communities that are economically and socially integrated with the nucleus. Generally speaking, metro areas have a central city or urban core of at least 50,000 residents and a total population of 100,000 or more.

Nonmetro areas. Territory outside metro areas. (See metro areas.) Nonmetro data are commonly used to represent rural and small town people.

Old old. Anyone 75 years old or older.

Personal income. Total income received by people from wages and salaries, other labor income, self-employment, property income, and transfer payments.

Poor. Belonging to a family with income less than the poverty threshold. In the computer data file used to determine poverty status in this report, each person has a variable recording the total income of his or her family for each month and a variable recording the poverty level for his or her family each month. Family membership can change from month to month, and the poverty level varies with size of family, age of family head, and number of children. The poverty level for the entire 12-month period is calculated by adding the 12 monthly poverty levels. If the sum of the 12 income amounts is less than the 12-month poverty level, the person is poor.

This procedure differs from that used to derive the official poverty statistics from the Current Population Survey. The official procedure fixes family composition as of the March interview, adds up family members' income during the previous calendar year, and compares the sum to an annual poverty threshold.

Private retirement. Company or union pensions; other private payments for retirement, disability, or survivors; and income from paid up life insurance or annuities.

Private transfer payments. Transfer payments from a source other than the government. Includes private retirement benefits, income from relatives or friends, charity, alimony, and child support. (See private retirement.)

Property income. Income from investments paid to people. Includes dividends, interest, net rental income, income from estates or trusts, and income from royalties and other investments. (See dividends, interest, rent, and royalties.)

Rent. People's income, after expenses, from renting real property. Depending on the data source, rent may or may not include imputed rent. Imputed rent is the net rental value of owner-occupied housing, after expenses. In other words net imputed rent is equal to what home owners would have paid to rent their housing unit, minus expenses.

Retirement and related programs. Government programs that provide income to retirees, disabled workers, and their dependents. These programs include: Social Security, railroad retirement, federal civilian retirement, military retirement, State and local government retirement, workers compensation, State temporary disability, and Black Lung. Participation in these programs requires a previous work history.

Retirement counties. Nonmetro counties that experienced, between 1970 and 1980, net inmigration of people aged 60 and over equal to 15 percent or more of the people in the county of that age in 1980.

Royalties. Income people receive from patents, copyrights, and rights to natural resources.

Transfer payments (transfers). Income received by people for which no work was performed in the current period. (See government transfer payments and private transfer payments.)

Unearned income. Income from property and transfer payments. The word "unearned" is not derogatory. It simply identifies income from sources other than earnings from employment. (See earned income.) Unearned income often reflects earlier receipt of earned income. For example, elderly people now receive Social Security and interest because they used some of their wages in the past to pay Social Security payroll taxes and to save.

Veterans' benefits. Benefits received from veterans' programs, mostly from veterans' compensation and veterans' pensions. Veterans' compensation provides income for veterans with a service-connected disability and for their survivors. Recipients need not have a low income to be eligible. Veterans' pensions are for disabled war veterans whose disability is not service-connected, elderly war veterans, and survivors of war veterans. Recipients of veterans' pensions must meet low-income requirements.

Young old. Between 65 and 74 years old.

THE ELDERLY AND THEIR SOURCES OF INCOME: IMPLICATIONS FOR RURAL DEVELOPMENT

INTRODUCTION AND BACKGROUND

Some rural development specialists have suggested that property income (dividends, interest, and rent) and government transfer payments[1] can be developed as an economic base for local economies (Shaffer, 1981; Bain, 1982a and 1982b; Hirschl and Summers, 1982; Summers and Hirschl, 1985a and 1985b; Pulver, 1986; Schneider, 1987; Smith et al., 1987, Schneider and Green, 1989). They often note that retirees, or the elderly, receive a disproportionate amount of these unearned[2] sources of income. Thus, efforts of local areas to attract retirees or to provide places for local elderly to shop can provide a relatively stable source of income for local businesses. This development strategy, and the reasoning behind it, was aptly summarized by Glen C. Pulver:

> Less well recognized is the large share of personal income controlled primarily by people of retirement age. In 1983, 14.2 percent of personal income came from transfer payments, most of which are social security, medicare, and medicaid payments. Another 17.7 percent came from dividends, interest, and rent. This property income also goes in substantial measure to the elderly population... Recent research has shown that the elderly population are not only an important source of income and thus local retail sales and service revenue and bank deposits but they also produce high employment multipliers...(Pulver, 1986, p. 500).

Most rural development specialists investigating this topic note the growing importance of unearned income (especially transfers) to rural or

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[1]Transfer payments are receipts of income for which people currently do no work (U.S. Department of Commerce, 1988a, p. xxix). Transfer payments are largely from government programs, such as Social Security.

[2]The word "unearned" is not derogatory. It identifies income from sources other than employment. For a detailed discussion of the importance of unearned income in rural areas, see Bentley (1988).

nonmetro areas,[3] often citing data from the Commerce Department's Bureau of Economic Analysis (BEA) shown in figure 1. They then state that a large share of this income goes to retirees or the elderly, and often suggest that local areas develop ways to capture this income. The research may or may not be accompanied by economic base multipliers.

Elderly recipients of transfer and investment income are less constrained by the location of a job (Manson and Groop, 1988, p. 445). Although these sources of income make it possible for older people to migrate to retirement areas, the large majority do not do so. In general, older people stay where they spent most of their adult lives (Taeuber, 1983, 19-20). The elderly are actually <u>less</u> likely to migrate than other people. For example, only 0.9 percent of the population at least 65 years old moved across State lines between 1986 and 1987, compared with 3.1 percent of the nonelderly (U.S. Census Bureau, 1989, p. 4).

Nevertheless, the income of elderly migrants apparently has contributed to rural growth in the recent past. For example, a recent study examined the per capita income gap between metro areas as a whole and various types of nonmetro counties (Henry et al., 1986 and 1987). The gap declined only in nonmetro retirement counties that experienced substantial inmigration of people at least 60 years old. Another study (Glasgow, 1988a) found that both population and employment growth during

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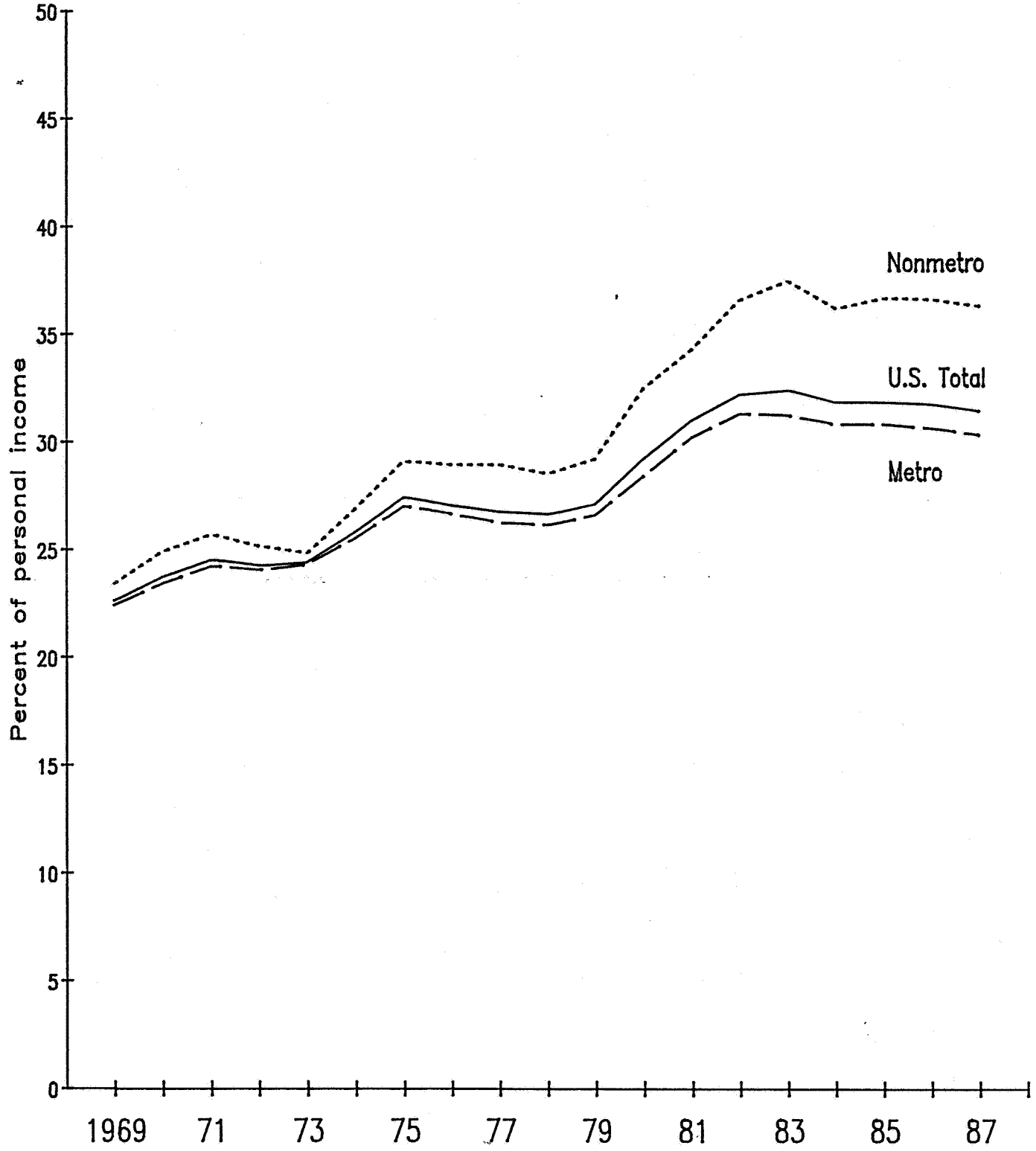
[3]"Rural" and "nonmetro" are used interchangeably in this report. Generally speaking, a metropolitan (metro) area contains an urban population concentration of 50,000 or more (Beale, 1984). Other territory is nonmetropolitan (nonmetro).

Figure 1. Unearned income is an increasing share of total personal income in the U.S.



Note: Unearned income consists of transfer payments and property income.

Source: BEA (U.S. Department of Commerce, 1989).

the 1980s were higher in retirement counties than in other types of nonmetro counties.[4]

Not all rural counties, however, can become retirement counties and attract large numbers of the migrating elderly. The availability of amenities, such as mountains, lakes, a pleasant climate, or cultural activities, may make some areas more attractive to retirees. On the other hand, all counties have a native elderly population in place receiving retirement income. In nonmetro counties that have experienced substantial outmigration of younger people, the native elderly form a large portion of the population and make an important contribution to the local economy. Reeder and Glasgow (1989) identified 376 nonmetro counties that did not experience heavy inmigration of older people, but still had a population at least one-sixth elderly. Retaining the elderly and their income may be critical to local economies in these counties.

To realistically assess the rural development potential of property and transfer income, some gaps in our information about these sources of income and the income of the elderly should be filled. In particular, four questions should be answered:

- **What are the sources of income among the U.S. elderly?**

  Changes in legislation that affect a specific source of income could have large impacts on elderly and, hence, nonmetro areas trying to attract the elderly.

- **What are the income levels among the U.S. elderly?**

  This question is particularly important to nonmetro areas with inmigration of the elderly. It is obviously better to attract the

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[4]Individual retirement counties, however, may have an economic base that includes more than retirees. Not all of the growth in these counties can be attributed to inmigration of retirees.

high-income elderly, who have more money to spend. How many high-income elderly are there?

- **What are the sources and levels of income among the nonmetro elderly?**

  For nonmetro areas that are unable to attract migrating, well-to-do elderly, understanding the income of the elderly already in place is important. For example, if the nonmetro elderly depend on different government programs than the elderly in general, nonmetro areas will want to follow proposed legislative changes in these programs.

- **How large a share of various sources of income goes to the elderly?**

  In particular, how much of the property and transfer income reported by the BEA actually goes to the elderly? People other than the elderly can receive property income, and programs designed to serve the elderly, such as Social Security, also provide benefits to disabled workers and survivors of deceased workers. A vague assumption that a particular source of income goes largely to the elderly may be misleading.

The answers to these questions have implications for rural economic development that will be discussed later in the conclusion.[5]

DATA SOURCES AND DEFINITIONS

The first three questions can easily be answered, given a suitable data base. Fortunately, a new survey, the Survey of Income and Program Participation (SIPP), provides sufficiently detailed data to answer these questions. A combination of SIPP and BEA data are used to answer the fourth question. SIPP data are used alone to examine the elderly's share of various sources of income, while ratios developed from SIPP data are

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[5]Note that the primary focus of this report is understanding the elderly's sources of income that could form an economic base for rural development. It does not analyze levels and sources of income of the elderly by race, Spanish origin, sex, labor force participation, or other detailed characteristics. Such an analysis would be useful for a complete assessment of the social and economic status of the elderly, but is beyond the scope of this report. For a discussion of the economic and social status of the rural elderly, see Glasgow (1988b).

used to allocate BEA income between the elderly and nonelderly. A discussion of the two data sources follows.

BEA Local Area Personal Income Series

The BEA data are frequently used to follow trends in personal income in local areas. The BEA provides annual estimates of personal income from transfers, property, and earnings for each county and county equivalent in the United States (U.S. Department of Commerce, 1988a). The origin of transfers by program and earnings by industry is also given in detail each year. The BEA aggregates its county data to provide income estimates for the whole Nation, metro areas, and nonmetro areas. The data are derived from administrative records kept by various State and Federal agencies and from a variety of censuses and surveys (U.S. Department of Commerce, 1988a).

However, the BEA data have a serious shortcoming--they only show the income received by all people in a given area. They do not provide information about who receives the income. For example, the BEA data provide no information about the race or sex of income recipients. And, most importantly for this report, they do not provide information about the age of recipients.

Survey of Income and Program Participation[6]

Fortunately, the SIPP provides information about the characteristics of people receiving various types of income. The SIPP was originally designed to provide detailed information about property and transfer

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[6]The description of the SIPP that follows comes largely from Hoppe (1988).

income, among other topics. It is particularly well suited for research on the elderly, who are heavily dependent on these income sources.[7]

The SIPP is a complex longitudinal survey that collects monthly data continuously from the same persons over a period lasting two years and eight months.[8] A new sample, or panel, is introduced each year. At any given time, two or three panels may be in the field simultaneously. The households in each panel are assigned to four rotation groups. Within each interview period, or wave, all rotation groups are administered the same questionnaire. Because only one rotation group is interviewed each month, it takes four months to complete a wave. During each interview, data for the previous four months are collected.

The Census Bureau has produced an edited, 12-month longitudinal research file that contains selected data from waves one through four of the first (1984) panel. An extract from the research file is the SIPP data source used in this report. The 12 months covered vary from rotation group to rotation group and do not form a particular fiscal or calendar year. The four 12-month periods are: June 1983 through May 1984, July 1983 through June 1984, August 1983 through July 1984, and September 1983 through August 1984. The varying periods result from the complex monthly interviewing scheme used in SIPP. The research file uses the metro-nonmetro designations used in the 1980 Census.

Because the quality of estimates from the longitudinal research file is as yet unknown, the data should be considered experimental and

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[7]For more information about using SIPP for research on the elderly, see McMillen et al. (1985).

[8]Because SIPP is a sample survey, it is subject to underreporting. For more information, see Appendix I.

interpreted with caution. When the file was created, the Census Bureau was still dealing with unresolved technical and methodological issues regarding the data set.

Defining the Elderly

The most common definition of the elderly is all persons 65 years old and over, the traditional retirement age. Otto von Bismark, the German Empire's "Iron Chancellor," is generally credited with selecting 65 as the minimum retirement age in the 1880s. Actually, he picked 70. Germany later lowered the age to 65 during World War I. Benefits were generous, but life was short, so Germany's retirement program cost little (Thurow, 1985, p. 251-252). Because this cut-off was established generations ago by a central European empire that no longer exists, it may not be particularly relevant today.

Another approach would be to use a range of definitions. Two Census Bureau publications (Taeuber, 1983; Siegel and Davidson, 1984) used four definitions:

- The older population: age 55 (or 60) and over,
- The elderly population: age 65 and over,
- The aged population: age 75 and over,
- The very old population: age 85 and over.

Some characteristics vary by age among the older population. Poverty, for example, increases sharply with age (Taeuber, 1983, p. 11).

The elderly could be defined simply as those who have retired. Current retirement programs, both public and private, frequently allow and encourage workers to retire before age 65, and many people have taken advantage of the programs' early retirement provisions in recent years.

One common practice is to define the retired as those people above an arbitrary age, such as 55, who are not in the labor force (Rones,

1985). This procedure, however, excludes those at least 65 years old who continue to work. About 17 percent of the men and 8 percent of the women who were 65 years old or more were still in the labor force in 1989 (U.S. Department of Labor, 1990a, p. 162). Exclusion of these workers from my analysis is undesirable, because I wish to examine the sources of income of all the elderly, however defined, including the working elderly.

This report will conform to tradition and simply define the elderly as the population at least 65 years old, as of the last month on the longitudinal research file extract. This definition will make the results comparable with the majority of other statistics and studies that define the elderly the same way. When income levels and poverty status of the elderly population are examined, the elderly will be divided into the "young old" (65 through 74 years of age) and the "old old" (at least 75 years old).[9]

Unit of Observation

The unit of observation throughout most of this report is the household.[10] The aggregate income of the elderly is derived by adding up all the income assigned to people living in a household where the householder is at least 65 years old, as of the last month on the longitudinal research file extract. This approach includes the income of nonelderly spouses of elderly householders. It also includes the income of younger relatives living in the same housing unit. Using the

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[9]Age 85 is normally used as the dividing point between the young old and the old old. The sample size for the longitudinal research file, however, did not allow using the higher cut-off.

[10]When income levels of the elderly are examined, the person is the unit of observation. This is discussed later.

household as the unit of observation recognizes that income is available to the elderly from younger household members, particularly younger spouses.

RESULTS

The four questions posed above can now be addressed. The elderly's sources of income and their income levels will be examined first. Then, the elderly's share of unearned income can be estimated.

Any differences in SIPP-based estimates discussed in the text are significant at the 90 percent level or more, unless stated otherwise. Information about a particular source of income is not presented for metro and nonmetro areas unless each had at least 200,000 elderly households receiving that type of income. The Census Bureau feels that information from the longitudinal research file is of questionable reliability when based on fewer than 200,000 households (Coder et al., 1987, Appendix L).

No significance tests were performed for BEA-based estimates. Because BEA unearned income data are based largely on administrative records and not a sample survey, statistical significance tests are not needed. Similarly, significance tests are not applied to comparisons between BEA- and SIPP-based estimates or to estimates based on BEA data allocated between the elderly and nonelderly by SIPP data.

The Elderly's Sources of Income

Generally speaking, the percentage distribution of income by source was similar in metro and nonmetro areas (table 1). In other words, the metro and nonmetro elderly received roughly about the same share of their

Table 1. Elderly households' income, by source, 1983-84

Item	All U.S. elderly households		Metro elderly households		Nonmetro elderly households	
	Per hhld.	Distribution	Per hhld.	Distribution	Per hhld.	Distribution
	Dol.	Pct.	Dol.	Pct.	Dol.	Pct.
Total income 1/	17,524	100.0	18,676	100.0	14,835 *	100.0
Earnings	3,495	19.9	3,913	21.0	2,518 *	17.0
Unearned income	14,005	79.9	14,764	79.1	12,233 *	82.5
Total Transfers	9,633	55.0	10,058	53.9	8,641 *	58.2
Government transfer payments 2/	8,391	47.9	8,617	46.1	7,865 *	53.0 **
Retirement and related programs 3/	7,932	45.3	8,202	43.9	7,300 *	49.2
Social Security	6,281	35.8	6,457	34.6	5,870 *	39.6 **
Federal civilian retirement	632	3.6	676	3.6	528	3.6
State and local government retirement	549	3.1	599	3.2	430	2.9
Income maintenance 4/	256	1.5	235	1.3	304	2.0 **
Supplemental Security Income	190	1.1	173	0.9	230	1.6 **
Food Stamps and WIC	37	0.2	31	0.2	51	0.3
Veterans' benefits	181	1.0	157	0.8	237	1.6
Private transfer payments 5/	1,242	7.1	1,441	7.7	776 *	5.2 *
Private retirement 6/	1,208	6.9	1,408	7.5	742 *	5.0 *
Property income:	4,372	24.9	4,706	25.2	3,592	24.2
Interest	2,881	16.4	3,080	16.5	2,416	16.3
Dividends	804	4.6	941	5.0	484 **	3.3
Net income from rentals	295	1.7	265	1.4	366	2.5
Other property income 7/	392	2.2	420	2.2	326	2.2

*Significantly different from the metro estimate at the 95-percent level.
**Significantly different from the metro estimate at the 90-percent level.

Note: Items may not add to totals due to rounding and because some income sources were not given a separate line in the table. Also note that the U.S. total columns include a few cases that could not be assigned a metro or nonmetro residence.

1/ Includes miscellaneous items not shown separately.
2/ Includes unemployment insurance not shown separately.
3/ Includes Railroad Retirement, military retirement, workers' compensation, State temporary disability payments, and Black Lung payments not shown separately.
4/ Includes general assistance, refugee assistance, foster home care payments, Aid to Families with Dependent Children, and other income maintenance not shown separately.
5/ Includes money from relatives or friends, charity, alimony, and child support not shown separately.
6/ Company or union pensions; other payments for retirement, disability, or survivors; and paid up life insurance or annunities.
7/ Income from estates or trusts, royalties, and other investments.

Source: SIPP (U.S. Census Bureau, 1987). FILE=TABSIG01.WK1

income from each source. As expected, however, per household income was higher in metro than nonmetro areas.[11] Most of the per household amounts for individual items (with some exceptions) were higher in metro than nonmetro areas, although the differences were not always significant.

About one-fifth of the income of the elderly came from earnings in both metro and nonmetro areas. Some elderly continue to work part- or full-time. Some of the earnings represents pay for work done early in the year by people who retired later in the year. Younger household members, such as younger spouses of elderly householders, may also work.

Property contributed about one-quarter of the elderly's income in both metro and nonmetro areas. Most of the elderly's property income came from interest, and their largest source of interest was savings institutions--banks, saving and loan associations, and credit unions (table 2). The elderly's preference for interest from savings institutions is understandable. These institutions are well-known, provide regular interest payments, and Federal agencies insure up to $100,000 of each depositor's account against loss.

As one would expect, much of the elderly's income came from government transfer programs (table 1). These programs provided 53 percent of the elderly's income in nonmetro areas and 46 percent in metro areas. Social Security alone paid 40 percent of the elderly's income in nonmetro areas and almost 35 percent in metro areas. In other words, the

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[11]In general, income levels are lower in nonmetro than in metro areas, and the gap has widened in recent years (Hoppe, 1987; Hoppe and Bellamy, 1989).

Table 2. Elderly households' property income by detailed source, 1983-84

Item	All U.S. elderly households		Metro elderly households		Nonmetro elderly households	
	Per household	Distribution	Per household	Distribution	Per household	Distribution
	Dollars	Percent	Dollars	Percent	Dollars	Percent
Property income:	4,372	100.0	4,706	100.0	3,592	100.0
Interest:	2,881	65.9	3,080	65.4	2,416	67.3
From banks, savings & loan associations, and credit unions 1/	2,217	50.7	2,443	51.9	1,689 **	47.0
From mortgages	170	3.9	187	4.0	132	3.7
From other sources 2/	494	11.3	451	9.6	596	16.6
Dividends	804	18.4	941	20.0	484 **	13.5
Net income from rentals	295	6.7	265	5.6	366	10.2
Other property income 3/	392	9.0	420	8.9	326	9.1
Royalties and other investments	282	6.5	288	6.1	271	7.5

*Significantly different from the metro estimate at the 95-percent level.
**Significantly different from the metro estimate at the 90-percent level.

Note: Items may not add to totals due to rounding. Also, the U.S. total includes a few cases that could not be assigned a metro or nonmetro residence.

1/ Includes interest from savings accounts, money market deposit accounts, CD's, and interest-bearing checking accounts.
2/ Includes interest from money market mutual funds, U.S. Government securities, municipal and corporate bonds and any other interest income not specified elsewhere.
3/ Includes income from estates or trusts not shown separately.

Source: SIPP (U.S. Census Bureau, 1987). FILE=TABSIG02.WK1

elderly depended heavily on government transfer programs, but the dependence was slightly more in nonmetro than metro areas.

Private retirement, in contrast, was a relatively minor component of the elderly's income in both metro and nonmetro areas. Four factors help explain why private retirement plans pay such a small portion of the elderly's income. First, not all workers in the private sector are covered by private pensions. Second, private pension plans are often "integrated" with Social Security (Lovejoy, 1988; Bell and Hill, 1984; McGill, 1979). In other words, Social Security benefits are considered when calculating private pension benefits, which reduces costs that employers pay. Private pensions alone, therefore, are generally not intended to provide all, or even most, of retirees' income. Third, few private pension plans automatically adjust retiree's benefits for inflation (Lovejoy, 1988), unlike Social Security. Over time, inflation can erode the value of private pension benefits, making them a smaller share of the elderly's income. Finally, some pension plans allow new retirees to take all or part of their pension benefits in a lump sum (McGill, 1979, pp. 127-8). This would reduce the income paid by their pensions during retirement.

In summary, the elderly receive a large portion of their income from government transfer programs, especially in nonmetro areas. Social Security is particularly important to the elderly in nonmetro areas, paying about two-fifths of their income. The nonmetro elderly received an average of $5,870 per household from Social Security during the 12-month period, $2,278 more than the amount from property.

Income Levels Among the Elderly

The lower income per household among the elderly in nonmetro areas is reflected in their higher poverty rate. Approximately 17.9 percent of nonmetro elderly people were poor (table 3).[12] The poverty rate for metro areas was about half as high, 8.5 percent.

In nonmetro areas, the old old were more likely to be poor than the young old. The old old were also more likely to be poor in nonmetro areas than in metro areas. About one-quarter of the nonmetro old old were poor, compared with only about one-tenth of the nonmetro young old or the metro old old. The nonmetro old old may have outlived their assets, or they simply may have never earned as much income as the younger nonmetro elderly or the metro old old.

Poverty statistics may seem irrelevant for rural development schemes involving the income of the elderly, because no retirement county deliberately tries to attract the elderly poor. However, these statistics do point out that many of the nonmetro elderly currently in place are poor. For some rural areas, finding ways to provide the local elderly poor with medical facilities, transportation, meals-on-wheels, and other services may be a more pressing issue than devising ways to

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[12]Note that the person is the unit of observation in this section. Poverty status is provided only for persons on the longitudinal research file. Each person has a variable recording the total income of his or her family for each month and a variable recording the poverty level for his or her family each month. (Family membership can change from month to month.) The poverty level for the entire 12-month period is calculated by adding the 12 monthly poverty levels. If the sum of the 12 income amounts is less than the 12-month poverty level, the person is poor (Hoppe, 1988, p. 10). See "poor" in the glossary for more information.

Table 3. The elderly and nonelderly sorted by the ratio of family income to the poverty level, by residence, 1983-84

Item	Metro				Nonmetro			
	Non-elderly	Elderly			Non-elderly	Elderly		
		Total	Young old 1/	Old old 2/		Total	Young old 1/	Old old 2/
	---Thousands---				---Thousands---			
Number of people	151,838	18,552	11,257	7,295	50,106	7,765	4,811	2,954
People sorted by the ratio of family income to the poverty level:								
Less than 1	18,344	1,583	808	775	7,335	1,387	641	746
1 to 1.999	27,857	5,223	2,625	2,598	13,162	2,488	1,342	1,146
2 to 2.999	33,537	4,606	3,008	1,598	11,629	1,768	1,293	475
3 to 3.999	26,833	2,916	1,943	973	7,691	980	704	276
4 or more	45,267	4,224	2,873	1,351	10,289	1,142	831	311
	---Percent---				---Percent---			
Percentage distribution by the ratio of family income to the poverty level:								
Less than 1	12.1	8.5	7.2	10.6	14.6 *	17.9 *	13.3 **	25.3 *
1 to 1.999	18.3	28.2	23.3	35.6	26.3 *	32.0	27.9	38.8
2 to 2.999	22.1	24.8	26.7	21.9	23.2	22.8	26.9	16.1
3 to 3.999	17.7	15.7	17.3	13.3	15.3 *	12.6	14.6	9.3
4 or more	29.8	22.8	25.5	18.5	20.5 *	14.7 *	17.3 *	10.5 **

*Significantly different from the metro percentage at the 95-percent level.
**Significantly different from the metro percentage at the 90-percent level.

Note: Items may not sum to total due to rounding.

1/ The "young old" are 65 to 74 years old.
2/ The "old old" are 75 years old and older.

Source: SIPP (U.S. Bureau of the Census, 1987).

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attract additional elderly. Development plans based on the spending of the local elderly may not yield many results in these areas.

Obviously, areas trying to attract the elderly will direct their appeals to people with incomes well above the poverty level. Selective areas may try to target the "comfortably retired," defined here as people with income at least twice the poverty level (Longino, 1988, p. 24). Areas targeting the comfortably retired elderly would have a large market, approximately 15.6 million (11.7 million in metro areas and 3.9 million in nonmetro areas).

Although many of the comfortably retired do have high incomes, people with income at least double the poverty level are not necessarily well-to-do. Two times the poverty level was only $9,550 for one person living alone and $12,038 for a couple in 1983 (table 4). In comparison, the median income was $10,352 for all unrelated individuals and $25,037 for all families on the longitudinal research file.

In addition, as these people age, their income levels may come to resemble those of the old old. The future old old, however, may never be as poor as those currently in that age group, because real wage levels have gradually risen over time. As a result, Social Security and pension benefits, which are determined (in part) by wage levels, should be higher for more recent retirees.

More selective areas may want to target their appeals to elderly with higher incomes to reduce future poverty problems among the old old. Appealing to higher-income elderly, however, reduces the potential market. For example, areas restricting their appeals to people with

Table 4. Multiples of the poverty level for an elderly individual and for an elderly couple, 1983

Item	One person, 65 years old and over	Couple, householder 65 years old and over
Poverty level	4,775	6,019
Two times poverty level	9,550	12,038
Three times poverty level	14,325	18,057
Four times poverty level	19,100	24,076

Source: U.S. Census Bureau, 1985, p. 179.

FILE=TABLE4HH.WK1

income at least four times the poverty level would have a market of only 5.4 million people.

In addition, not all of the old-old elderly's problems are financial:

> Longer life expectancy means that more elderly Americans will be disabled and that individuals may spend more of their lives suffering from chronic medical problems. Medical advances are extending life faster than they are slowing the onset of chronic conditions. Dementia, for example, typically strikes people in their 70s and 80s. As a greater proportion of people live to see that age, the incidence of dementia will increase (Greenwald, 1989, p. 36).

Even retirement areas specializing in the well-to-do will have to face the health problems of the very old.

On the other hand, local areas do not bear all the costs of deteriorating health. Government and private health insurance largely pay for the elderly's medical expenses,[13] while local taxes generated by retirement income help offset local public costs (Longino and Crown, 1989, p. 31). And, providing health care to the elderly can generate business opportunities and jobs.

Note that the effective market for retirement counties is much smaller at all income levels than table 3 suggests, because relatively few elderly move. Between 1975 and 1980, slightly more than 4 percent of the elderly moved to different States (Taeuber, 1983). Migration seems to select elderly of higher socioeconomic status, however. Elderly who

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[13]In 1984, Medicare, Medicaid, and private insurance covered about 69 percent of the elderly's health care expenditures (U.S. House of Representatives, 1989, p. 230). The elderly paid for about 25 percent of their health care expenses from their own funds. The elderly's out-of-pocket health care expenditures amounted to $1,059 per capita, including $441 for nursing homes.

migrate across state or county lines have higher family income and more education than elderly who do not move at all (Biggar, 1980, p. 83).

In addition, some migration of the elderly is away from traditional retirement areas. For example, there were substantial flows of the elderly from Florida to States that send migrants to Florida. Many of these migrants probably moved to Florida early in their retirement, but later returned to their States of origin to be near family members when a spouse died or when health or financial problems began (Biggar, 1984, pp. 5-6).

Nevertheless, the amount of income migrating retirees bring to an area can be substantial. Between 1985 and 1990, migrating retirees age 60 and above will bring an estimated $1.7 billion of income to Florida from New York alone (Longino and Crown, 1989). The potential economic gain has lead States

> ...to compete for out-of-state retirees. This growing competition could change the size and direction of elderly migration before the turn of the century. The Sunbelt states are pursuing retirees with the same gusto that they once pursued industry...(Longino and Crown, 1989, p. 31).

In the ensuing competition, not all rural areas will be able to attract affluent retirees, just as some rural communities failed to attract industrial plants in the past. State planners need to recognize that competing for elderly migrants has become more difficult for rural areas (Schneider, 1987).

The Elderly's Share

It is difficult to make any generalizations about the share of property and transfer income that the elderly receive without examining each source of income separately. One cannot assume that the elderly

receive most property and transfer income. As mentioned earlier, people other than the elderly can receive property income, and programs that largely serve the elderly also provide benefits to the disabled and to survivors of deceased workers. On the other hand, the elderly receive benefits from programs that are not designed primarily to serve them as elderly persons. For example, both poor elderly and poor nonelderly may receive Food Stamps.

SIPP Income

The elderly's share of selected sources of income, based on SIPP data from the 1983-84 longitudinal research file, will be examined next. Later, the elderly's share of the unearned income recorded by BEA will be imputed.

Earnings. As one would expect, elderly households received a small portion of total earned income in both metro and nonmetro areas (table 5).

Retirement and Related Programs. In contrast, the elderly received about two-thirds of the benefits from retirement and related programs in both metro and nonmetro areas. The share of benefits going to the elderly, however, varied from program to program. Social Security distributed the highest share to the elderly, about three-quarters of all benefits in both metro and nonmetro areas. The remaining benefits support the disabled and their dependents, survivors of deceased workers, and people who retired before age 65.

The lowest share of retirement program benefits received by the elderly was for military retirement, 23 percent at the national level

Table 5. Elderly households' share of income, by source, 1983-84

Item	U.S. Total			Metro			Nonmetro		
	Total amount	Elderly hhld. amount	Elderly hhld. share	Total amount	Elderly hhld. amount	Elderly hhld. share	Total amount	Elderly hhld. amount	Elderly hhld. share
	--Thous. households--		Pct.	--Thous. households--		Pct.	--Thous. households--		Pct.
Households	86,856	17,939	20.7	64,934	12,560	19.3	21,916	5,379	24.5 *
	--Million dollars--		Pct.	--Million dollars--		Pct.	--Million dollars--		Pct.
Total income 1/	2,335,149	314,376	13.5	1,818,064	234,575	12.9	516,964	79,801	15.4 *
Earnings	1,807,132	62,693	3.5	1,423,318	49,147	3.5	383,716	13,546	3.5
Unearned income	527,577	251,247	47.6	396,601	185,444	46.8	130,967	65,803	50.2
Total Transfers	329,958	172,815	52.4	245,876	126,334	51.4	84,073	46,481	55.3 *
Govt. transfer payments 2/	271,364	150,537	55.5	199,335	108,229	54.3	72,020	42,308	58.7 **
Retirement & rel. prog. 3/	213,262	142,291	66.7	156,103	103,026	66.0	57,152	39,265	68.7
Social Security	148,949	112,677	75.6	108,038	81,101	75.1	40,911	31,577	77.2
Federal civilian ret.	19,239	11,332	58.9	14,197	8,495	59.8	5,042	2,837	56.3
State & local govt. ret.	16,706	9,841	58.9	12,872	7,529	58.5	3,833	2,312	60.3
Income maintenance 4/	33,414	4,585	13.7	25,759	2,950	11.5	7,653	1,635	21.4 *
Supplemental Sec. Inc.	8,727	3,414	39.1	6,412	2,175	33.9	2,315	1,239	53.5 *
Food Stamps and WIC	10,215	671	6.6	7,087	394	5.6	3,126	277	8.9
Veterans' benefits	10,342	3,250	31.4	7,002	1,976	28.2	3,339	1,274	38.1
Private transfer payments 5/	58,594	22,278	38.0	46,541	18,105	38.9	12,053	4,173	34.6
Private retirement 6/	39,388	21,675	55.0	30,968	17,685	57.1	8,419	3,990	47.4
Property income:	197,618	78,432	39.7	150,725	59,110	39.2	46,893	19,322	41.2
Interest	113,394	51,687	45.6	87,586	38,689	44.2	25,808	12,998	50.4
Dividends	37,949	14,419	38.0	29,388	11,816	40.2	8,561	2,603	30.4
Net income from rentals	24,521	5,296	21.6	19,749	3,328	16.9	4,772	1,968	41.2 *
Other property income 7/	21,755	7,030	32.3	14,002	5,277	37.7	7,753	1,753	22.6

*Significantly different from the metro percentage at the 95-percent level.

**Significantly different from the metro percentage at the 90-percent level.

Note: Items may not add to totals due to rounding and because some income sources were not given a separate line in the table. Also note that the U.S. total columns include a few cases that could not be assigned a metro or nonmetro residence.

1/ Includes miscellaneous items not shown separately.

2/ Includes unemployment insurance not shown separately.

3/ Includes Railroad Retirement, military retirement, workers' compensation, State temporary disability payments, and Black Lung payments not shown separately.

4/ Includes general assistance, refugee assistance, foster home care payments, Aid to Families with Dependent Children, and other income maintenance not shown separately.

5/ Includes money from relatives or friends, charity, alimony, and child support not shown separately.

6/ Company or union pensions; other payments for retirement, disability, or survivors; and paid up life insurance or annuities.

7/ Income from estates or trusts, royalties, and other investments.

Source: SIPP (U.S. Census Bureau, 1987). FILE=TABSIG05.WK1

(not shown in table 5).[14] Retirement from the military can come fairly early in life:

> ...An average retiree is a master sergeant with 23 years of service. Under the 1987 military pay schedule, his annual retirement pay would be $12,000. Typically, he receives retirement pay for an average of 35 years starting in his early forties (Arguden, 1988, p. 529).

In selecting a place to live, job availability may be more important to the relatively young military retirees than amenities or a low cost of living.

Other Government Programs. The larger share of income maintenance going to the elderly in nonmetro areas reflects the nonmetro elderly's higher poverty rate. A larger share of SSI, which makes up the bulk of the elderly's income maintenance, also went to the elderly in nonmetro areas. Note that the percentage of the elderly's income from income maintenance and SSI was also higher in nonmetro areas (table 1).

Private Retirement. The share of private retirement going to the elderly seems low in both metro and nonmetro areas (table 5). This may reflect a trend towards reduced retirement ages among private pension plans, which would decrease the share going to those at least 65 years old by increasing the share going to younger retirees. A recent Bureau of Labor Statistics (BLS) survey found that many plans reduced their normal retirement age to less than age 65 between 1974 and 1983 (Bell and

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[14]Military retirement was not shown in the tables because it has too few nonmetro recipient households to constitute an adequate sample for analysis.

Marclay, 1987). Of the 187 plans examined, 148 required no minimum age, age 62, or an earlier age in 1983, compared with 102 of the same 187 plans in 1974.[15]

Property Income. The elderly received about the same share of total property income in metro (39 percent) and nonmetro (41 percent) areas. However, the nonmetro elderly received a significantly larger share of rent than the metro elderly.

Total Unearned Income. Finally, the elderly's share of all unearned income can now be estimated. They controlled about 52 percent of all transfers, 40 percent of all property income, or about 48 percent of total unearned income, as recorded by SIPP. The elderly's share of total unearned income was slightly above the national average in nonmetro areas and slightly below the national average in metro areas. The metro-nonmetro difference in the elderly's share of total unearned income was not statistically significant, however.

BEA Property and Transfer Income

One cannot assume that the elderly's 48 percent share of property and transfer income derived from the SIPP also applies to the BEA data,

[15]Although the plans examined do not form a representative sample, they do cover a large number of workers and illustrate changing retirement provisions (Bell and Marclay, 1987, p. 18).

because income is defined differently in the two data sources.[16] An estimate developed specifically for the BEA data is necessary.

To get an estimate of BEA unearned income that goes to the elderly, the elderly's percentage share of each BEA transfer and property income category was calculated from SIPP data. The appropriate percentage was then applied to the corresponding dollar amounts from the BEA to estimate the elderly's dollar share. In a few cases, data other than income receipts were used as an allocator, due to lack of income data. For a more detailed explanation of the methods used to allocate BEA transfer and property income between the elderly and nonelderly, turn to Appendix II.

Three BEA items--payments to nonprofit institutions, imputed interest, and imputed rent--were not allocated between the elderly and nonelderly because they are not "spendable." They provide neither cash for people to spend nor in-kind goods or services, such as medical care, that people would otherwise have to buy or do without. Government and business payments to nonprofit institutions were not allocated because they go to organizations, not directly to people. The two other items, imputed interest and imputed rent, are accounting conventions necessary to estimate personal income, but are not accessible to consumers for spending in local stores. For example, most imputed interest consists of income withheld by life insurance companies and private pension funds on behalf of people. This income remains with the insurance company or

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[16]For example, BEA data include Medicare and Medicaid, imputed rent and interest, and government and business payments to nonprofit institutions. All these items are excluded from income in the SIPP. On the other hand, BEA excludes income from private pensions (Hoppe and Saupe, 1982, pp. 31-32), which the SIPP includes.

pension fund and is not immediately available for local spending. Again, see Appendix II for more details.

The results of the allocation procedure are summarized in table 6 and compared to the results from SIPP. The elderly receive about 53 percent of transfers, 32 percent of property income, and about 42 percent of all unearned income recorded by BEA. Note that the elderly's shares of property income and total unearned income are substantially less in column 1 than in column 2, largely because of the exclusion of imputed interest, discussed above, which makes up 29 percent of BEA property income.

The rural development specialists cited in the introduction were correct in pointing out that the elderly can have an important impact on local economies. Transfer payments and property income, as recorded by BEA, are a large source of income amounting to nearly one trillion dollars in the 1983-84 period examined here. And, the elderly control about two-fifths of this amount.

Nevertheless, the elderly do not control the other three-fifths. Efforts to attract the migrating elderly or to provide places where local elderly can buy goods and services may not necessarily capture much of the local unearned income that BEA records. Even in retirement counties, a substantial share of BEA unearned income is likely to go to the nonelderly. Using unearned income reported by BEA as an indicator of the amount of income controlled by the elderly can be misleading.[17]

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[17]The BEA data are often used for this purpose. For example, see Pulver (1986) and Summers and Hirschl (1985a).

Table 6. Elderly households' share of total unearned income, transfers, and property income

Item	From BEA, allocated with SIPP 1/	From SIPP 2/
	---Percent---	
Total unearned income	41.7	47.6
Transfer payments	52.7	52.4
Property income	31.8	39.7

1/ From appendix table II-1
2/ From table 5.

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IMPLICATIONS

Property and transfer income has grown rapidly in recent years and now forms a large share of total income, particularly in nonmetro areas (figure 1). Although the elderly formed only 21 percent of all households, they received nearly half of the income from these sources recorded by SIPP (table 5). Obviously, the elderly's unearned income can have an important impact on nonmetro areas that have attracted migrating elderly. It also can be important in nonmetro areas where the elderly form a large share of the population because of outmigration of younger people. The importance of these sources of income would have been even greater if retirees younger than 65 were considered.[18]

Attracting elderly migrants apparently has contributed to rural economic growth in the recent past. The per capita income gap between metro and nonmetro counties declined only in nonmetro retirement counties that experienced substantial migration of people at least 60 years old. The potential for attracting the elderly as a development strategy, however, is limited by the number of elderly of adequate means who are willing to move to rural retirement areas. Many rural areas will be able to attract the affluent elderly, but not all.

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[18]Note, however, that the size of the population that retires before age 65 should not be exaggerated. For example, men at least 60 years old in 1989 who were not in the labor force equalled 12.4 million, which is only 2.1 percent higher than the total number of men over 65 (U.S. Department of Labor, 1990a, p. 162). Relatively few men under 60 years old appear to consider themselves retired. In the fourth quarter of 1989, only 3.3 percent of males who reported retirement as a reason for not being in the labor force were younger than age 60 (U.S. Department of Labor, 1990b, p. 61).

Using unearned income reported by BEA as an indicator of the income controlled by the elderly can be misleading. Assuming that BEA property and transfer income goes mostly to the elderly may overstate the potential impact of the elderly's income. The elderly actually control only about 42 percent of total transfer and property income recorded by BEA (table 6). Efforts of rural areas to attract the migrating elderly or to provide places for the local elderly to spend their money may not necessarily capture as much income, particularly property income, as BEA data suggest.

Despite their large property and transfer income, the elderly should not be viewed solely as potential customers for rural businesses. Many elderly are poor, particularly in nonmetro areas (table 3). For some nonmetro areas, providing needed services--such as medical facilities and transportation--to local elderly poor may be a more pressing issue than finding ways to attract elderly people with income to spend. Although most elderly are in good health, both physically and financially, they age and become the old old. Many become frail, and some may outlive their assets. They, too, may need help.

Local areas, however, do not bear all the costs of deteriorating health. The government and private insurance largely pay for the elderly's medical expenses. Careful planning in retirement counties can also help compensate for deteriorating physical or financial health:

> Policy makers and [social work] practitioners can either begin now to plan for long-range needs of retirees as they grow older; or discourage retirees from spending the rest of their lives in a remote rural community, encouraging instead location in the area during early active retirement years only. Should additional support services not be forthcoming, it might be wise to market the community as ideal for early retirement years, suggesting a contingency plan for a less vigorous environment should that be necessary in later years. This

would mean that retirees might be encouraged to plan for the eventual resale of their homes, for example, with low equity and assumable mortgages rather than purchasing their homes outright (Tripple, et al., 1989, pp. 30-1).

Readers may wonder how dependence on property and transfer income will affect local economies. They may also question the future solvency of the Social Security program, given recent coverage of the topic in the press.[19] Although neither of these questions can be answered directly from SIPP or BEA data, they should be addressed in any discussion of the role of the elderly's unearned income in rural development plans.

Local Economic Impact

The elderly's unearned income can have beneficial effects on local economies. For example, property and transfer income may make local economies more stable and less susceptible to variations in employment by local industries:

> ...Unlike most labor-related industry sources of earnings, the level of transfer payment and investment incomes received by the residents of a region is not directly dependent on the current level of economic activity within the region. Consequently, as the transfer payment and investment incomes of elderly retirees become increasingly important sources of income and purchasing power within an area, they can alter its short-run cyclical pattern of income growth (Smith, 1986, p. 3).

Property and transfer income also has strong income multiplier effects in nonmetro counties, regardless of the counties' economic specialization (Sanford, 1988). Hirschl and Summers (1982) also found that Social Security has large employment multipliers. They suggested two possible reasons for the high employment multipliers. First, retired

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[19]See, for example, Allen (1988) or Srodes (1988).

people spend a large share of their income locally. Second, a large retired population may be associated with the expansion of the local health sector.

The jobs created, however, may be relatively low-paying. Much spending by elderly households is for items purchased from retail stores and service firms,[20] which often do not pay their workers particularly well (Schneider, 1987, p. 7). Note, however, that households in general spend heavily on the same types of goods and services. The low-wage criticism should not be restricted to rural development strategies based on the income of the elderly. Any other strategy that depends on spending by households, such as tourism development, is subject to the same criticism.

Regardless of the wages paid by the jobs created, some counties with a small population base may not be able to benefit from potential multiplier effects. For example, Sanford (1988) found that his regression model to estimate income multipliers worked best in "large" counties having at least one town with a population of 2,500 or more residents:[21]

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[20]Based on personal consumption expenditures data from Lazer and Shaw (1987, p. 40). About 48 percent of the spending by households with a young-old householder went for food, clothing, house furnishings and equipment, autos, gasoline, auto repair, personal care, entertainment, alcohol, and tobacco. Only 37 percent of old-old household purchases went for these items; old-old households devoted more of their expenditures to shelter, utilities, health care, and contributions.

[21]The service sector in the quote includes industries producing for the local, or residentiary market. The remaining industries form the basic sector, attracting income from outside the areas (Sanford, 1988, p. 2).

> The relatively poor performance of the model for the small county groups may be due to the lack of economic development in those counties. By definition, these small counties have no urban place of greater than 2500 residents. In such an undeveloped area, the service sector may likewise be undeveloped. When services exist in close proximity, yet outside county boundaries, county residents may spend their money elsewhere. In this situation, the small undeveloped community is simply unable to capture income...(Sanford, 1988, p. 12).

Finally, not all property income goes to elderly people of modest means who are drawing interest to use in their retirement. Some of it also goes to people of all ages in the upper income brackets who have accumulated property. Over time, a more unequal income distribution could develop in those nonmetro areas with a heavy dependence upon property income (Hoppe, 1987, p. 3).

The Future of Social Security

About a third of the income of the elderly comes from Social Security (table 1), and in nonmetro areas the fraction is even higher, about two-fifths. Thus, the future of the Social Security program is critically important to rural areas dependent on retirement income from either migrating or native elderly.

Social Security benefits do not materialize mysteriously out of thin air, like manna from heaven. They come from a trust fund built up through payroll taxes. Areas that decide to pursue the income of the elderly must be aware of the current and future status of the trust fund.

The Social Security retirement and disability trust fund is currently building up a large surplus to help pay for the future benefits of "baby boomers" (Hambor, 1987). Eventually, this surplus will be drawn

down to pay retirees starting in 2030 and, barring future payroll tax increases, will turn into a deficit by 2051.[22]

Over the next 75 years, Aaron et al. (1989, p. 123) estimate that payroll taxes need to be raised an additional 6.9 percentage points to pay for both Social Security and Medicare. A 6.9 percentage point increase over 75 years may seem acceptable. However, this represents a 45 percent rise in the 15.3 percentage point rate currently paid by employees and employers to support Social Security and Medicare.[23] Without strong economic growth, these increases would impose substantial burdens on future workers and their employers, who may balk at paying the payroll taxes necessary to maintain the current benefit levels.

Beyond the Elderly

Nevertheless, the Social Security income of the elderly appears secure until at least 2030. Development strategies based on the income of the elderly will be feasible for years. Rural areas, therefore, have the opportunity to follow a short-run and a long-run development strategy at the same time.

James Hite (1987, pp. 7-9) suggests that some rural areas in the South could develop a service-oriented economy centered on retirees while simultaneously developing human capital through education. The human capital approach will not provide results for 15 to 20 years. In the

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[22]For a more detailed discussion of the future of Social Security and the relationship between the program and the economy, see Appendix III.

[23]Employees and employers each pay half of the Social Security and Medicare payroll taxes. The combined tax currently is 15.3 percent on wages up to $51,300 (U.S. House of Representatives, 1989, p. 67; Dentzer, 1990).

meantime, the retirement economy could produce jobs for relatively low-skilled people.

Combining the two strategies may not be easy, according to Hite:

> ...retirees often are not as interested in support of public education as persons with young families, and they often resist higher taxes for education. Retirees vote in greater proportion to their numbers than other groups in the population; hence, their political views are apt to carry weight out of proportion to their numbers in the population and they may exercise an effective veto on implementation of the human capital strategy. The more successful a state or community becomes in attracting retirees, the greater the risk that the political microclimate will turn unfavorable to support for large investments in human capital. If that were to happen, the outcome would be a dead-end on that state or community's development sometime in the future (Hite, 1987, p. 9).

Although Hite may overstate the resistance of the elderly to educational spending, he does point out a potential problem.

Also note that out-migration from nonmetro areas is highest among better-educated people (McGranahan, 1988, p. 12). Unless more jobs requiring better educated workers are created in nonmetro areas, developing human capital could lead to higher out-migration.

A FINAL NOTE

The goal of this report is neither to discredit using the income of the elderly as a development tool, nor to alarm people about the future of Social Security. Capturing the income of the elderly in local economies can be a viable development option. But remember that the income of the elderly and its relationship to the local economy is a complex topic. Anyone devising development strategies based on the income of the elderly must monitor these income sources, now and in the future. Property and transfer income of the elderly is not a rural development panacea in either the short or the long run.

APPENDIX I:
UNDERREPORTING IN THE SIPP

The Census Bureau uses a different approach in producing its SIPP data than the BEA uses in its local area income series. The BEA bases its estimates of local income largely on administrative records kept by various agencies, as well as surveys and censuses conducted by organizations other than BEA (U.S. Department of Commerce, 1988a). The Census Bureau, in contrast, bases its SIPP estimates on a sample survey.

Survey respondents may not report all their income to the SIPP interviewer, due to forgetfulness or a desire to keep receipt of some sources of income confidential. As a result of this underreporting, SIPP estimates of income receipts are smaller than BEA estimates. Appendix table I-1 presents size comparisons for selected income sources. When comparing BEA and SIPP data, however, one should remember that both sets of numbers are only estimates based on different procedures. Remember also that the BEA data are not error-free either.

Underreporting is a problem for any sample survey; it is not restricted to the SIPP. Compared with the venerable March Supplement to the Current Population Survey, the SIPP has made some progress in reducing underreporting for some income sources, although underreporting continues for other sources (Coder et al., 1987, p. 29).

Despite underreporting, the SIPP is still valuable, because it fills a gap in our knowledge--it provides information about the people who receive various sources of income. The BEA data can only show the income from a given source that flows into an area. They can not provide information about who receives the income. Used together, the two data

Appendix table I-1. Comparisons of SIPP and BEA totals for selected sources of income, 1983-84

Item	SIPP amount	BEA amount 1/	SIPP as pct. of BEA
	--Million dollars--		Pct.
Social Security	148,949	169,071	88.1
Railroad retirement	5,540	6,040	91.7
Federal civ. ret.	19,239	21,679	88.7
Military retirement	15,577	15,772	98.8
State and local govt. retirement	16,706	22,702	73.6
Supplemental Sec. Inc.	8,727	9,927	87.9
Aid to Families with Dependent Children	11,678	14,531	80.4
Food Stamps	9,108	10,852	83.9
Unemployment compensation	14,346	20,822	68.9
Veterans compensation and pensions	9,283	13,532	68.6
GI Bill educational benefits	1,058	1,363	77.6
Interest 2/	113,394	276,482	41.0
Dividends	37,949	72,403	52.4

1/ Adjusted to correspond to the 1983-84 time period used in the longitudinal research file. The adjustment procedure is the same used in Coder et al. (1987, p. 5).
2/ Includes only the monetary portion of interest.

Source: SIPP (U.S. Census Bureau, 1987) and BEA (U.S. Department of Commerce, 1989).

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sources complement each other and provide a better understanding of income receipts in rural areas. For a discussion of how different measuring procedures can result in different income estimates, see Ryscavage (1986).

APPENDIX II:
ALLOCATING BEA UNEARNED INCOME

This appendix explains how SIPP data were used to estimate the elderly's share of BEA transfer and property income. In general, the elderly's percentage shares of a detailed list of transfer and property income receipts were calculated from the SIPP 1983-84 Longitudinal Research File. These percentage shares were applied to the corresponding items from the BEA estimates of benefits paid (table II-1).[24] Many of the allocation factors in table II-1 also appear in table 5. Medical payments, mostly Medicare and Medicaid, were allocated by recipient data rather than by benefit data, because SIPP did not provide benefit data for these programs. A few items were allocated by the elderly's share of total households, for want of a better allocator.[25]

Estimates of the elderly's share of BEA income were prepared only for the U.S. as a whole; metro and nonmetro estimates are not presented. To do so would attribute more precision to the allocation procedure than is justified. Some of the sources in table II-1 provide income to relatively few households, even at the national level. Providing metro-nonmetro estimates would frequently require calculating percentages based

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[24]The SIPP income data are from late 1983 and early 1984, with 46 percent of the observations coming from 1983 and 54 percent coming from 1984. Because the BEA data are for calendar years, the amounts in the first column were calculated by adding 46 percent of the item from 1983 plus 54 percent of the corresponding item from 1984. Coder et al. (1987, p. 5) developed this adjustment procedure when comparing SIPP data from the longitudinal file with the corresponding data from the 1983 and 1984 Current Population Survey.

[25]These items are: veterans' life insurance benefits, other assistance to veterans, other payments to individuals, and business payments to individuals.

Appendix table II-1. Elderly households' spendable BEA unearned income, 1983-84

Item	Total amount	Elderly's share of spendable items 1/	Elderly's spendable amount	Elderly's share of total unearned income, transfers, & property income
	Million dollars	Percent	Million dollars	Percent
Total unearned income	954,808	N.A.	397,804	41.7
Total transfer payments	450,776	N.A.	237,627	52.7
Government transfer payments to individuals	424,979	N.A.	234,813	
Retirement and related programs	242,169	N.A.	162,742	
Social Security	169,071	75.6	127,817	
Railroad retirement	6,040	68.9	4,162	
Federal civilian employee retirement	21,679	58.9	12,769	
Military retirement payments	15,772	22.7	3,580	
State and local govt. employee ret.	22,702	58.9	13,372	
Other disability ins., and ret. payments 2/	6,905	15.1	1,043	
Medical payments 3/	99,032	61.5 4/	60,905	
Income maintenance	40,940	N.A.	5,443	
SSI	9,927	39.1	3,882	
AFDC	14,531	2.5	363	
Food Stamps	10,852	7.1	770	
Other Income maintenance 5/	5,629	7.6 6/	428	
Unemployment insurance benefit payments	20,822	2.9	604	
Veterans' benefit payments	16,354	N.A.	5,025	
Veterans pensions and compensation	13,532	34.9	4,723	
Educational assistance	1,363	0.0	0	
Veterans life insurance benefits	1,417	20.7 7/	293	
Other assistance to veterans	41	20.7 7/	8	
Federal education and training assistance 8/	5,206	0.0 9/	0	
Other payments to individuals 10/	457	20.7 7/	95	
Govt. and business pay. to nonprofit institutions	12,205	Not spendable		
Business payments to individuals 11/	13,592	20.7 7/	2,814	

(Continued)

Note: Footnotes are at the end of the table on the next page

Appendix table II-1. Elderly households' spendable BEA unearned income, 1983-84 (continued)

Item	Total amount	Elderly's share of spendable items 1/	Elderly's spendable amount	Elderly's share of total unearned income, transfers, & property income
	Million dollars	Percent	Million dollars	Percent
Total property income	504,032	N.A.	160,178	31.8
Dividends	72,403	38.0	27,513	
Interest	420,956	N.A.	126,076	
Monetary	276,482	45.6	126,076	
Imputed	144,475	Not spendable	0	
Rents and royalties	10,673	N.A.	6,589	
Monetary	26,356	25.0	6,589	
Imputed	(15,684)	Not spendable	0	

Note: N.A.=Not applicable. Item is calculated as a total of subgroups.

1/ Calculated from SIPP income data, unless noted otherwise.
2/ Includes temporary disability payments, black lung payments, and workers' compensation.
3/ Includes Medicare, Medicaid, and CHAMPUS.
4/ Allocated by elderly persons' share of total months of medicare and medicaid coverage.
5/ Includes general assistance, emergency assistance, refugee assistance, foster home care payments, earned income tax credits and energy assistance.
6/ Allocated by elderly households' share of general assistance; Indian, Cuban, or Refugee Assistance; foster child care payments; and other welfare income receipts from SIPP.
7/ Allocated by number of elderly households as percentage of total households.
8/ Includes Federal fellowship payments (NSF, fellowships and traineeships, subsistence payments to state maritime academy cadets, and other federal fellowships), interest subsidy on higher education loans, basic educational opportunity grants, and job corps payments.
9/ The elderly are assumed not to participate heavily in the programs listed in footnote 8.
10/ Includes BIA payments, educational exchange payments, compensation of survivors of public safety officers, compensation of victims of crime, Alaska permanent fund dividend payments, and other special payments to individuals.
11/ Includes consumer bad debts, personal injury payments to nonemployees, and other business transfer payments.

Source: SIPP (U.S. Bureau of the Census, 1987) and BEA (U.S. Department of Commerce, 1989). FILE=APPEN2.WK1

on fewer than 200,000 elderly recipient households. Even with national-level estimates, the allocation percentages for other income maintenance and educational assistance to veterans are based on fewer than 200,000 recipient elderly households.

Three items--payments to nonprofit institutions, imputed interest, and imputed rent--were not allocated because they are not "spendable." They do not go directly to people to spend locally nor do they provide people with an in-kind good or service that they would otherwise have to buy or do without. Government and business payments to nonprofit institutions go to organizations, not directly to people. The two other items, imputed interest and imputed rent, are accounting conventions that should be examined in greater detail.

The definition of imputed interest is long and detailed:

> ...Imputed interest represents the excess of income received by financial intermediaries from funds entrusted to them by persons over income disbursed by these intermediaries to persons. Part of imputed interest reflects the value of financial services rendered without charge to persons by depository institutions. The remainder is the property income held by life insurance companies and private noninsured pension funds on the account of persons; one example is the additions to policyholder reserves held by life insurance companies (U.S. Department of Commerce, 1988a, p. xvi).

In 1987, approximately 61 percent of total imputed interest income consisted of income withheld by life insurance companies and pension funds (U.S. Department of Commerce, 1988b, p. 101). The remaining 39 percent was the value of services, such as check clearing, provided free of charge by depository institutions.

Excluding imputed interest from allocation may seem rather arbitrary, because other noncash items, such as Food Stamps, are allocated. However, imputed interest is quite different from other

noncash income. Food stamps are practically the same as cash as far as local spending for groceries is concerned. A similar argument can be made about the relationship between medical programs, such as Medicare and Medicaid, and local medical expenditures.

In contrast, the relationship between local spending and the large portion of imputed interest withheld by life insurance companies and pension funds is more tenuous. For example, people covered by uninsured pension plans benefit from the plans' earnings. However, these earnings do not go to them in a form that they can currently spend. The earnings are withheld in the plans in their behalf and have no immediate effect on their spending.

The other portion of imputed interest, representing services provided free of charge by banks and other depository institutions, is more difficult to dismiss. One could argue that these free services release consumers' income for other spending. Ideally, the services should be enumerated locally and then priced to estimate a value.

However, this portion of imputed interest is actually calculated as the income depository institutions earn on the deposits entrusted to them minus the monetary interest paid on the deposits (U.S. Department of Commerce, 1986, p. 18). This residual is not calculated at the local level, but allocated from the national level to each county in proportion to the cash interest received by persons in the county (U.S. Department of Commerce, 1988b, p. xvii). It is difficult to see the connection between this residual and the availability of money for local spending, particularly when it is calculated from national-level data.

Imputed rent is easier to define and comprehend than imputed interest. It is the net rental value of owner-occupied housing. Note in table II-1 that imputed rent was negative. In other words, housing expenses cost home owners more than they would have paid renting. Not all of these expenses are paid with money; depreciation is a large expense item not reflected by cash flows. One could argue that a positive imputed rent is in-kind income similar to Medicare benefits. Negative imputed rent, however, is more like an expense. Therefore, imputed rent was not allocated in table II-1.

Including imputed interest and imputed rent is reasonable when devising an accounting system to estimate the total personal income that accrues to residents of an area. This imputed income, however, is not in a form that is readily accessible to individuals to spend. It should be excluded from estimates of local income available for spending when formulating rural development schemes.

APPENDIX III:
SOCIAL SECURITY AND THE FUTURE OF THE ECONOMY

Relying on the income of the elderly would appear to be a safe rural development strategy for the future, if the projected growth of the elderly population were the only important factor. The Social Security Administration (SSA) projects the population by age under three alternative sets of assumptions (Wade, 1988).[26] According to the SSA's intermediate projection, the one based on assumptions thought most likely to occur, the population at least 65 years old will be 37 percent larger in 2010 than in 1986.

Whether the elderly's income offers a sound economic base for nonmetro areas is not as clear, however. Because one-third of the elderly's income comes from Social Security alone (table 1), the future of that program is critical. The Social Security retirement and disability trust fund is currently building up a large surplus to help pay for the future benefits of "baby boomers" (Hambor, 1987). Beginning in 2030, this surplus will be drawn down to pay retirees and, barring future payroll tax increases, will eventually turn into a deficit by 2051.

Over the next 75 years, Aaron et al. (1989, p. 123) estimate that payroll taxes need to be raised an additional 6.9 percentage points to pay for both Social Security and Medicare. (About 2.4 percentage points

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[26]The projections developed by the SSA differ from those published by the Census Bureau. Census Bureau projections include only the U.S. and Armed Forces serving abroad. The SSA includes additional populations covered by the Social Security program: Puerto Rico, Guam, American Samoa, the Virgin Islands, and other citizens living outside the U.S. The SSA also uses assumptions different from those the Bureau uses. SSA projections are used here because they, not the Census Bureau projections, are used to assess the future of Social Security.

is for Social Security and 4.5 percent is for Medicare.) Without strong economic growth, these increases would impose substantial burdens on future workers, who may balk at paying the payroll taxes necessary to maintain the current benefit levels.

Part of the problem arises from the declining number of people of working age relative to the elderly. Under the SSA's intermediate projection, the ratio of people 20 to 64 years old to people at least 65 years old declines from about 5:1 in 1986 to 2.5:1 in 2033, where it stabilizes for decades (Wade, 1988, pp. 25-8).'

In the meantime, the retirement and disability trust fund has grown more rapidly than anticipated, due to a strong economy (Srodes, 1988, p. 16). There are three ways to handle the surplus (Aaron et al., 1989, p. 126; Allen, 1988, pp. C1-C2):

- Let the funds accumulate on paper, but borrow from them to cover deficits in the rest of the budget.
- Cut the payroll tax that provide income for the fund; the surplus will not accumulate.
- Allow funds to accumulate and balance the rest of the budget with higher taxes or decreased spending.

We are currently following the first course of action, using the surplus to offset budget deficits in the rest of the federal budget. When this course is followed "the trust fund more accurately represents a stack of IOUs to be presented to future generations for payment, rather than a buildup of resources to fund future benefits (Hambor, 1987, p. 17)."

Senator Moynihan recently suggested following the second option. He proposed cutting the payroll tax and funding the program on a "pay-as-you-go" basis (Dentzer, 1990). His proposal would prevent using the regressive payroll tax to fund government operations.

Aaron et al. (1989, pp. 10-12, 126) argue that the third course of action is the most desirable. A financial reserve results when the trust fund surplus is allowed to grow while the rest of the budget is balanced. The reserve can then be used to increase national savings and capital formation. The resulting increases in productivity would help future workers provide benefits, goods, and services for future retirees. In effect, the trust fund surplus provides an opportunity to increase the Nation's low savings rate. President Bush recently proposed a plan to follow the third course by 1996 (Rowen, 1990).

Finding ways to save the surplus and invest it productively is a difficult task with implications for the Nation's future economic growth (Rauch, 1988) as well as future retirees. How the trust fund surplus is handled could also affect the economic future of nonmetro areas that rely on the elderly's income. Under current law, the status of the retirement and disability surplus will not become critical until the 2030s, when it will begin to be drawn down.[27] However, ignoring the problem now because it will not manifest itself for decades may be considered rather short-sighted in the future.

Readers may question the conclusions presented here because they are ultimately based on long-term projections. Although economic projections are frequently criticized as poor predictors, they can still be useful in planning for the future:

> ...Like astrologers and futurologists, economists have limited success predicting events one year in the future, much less seven decades later. The value of the economic projections lies not in their capacity to accurately foretell the future, but in their

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[27]Medicare will have financial problems much earlier (Aaron et al., 1988, pp. 48-50).

representation of the logical implications of carefully stated economic and demographic assumptions (Aaron et al., 1989, p. 36).

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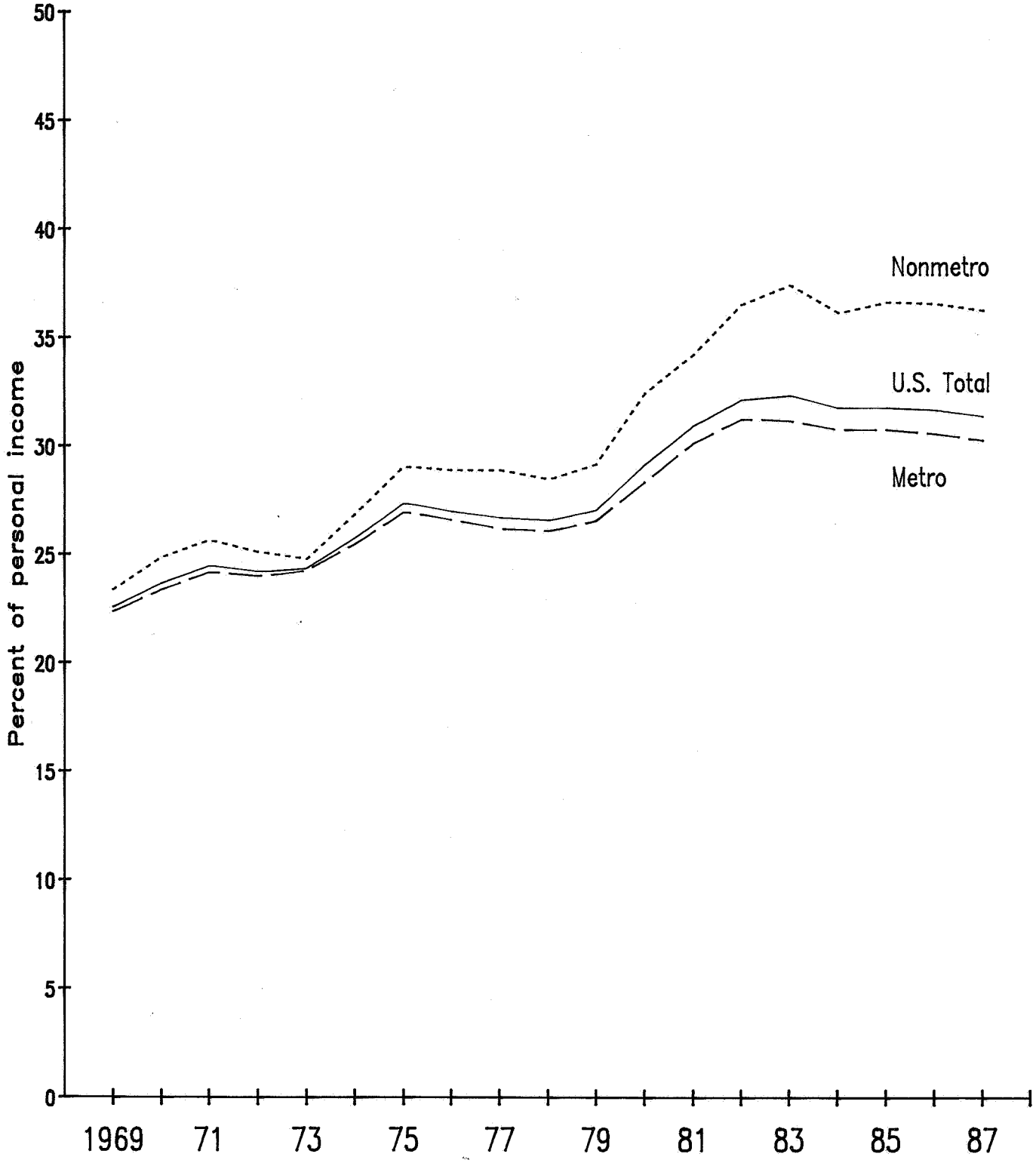
Figure 1. Unearned income is an increasing share of total personal income in the U.S.



Note: Unearned income consists of transfer payments and property income.

Source: BEA (U.S. Department of Commerce, 1989).

ORS working paper series

NUMBER 42

ALTERNATIVE ESTIMATES OF ECONOMIC WELL-BEING BY AGE USING DATA ON WEALTH AND INCOME

Daniel B. Radner

Division of Economic Research
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U.S. Department of Health and Human Services
Social Security Administration
Office of Policy
Office of Research and Statistics

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The interest rate and the time

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ALTERNATIVE ESTIMATES OF E
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I. Intro

Most analyses of economic st
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Aid to Families with Dependent Ch
the importance of both wealth and
income, and needs are not equally
amounts of wealth. A fully satis
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measure is not available. Partic
comparison of different age group
This exploratory paper examines t
for the analysis of the distribut
age groups in the current period.

The scarcity of data perhaps
relative neglect of wealth. For
on the distribution of wealth amo
the U.S. There was some informat
persons from estate tax returns a
surveys (e.g., Smith 1974; Lampma
Morgan 1966). Information for th

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(both measured as the salary or
usiness by the owner, rather than
nds, rent, royalties, Social
benefits, Supplemental Security
mpensation, veterans' benefits,
milies with Dependent Children,
alimony, income from estates and
Lump-sum and one-time payments,
e settlements, are included.
uded, as are accrued interest on
ings bonds. A definition that
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oyalties from total money income.
ealth used in this paper have
nt differential need associated
ze and age of householder. Each
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based on the scale implicit in
one-person household (all ages)
le.[11]

in this section. Variations of
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currently, their wealth can be
Such life-cycle increases are i
Young units are assumed to draw
units are assumed to do. Thus,
them to be inappropriate for th

For a given amount of curr
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value of that wealth. That is,
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a problem for the annuity-based
This property is even a problem
defined (age 65 and over) becau
included in that group.[2,3]

Another issue is the possi
annuity formulation and people'
evidence suggests that many peo
after retirement.[4] Also, purcha
rare. Several researchers (e.g
Hansen 1968) stated that the an
measure of potential consumptio
behavior.

Several researchers have u
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e highest constant real
laimed that the modified version
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cause the modified method takes
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rdhaus 1973, Irvine 1980), while
rent income (Beach 1981).
also been used. In looking at
ealth and income have been summed
McClung 1977, Radner 1990). In
f total wealth is used. Home
se it is not considered to be
nsumption.
alth has been added to income to
ent weighting of wealth relative
1977). Income flows have also
th (e.g., Hurd and Shoven 1983).
r-occupied homes has been
rchers (e.g., Wolff 1987).
been considered jointly in a
e.g., Habib, Kohn and Lerman
Wolff 1987). For example,
examined the percentage of each
ly low income and relatively low
ts of wealth have been compared

with poverty income gaps for poor
measured poverty of including the
eliminate those gaps has been cal
1966, Ruggles and Williams 1989).
households that had financial ass
of months of that household's inc
(Radner 1989a).

C. Desirable properties of a cur

It can be concluded from the
measures that have been used that
analysis of the economic well-bei
period has been found. In this s
properties for such a measure are

In the usual comparisons of
based on current income, it is or
unit has more income than another
income is better off (assuming id
units have identical incomes, the
Analogous properties for a curren
are suggested here.

Confining the analysis to th
life-cycle factors are not consid
for future income have no effect
that the aged have had more time
age groups have had is not taken

NPI+FA/x and TMI are used because the weights applied to wealth are about the same.

When NPI+FA/x is used, the median rises with age to a peak in the 45-54 age group ($18,500), then falls. The lowest median is in the 75 and over age group ($9,000), and the relative median for that age group is only 0.62. The median for that age group is only 49 percent of the median for the peak age group. The two aged age groups have lower medians than any age group in the 25-64 age range.

When NPI+FA/x is used, relative medians are very similar to those obtained when TMI is used. The relative median for the 75 and over age group is lower when NPI+FA/x is used than when NPI+FA/3 or NPI+ANFA is used. The relative median for the 65-74 age group is about the same (0.83-0.84) when NPI+FA/x, TMI, and NPI+ANFA are used. The relative median for that age group when NPI+FA/3 is used, however, is substantially higher (0.98).

The final measure examined is NPI+FA/c. Because of the relatively high weight assigned to wealth, it is expected that the aged would be relatively better off when this measure is used than when TMI, NPI+ANFA, or NPI+FA/x is used. It is not clear whether NPI+FA/c or NPI+FA/3 would be expected to be more favorable for the aged.

When NPI+FA/c is used, the median rises with age to a peak in the 45-54 age group ($20,000), then falls. The lowest median is in the youngest age group ($11,800), with the median for the 75 and over age group slightly higher ($11,900). The relative median for the 75 and over age group is 0.74. The median for the

than all the age groups in the 25-64 age range. The relative medians for NPI+ANFA are quite close to the relative medians for TMI except in the 75 and over age group, where the NPI+ANFA relative median is somewhat higher. That group has the shortest expected remaining lifetime. For the aged age groups, the NPI+ANFA relative medians are below the relative medians obtained for those age groups when NPI+FA/3 is used.

It should be noted that, for each age group under age 65, the NPI+ANFA median is less than or equal to the TMI median. The difference is largest in the 55-64 age group. The medians are also equal in the 65-74 age group. For each of those age groups, the aggregate annuity value of financial assets is less than the aggregate amount of property income. This comparison is quite sensitive to the interest rate used in computing the annuity and to the level of actual interest rates in 1984. As discussed earlier, a 2-percent real interest rate is used in NPI+ANFA, while annualized property income was about 8 percent of financial assets.

The aged would be expected to be relatively less well off when NPI+FA/x is used than when NPI+ANFA is used. This should be the case because in NPI+FA/x all age groups have the same fraction of wealth included, while in NPI+ANFA the aged have a higher fraction included than other age groups. Wealth has the same overall weight in both measures. The aged should also be less well off when NPI+FA/x is used than when NPI+FA/3 is used because the weight applied to wealth is much higher in NPI+FA/3. The aged should show about the same relative position when

age to a peak in the 45-54 age group ($20,600), then falls. The relative medians for the 65-74 age group (0.98) and the 75 and over age group (0.79) are substantially above the TMI values. Despite these increases, however, the median for the 75 and over age group is still only 63 percent of the peak median. The median for the 75 and over age group is still below all medians in the 25-64 age range, while the median for the 65-74 age group is still below all medians in the 35-64 age range.

The NPI+ANFA measure would be expected to show the relative economic status of the aged to be lower than the NPI+FA/3 measure showed because the relative weight assigned to wealth in NPI+ANFA is much lower. On the other hand, the lower expected remaining lifetime of the aged applied in NPI+ANFA would be expected to make the aged relatively better off. The results show that, for the specification used here, the relative weight differences between the two measures are much stronger than the differences produced by the expected remaining lifetime differences among age groups.

When the NPI+ANFA measure is used, the median rises with age to a peak in the 45-54 age group ($18,400), then falls. The peak is in the same age group as it was for TMI. The lowest median is found in the 75 and over age group ($10,200), and the relative median for that age group is only 0.70. The median for that age group is only 55 percent of the median for the peak age group. The median for the 75 and over age group is high relative to the median for the 65-74 age group for this measure (figure 1). As is the case for TMI, the two aged age groups have lower medians

improve the relative status of the aged compared with the relative status shown by NPI.

Medians by age of householder for the five measures discussed above are shown in table 3 and figures 1 and 2, and the corresponding relative medians (using all ages as 1.00) are shown in table 4 and figures 3 and 4. All amounts have been adjusted for household size.

1. Using financial assets

The all ages median is highest for NPI+FA/3 ($16,600), followed by NPI+FA/c ($16,000).[24] The NPI+ANFA and TMI measures have lower medians ($14,600), and NPI+FA/x has the lowest median ($14,500). These rankings are generally consistent with the relative weights assigned to wealth in the different measures.

The pattern of median TMI by age is a familiar one. Amounts are relatively low at the two age extremes and relatively high in the middle age groups. Median TMI peaks in the 45-54 age group at $18,700, and is lowest in the 75 and over age group at $9,300 (figure 1). The relative median for the 75 and over age group (0.63) is roughly one-half of the relative median for the 45-54 age group (1.28) (figure 3 and table 5). The two aged age groups have lower medians than all other age groups except the youngest one.

The economic status of the aged relative to other age groups is improved substantially when the definition of resources is changed from TMI to NPI+FA/3. The median of NPI+FA/3 rises with

amounts.[21] The NPI+ANW and NPI+w/x measures assign the lowest relative weight to wealth. (By construction the weights for these two measures are equal.) These measures include 7.2 percent of financial assets and about 6.6 percent of net worth. In the NPI+ANW measure, the weight varies by age group. The older the age group (or, more precisely, the shorter the expected remaining lifetime), the higher the weight. The weights vary from about 0.03 for the youngest households to about 0.18 for the oldest.[22] In this method, the interest rate chosen affects the relative weight assigned to wealth. The higher the interest rate used, the higher the annuity value, ceteris paribus. The weight for the NPI+W/x measure does not vary among households. The overall weight for wealth in TMI is the ratio of aggregate annualized property income to aggregate wealth. The ratio of annualized property income (as defined in this paper) to financial assets (as defined in this paper) was 0.081. The ratio of annualized property income to net worth (as defined in this paper) was 0.027.[23]

C. Medians

Medians by age of householder for NPI, financial assets (FA), and net worth (NW) (adjusted for household size) are shown in table 2. The NPI medians peak in the 45-54 age group, while the financial asset and net worth medians peak in the 65-74 age group. Thus, combining NPI and FA or NW would be expected to

included. The NPI+W/x measure assumes that the fraction 1/x of wealth is available, where x is 13.94 for financial assets and 14.97 for net worth, while the NPI+W/c measure assumes that the fraction 1/c of wealth is available (where c is 10 for the first $6,000 of wealth and 3 for the excess over $6,000).

In contrast to the income-wealth measures, TMI includes only the money income flow from the wealth. This income flow is a nominal flow, not a real flow. When the price level is rising, the nominal flow includes compensation for inflation, as measured by the decline in the real value of the asset. That part of the value of the wealth is counted as "being available for consumption" if the nominal flow is used. The size of the percentage decline in value is approximately the same as the rate of inflation.[20] The inflation rate was about 4 percent in 1984.

The differences among these income-wealth measures can also be viewed in terms of the relative weights assigned to wealth as opposed to income. The relative weight assigned to wealth can be put in terms of a fraction applied to the household's amount of wealth. Of the four specific income-wealth measures used here, NPI+W/3 assigns the highest relative weight to wealth. That measure includes 33.3 percent of financial assets and net worth (table 1). In this measure, the weight applied to wealth does not vary among households. The NPI+W/c measure has the next highest weight for wealth. That measure includes 29.4 percent of financial assets and 31.2 percent of net worth. The weight applied to wealth varies among households by size of wealth; the weight is lower for small amounts of wealth than for large

use of different expected remaining lifetimes for different households.

The fourth measure also sums nonproperty income and a fraction of wealth (NPI+W/c). The fraction is 1/c, where c = 10 for the first $6,000 of wealth and c = 3 for the excess of wealth over $6,000.[16] A smaller fraction is added in for the first $6,000 in order to allow for wealth set aside for contingencies. In this formulation, $5,400 (roughly the poverty threshold for one person in 1984) of the first $6,000 of wealth is excluded. The fractions and cutoff amount used are arbitrary and are used for purposes of illustration.[17]

Property income is excluded from income in all four income-wealth measures. The annuity method makes this exclusion and the exclusion is made for the other three measures discussed in this section in order to simplify the comparisons.[18,19] As noted earlier, NPI+ANW does not have any of the three desirable properties discussed earlier. The other three income-wealth measures shown here, however, do have all three properties.

The four income-wealth measures differ in the proportion of wealth that is considered to be available for consumption in the current period. The NPI+ANW measure takes account of both the asset amount and an interest component. This measure assumes that a constant real amount of wealth plus interest that is consistent with exhausting that wealth over the expected remaining lifetime of the unit is available in the current period. The NPI+W/3 measure assumes that one-third of wealth is available in the current period. No interest component is

results to differences among the methods of taking wealth into account. The first measure includes only income and consists of total money income before taxes (TMI). This is the definition of resources ordinarily used in the analysis of income.[12]

The other four measures are income-wealth measures that combine data on income and wealth in various ways. One measure sums nonproperty income (NPI) and the annuity value of wealth (NPI+ANW).[13] The expected remaining lifetime of the householder and a real interest rate of 2 percent were used in computing the annuity.[14] The assumption that the interest rate was a real rate produced an annuity that was fixed in real terms.[15]

The second measure sums nonproperty income and one-third of wealth (NPI+W/3). The fraction used is arbitrary and merely serves to illustrate this type of measure. The use of a fraction of one-third is equivalent to the use of an annuity of about 3.1 years for all age groups (with a 2-percent interest rate).

The third measure sums nonproperty income and a fraction of wealth (NPI+W/x), where the fraction 1/x is chosen so that the aggregate value of the fraction of wealth is equal to the aggregate value of the annuities for the current year. The fraction is much lower than the one-third used in the previous measure; the fraction is about 1/14 for financial assets and 1/15 for net worth. Using 1/x is equivalent to the use of an annuity for all age groups of 16.5 years for financial assets and 18.0 years for net worth (with a 2-percent interest rate). Comparisons between NPI+W/x and NPI+ANW show the effect of the

deductions. The definition includes wages and salaries, nonfarm and farm self-employment income (both measured as the salary or other income received from the business by the owner, rather than as net profit), interest, dividends, rent, royalties, Social Security and railroad retirement benefits, Supplemental Security Income payments, unemployment compensation, veterans' benefits, workers' compensation, Aid to Families with Dependent Children, government and private pensions, alimony, income from estates and trusts, and other income types. Lump-sum and one-time payments, such as inheritances or insurance settlements, are included. Capital gains or losses are excluded, as are accrued interest on IRA's, Keogh plans, and U.S. savings bonds. A definition that will be used in this paper, nonproperty income, excludes interest, dividends, rent, and royalties from total money income.

The amounts of income and wealth used in this paper have been adjusted to take into account differential need associated with differences in household size and age of householder. Each household's income and wealth were divided by the appropriate value from an equivalence scale based on the scale implicit in the U.S. poverty thresholds.[10] A one-person household (all ages) was used as the base for the scale.[11]

B. Measures compared

Five measures are compared in this section. Variations of some of those measures are shown later. The principal purpose of these comparisons is an examination of the sensitivity of the

Unsecured debt includes credit card and store bills, doctor, dentist, hospital and nursing home bills, loans from financial institutions and individuals, and educational loans. The reference date for debt amounts was also the last day of the month preceding the interview. Although the value of household durables is not included in wealth, debt incurred to purchase those items is included in unsecured debt.[9]

It is important to note several problems with the SIPP wealth data. Aggregate amounts of home equity and vehicle equity appear to be overstated substantially, while financial assets, equity in business and rental property, and unsecured debt appear to be underestimated substantially (U.S. Bureau of the Census 1986b, table D-3). Although there is uncertainty about the accuracy of the independent aggregates used in these comparisons, the size and pattern of the differences suggest a problem. There is also general agreement that the SIPP estimates of the upper tail of the wealth distribution are not very good. The emphasis in this paper is on households that are not wealthy. Thus, the accuracy of the estimates of the upper tail is not an important concern here. Also, item nonreponse rates were high for amounts of many financial assets. Missing amounts were imputed by the Census Bureau. Nonresponse rates for asset ownership were low.

The income estimates used here are 4-month amounts that have been annualized (by multiplying them by three). The income information is for the 4 months preceding the interview month. Thus, the amounts are for the May through November 1984 period. Income is defined to be money income before taxes or other

householder, the person (or one of the persons) in whose name the residence is owned or rented.[7] It should be noted that, when this classification method is used, some aged persons are included in nonaged households and some nonaged persons are included in aged households.

Two definitions of wealth, net worth and financial assets, are used in this paper. Financial assets are generally considered to be more liquid than net worth, primarily because net worth includes equity in owner-occupied homes.[8] Net worth is defined to be equity in assets minus unsecured debt. Equity in assets consists of the following five items: (1) Equity (market value minus debt) in owner-occupied homes; (2) equity in motor vehicles; (3) equity in business, professional practice, or farm; (4) equity in rental property, vacation homes, and other real estate; and (5) financial assets. Financial assets include passbook savings accounts, money market deposit accounts, certificates of deposit, interest-earning checking accounts, money market funds, U.S. government securities, municipal or corporate bonds, stocks and mutual fund shares (less associated debt), U.S. savings bonds, IRA and Keogh accounts, regular checking accounts, mortgages held for sale of real estate, amount due from sale of business or property, other interest-earning assets, and other financial assets. The reference date for asset amounts was the last day of the month preceding the interview. It should be noted that social security wealth and pension wealth are not included in assets.

income and more wealth than an older person could have a lower value for the expected remaining lifetime annuity income-wealth measure than the older person.

Income-wealth measures that use expected remaining lifetimes (whether or not in an annuity formulation), or that use differing lengths of time for different units in other ways, do not have any of these three properties. Measures that consider only income or only wealth have only two of the three properties. Measures that sum income and a fraction of wealth (e.g., those shown later in this paper) have all three properties. In those measures, a difference in income or wealth always produces a difference in the same direction in the income-wealth measure. It should not necessarily be assumed, however, that those measures are the most appropriate. These properties could be considered necessary for an appropriate measure, but they certainly are not sufficient.

III. Estimates

A. Data and definitions

The estimates in this paper were made using data from Wave 4 of the 1984 SIPP.[6] That wave contained information from interviews conducted in September through December 1984. The household is the unit of analysis. The estimates shown here are based on information for 18,701 households. Households are classified by age according to the characteristics of the

comparisons of income also do not take life-cycle factors into account.

Three properties are suggested. Identical needs are assumed.[5]

(1) If two units have identical amounts of income and identical amounts of wealth, then they should have identical values of the income-wealth measure.

(2) If two units have identical amounts of income, but one has more wealth than the other, then the unit having the higher amount of wealth should have a higher value of the income-wealth measure.

(3) If two units have identical amounts of wealth, but one has more income than the other, then the unit having the higher amount of income should have a higher value of the income-wealth measure.

Annuity measures that use expected remaining lifetimes do not have any of these three properties. The first property is violated because persons with different expected remaining lifetimes will have different annuity values for wealth. The second property is violated because a young person with higher wealth could have a lower annuity value than an older person with lower wealth. The third property is violated because the younger person could have an annuity value of wealth that was lower by enough to offset the income difference between the younger person and the older person. In fact, a younger person who has more

with poverty income gaps for poor units and the impact on measured poverty of including the drawing down of wealth to eliminate those gaps has been calculated (Projector and Weiss 1966, Ruggles and Williams 1989). Also, the percentage of households that had financial assets greater than a given number of months of that household's income has been computed (Radner 1989a).

C. Desirable properties of a current period measure

It can be concluded from the discussion of income-wealth measures that have been used that no satisfactory measure for the analysis of the economic well-being of age groups in the current period has been found. In this section, three simple desirable properties for such a measure are suggested.

In the usual comparisons of economic well-being that are based on current income, it is ordinarily assumed that if one unit has more income than another unit, then the unit with more income is better off (assuming identical needs). If the two units have identical incomes, then they are equally well off. Analogous properties for a current period income-wealth measure are suggested here.

Confining the analysis to the current period means that many life-cycle factors are not considered. For example, prospects for future income have no effect on the measure. Also, the fact that the aged have had more time to accumulate wealth than other age groups have had is not taken into account. Ordinary

unit to reach the same indifference curve as the unit's optimal consumption path, rather than the highest constant real consumption path. It has been claimed that the modified version is more firmly grounded in economic theory and is less mechanical than the usual annuity method because the modified method takes into account the unit's consumption choices (Beach 1981). Some researchers have used this type of annuity in conjunction with estimates of future earnings (Nordhaus 1973, Irvine 1980), while others have combined it with current income (Beach 1981).

Several other measures have also been used. In looking at current potential consumption, wealth and income have been summed (e.g., David 1959, Steuerle and McClung 1977, Radner 1990). In this case, ordinarily a subset of total wealth is used. Home equity is usually excluded because it is not considered to be readily available for current consumption.

An arbitrary fraction of wealth has been added to income to illustrate the effects of different weighting of wealth relative to income (Steuerle and McClung 1977). Income flows have also been converted to stocks of wealth (e.g., Hurd and Shoven 1983). Imputed rent from equity in owner-occupied homes has been included in income by many researchers (e.g., Wolff 1987).

Wealth and income have also been considered jointly in a two-dimensional classification (e.g., Habib, Kohn and Lerman 1977; Radner 1984, 1989a, 1989b; Wolff 1987). For example, Radner and Vaughan (1984, 1987) examined the percentage of each age group that had both relatively low income and relatively low wealth. In a related use, amounts of wealth have been compared

currently, their wealth can be expected to increase as they age. Such life-cycle increases are ignored by a measure of this type. Young units are assumed to draw down their wealth just as aged units are assumed to do. Thus, such a measure is considered by them to be inappropriate for the comparison of age groups.[1]

For a given amount of current wealth, the annuity measure (using expected remaining lifetimes) has the property that the shorter the expected remaining lifetime, the higher the annuity value of that wealth. That is, for given amounts of current income and current wealth, the older the unit is, the better off it is considered to be. This property is present when comparing persons of different ages at the same time or comparing the same person at different times. Taussig (1973) cited this property as a problem for the annuity-based estimates that he presented. This property is even a problem within the aged group as usually defined (age 65 and over) because of the wide range in ages included in that group.[2,3]

Another issue is the possible inconsistency between the annuity formulation and people's actual behavior. The existing evidence suggests that many people do not draw down their assets after retirement.[4] Also, purchase of annuities is relatively rare. Several researchers (e.g., Murray 1964, Weisbrod and Hansen 1968) stated that the annuity method was appropriate as a measure of potential consumption regardless of people's actual behavior.

Several researchers have used a modified version of the ordinary annuity method. In this version the annuity allows the

shorter or longer period can be used. Future earnings have been taken into account in some cases.

B. Examples of measures used

The most widely used income-wealth measure in the analysis of the distribution of economic well-being is the conversion of wealth into an annuity and the summing of that annuity and current money income excluding property income. The stock of wealth is converted into a constant annuity income stream in this measure (e.g., Murray 1964, Weisbrod and Hansen 1968, Taussig 1973, Moon 1977, Wolfson 1979). The interest rate and the time period for which the annuity will continue must be specified to compute the factor that is applied to current wealth to obtain the annuity value. Various interest rates, both real and nominal, have been used. The time period chosen has usually been the expected remaining lifetime of the unit. Where the unit is larger than one person, this time span often takes into account the expected remaining lifetimes of both the unit head and spouse of the head. The surviving spouse is often assumed to receive an annuity that is two-thirds of the annuity received by the couple.

Several researchers have commented on problems associated with a measure that sums the annuity value of wealth (using expected remaining lifetimes) and current nonproperty income. Projector and Weiss (1969) emphasized that life-cycle patterns of spending and saving should be taken into account in such a measure. Although young units generally have little wealth

Methods that consider only wealth will not be discussed in this paper. The other methods discussed here use data on both income and wealth.

A. Basic elements of income-wealth measures

Several elements of income-wealth measures discussed in this paper can be identified. It is important to note that, although these elements are discussed separately here, they are interrelated.

The treatment of wealth is the most important element. The most widely used method is the conversion of wealth into an annuity. That method of taking wealth into account is discussed in some detail below, along with other methods.

The wealth that is included is a second element. Some asset types might be excluded. For example, home equity has been excluded because it produces a service flow. Amounts of wealth can also be excluded for bequests and/or the financing of expenses related to contingencies.

The income that is included is a third element. Some income types might be excluded. Property income is often excluded from current income because it is taken into account in the valuation of wealth.

The time horizon is a fourth element. The current period is used in this paper, but a longer (e.g., lifetime) period can be used. One year is usually chosen as the income period, but a

properties for a current-period income-wealth measure are suggested and the extent to which various measures have those properties is discussed. Estimates of current-period economic well-being are presented for several measures in section III. These estimates are used to compare the relative positions of different age groups when various measures taking both wealth and income into account are used. Median amounts for several measures are presented and discussed. Then the lower part of the distribution is examined by showing, for several measures, the proportion of each age group that is in that part of the distribution. The paper concludes with a summary and conclusions in section IV.

II. Income-Wealth Measures

There are several basic ways in which wealth has been taken into account in assessing economic well-being. The first method considers only money income. Thus, wealth is included only as the money return on assets. Only income data are needed for this method. Assets that have no return in the form of money income (e.g., equity in owner-occupied homes and motor vehicles, some real estate) have no effect on such a measure. One modified version of this measure that requires some wealth data includes in income an imputed income flow from home equity. The second method looks only at the stock of wealth. Only wealth data are needed here (unless Social Security wealth, pension wealth, and/or human capital are included in the definition of wealth).

economic status. The effects of using different methods of taking wealth into account on the well-being of age groups in the current period are analyzed. How much difference the choice of a method makes is discussed. The emphasis here is on the economic status of age groups, with the focus on the aged. Thus, measures that are appropriate for the comparison of age groups are needed here. Economic status in the current period, rather than from a longer (e.g., lifetime) perspective, is emphasized. It should be noted that, in addition to the problems of taking account of wealth and income jointly, income-wealth measures have all of the problems encountered when income (or wealth) is used to assess economic well-being. For example, the appropriate recipient unit, definition of income (and wealth), and adjustment for differential needs must be specified. The data used are from the 1984 SIPP.

When the economic status of age groups is compared, the question usually is how well off each age group is now, not at some past or future time. Current incomes are often compared and inferences made about how well off each group is. It would be useful to be able to make similar comparisons using current income and current wealth. The focus on such comparisons in this paper leads to the use of the current period as the appropriate time period.

Section II of the paper contains a summary of the basic elements of measures that use wealth and income data together to measure economic status in the current period. Examples of measures that have been used are discussed. Several desirable

however, was very scarce. The Federal Reserve Board's 1962 Survey of Financial Characteristics of Consumers was an important exception (Projector and Weiss 1966). That survey obtained information on wealth for the entire distribution, although the sample size was quite small.

In recent years several data sources that contain information on wealth for the household population have become available. Examples of recent household surveys that contain extensive information on wealth include the Federal Reserve Board's 1983 and 1986 Surveys of Consumer Finances (Avery et al. 1984, Avery and Kennickell 1988), the University of Michigan's Panel Study of Income Dynamics (Curtin, Juster, and Morgan 1989), and the Census Bureau's Survey of Income and Program Participation (SIPP)(U.S. Bureau of the Census 1986b). The distribution of wealth has been examined using these surveys. Because these surveys also collected information on income, both wealth and income can be analyzed jointly. This increase in available data has sparked some renewed interest in analyses of economic status that take both wealth and income into account (e.g., Radner 1984, Radner and Vaughan 1987, Wolff 1987, Chollet and Friedland 1988, Crystal and Shea 1989).

The best way of using income and wealth data together is controversial. The appropriate method depends on the use to which the estimates will be put. Combining income and wealth is a complex problem, primarily because income is a flow, while wealth is a stock. This paper discusses several ways in which income and wealth data have been used together in the analysis of

ALTERNATIVE ESTIMATES OF ECONOMIC WELL-BEING BY AGE USING DATA ON WEALTH AND INCOME*

I. Introduction

Most analyses of economic status use only income as the measure of resources. It is clear, however, that wealth also plays an important role in economic well-being. The existence of both income and asset tests for eligibility purposes in several government transfer programs (e.g., Supplemental Security Income, Aid to Families with Dependent Children, food stamps) suggests the importance of both wealth and income. Units of the same age, income, and needs are not equally well off if they have different amounts of wealth. A fully satisfactory way of taking differences in wealth into account in a combined income-wealth measure is not available. Particularly controversial is the comparison of different age groups when such measures are used. This exploratory paper examines the use of income-wealth measures for the analysis of the distribution of economic well-being for age groups in the current period.

The scarcity of data perhaps has been one reason for the relative neglect of wealth. For many years, little information on the distribution of wealth among households was available in the U.S. There was some information on the wealth of wealthy persons from estate tax returns and from special household surveys (e.g., Smith 1974; Lampman 1962; Barlow, Brazer, and Morgan 1966). Information for the vast majority of households,

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75 and over age group is only 60 percent of the median in the peak age group. The median for the 75 and over age group is below the median for each age group in the 25-64 age range, while the median for the 65-74 age group is below the median for each age group in the 35-64 age range.

2. Using net worth

Median net worth is higher than median financial assets for each age group, and the differences are substantial dollar amounts for the groups age 35 and over (table 2). The age patterns for the four income-wealth measures when net worth is used, however, generally are similar to those found when financial assets are used. Medians rise with age, then fall (tables 3 and 4 and figures 2 and 4). For NPI+NW/3 and NPI+NW/c, however, the median peaks in the 55-64 age group rather than in the 45-54 age group.

Because amounts of net worth usually are much larger than amounts of financial assets, net worth generally has a higher weight relative to income than financial assets do. Thus, relative medians for the aged are higher when net worth is used. For the 75 and over age group, the relative median is highest for NPI+NW/3 (1.09) and NPI+NW/c (1.08). These values are high because of the high weight assigned to wealth in these measures. For that age group the relative median is 0.93 for NPI+ANNW. Although the weight assigned to wealth in this measure is low, this value is high because of the effect of the relatively short

expected remaining lifetime. The relative median for that age group is only 0.70 for NPI+NW/x because that measure combines the low weight for wealth with a constant factor applied to wealth for all age groups. The relative median for the 75 and over age group for TMI is 0.63.

Although the relative medians for the 75 and over age group are high for three of the four income-wealth measures, the ratio of the median for that age group to the median for the 45-54 age group is far lower. That ratio is highest for NPI+NW/3 (0.82) and NPI+NW/c (0.81) (table 5). But the ratio is only 0.75 for NPI+ANNW and 0.54 for NPI+NW/x. The ratio is 0.50 for TMI.

For the NPI+ANNW measure, the median for the 75 and over age group is high relative to the median for the 65-74 age group. The ratio of those medians is 0.96, whereas that ratio is no higher than 0.86 for any of the other measures. This difference results from the impact of the relatively short expected remaining lifetime of the oldest age group.

3. Several alternative specifications

Two alternative specifications of the annuity measure and one alternative specification of the W/3 measure are shown in table 6 in order to provide further information about the sensitivity of the results to changes in the specification. The first alternative annuity specification uses expected remaining lifetimes, but a 5 percent real interest rate in the annuity computation (Radner 1989c). This alternative assigns a higher

weight to wealth than the 2 percent interest rate version does. The shift from a 2 percent rate to a 5 percent rate produces only small changes in relative medians. For example, the relative median for the 75 and over age group rises from 0.70 to 0.71 when financial assets are used and from 0.93 to 0.95 when net worth is used.

The second alternative annuity uses a 2 percent real interest rate, but a time period for the annuity that is longer than the expected remaining lifetime that was used. In this version the time period is defined to be 100 minus the age of the householder. For example, the time period for a 65-year-old would be 35 years, rather than the 17 years expected remaining lifetime. When expected remaining lifetime is used, roughly half of householders can be expected to outlive the time period used for the annuity. When this alternative version is used, only very few can be expected to outlive the time period. This alternative version provides evidence about the sensitivity of the results to the expected remaining lifetime specification.

The relative medians for this specification are lower for the aged than when the expected remaining lifetime is used. For the measure that uses financial assets, the relative median for the 75 and over group is only 0.63, which is similar to the TMI (0.63) and NPI+FA/x (0.62) relative medians for that age group. When net worth is used in the measure, the relative median is only 0.73, which is far below the 0.93 obtained when expected remaining lifetimes are used, and somewhat above the 0.70 obtained when NPI+NW/x is used. The aggregate value of wealth

for this alternative is only 56-58 percent of the aggregate obtained when expected remaining lifetimes or W/x are used. The value of wealth assigned in this alternative is less concentrated in the aged group than when expected remaining lifetimes are used, but more concentrated in the aged group than in W/x. The combination of these two differences produces the differences in relative medians.

The alternative specification of the W/3 measure uses TMI in place of NPI. This alternative assumes that all property income is available in the current period, rather than none (as is assumed when NPI is used). The impact of this change on relative medians is small for the young age groups and moderate for the aged. When financial assets are used, the relative median of the 75 and over age group rises from 0.79 to 0.84. When net worth is used, the increase is smaller, from 1.09 to 1.12 for that age group.[25]

D. Lower part of the distribution

The previous section examined medians and relative medians for different measures of economic status. It is also useful to consider more than just a measure of central tendency of the distribution. In this section the proportions of households in each age group that are in the bottom of the distribution when several alternative measures are used are discussed.

In addition to two of the income-wealth measures shown in the previous section, a two-dimensional income-wealth

classification is used here. Interest in such a measure results from the lack of a fully satisfactory measure that combines income and wealth. In this low income and low wealth (LILW) measure, the bottom portion of the distribution is defined to be those households that have total money income that is less than one-half median total money income (for all ages) and wealth that is less than one-half median wealth (for all ages).[26] Both income and wealth are adjusted for household size in these comparisons. Estimates are shown using financial assets and net worth as the definitions of wealth (table 7). The two-dimensional classification does not produce a complete ordering of households by size of income-wealth as the other income-wealth measures do. The two-dimensional classification can, however, identify a portion of the joint distribution such as the portion with both low income and low wealth. The measure shown here has only the first of the three desirable properties discussed earlier.

In the LILFA (low income and low wealth, using financial assets) measure, quite low amounts of financial assets can disqualify a household from being in the bottom of the income-wealth distribution. This happens because median financial assets, and therefore one-half the median, are quite low. One-half the median, after adjustment for household size, was only $871. Thus, although income and wealth are assigned equal weight as classifiers in this measure, because of the shape of the distribution of financial assets, many aged (and other) households are excluded from the bottom category even though they have amounts of financial assets that are quite small. About 42

percent of all households and 25 percent of aged households had financial assets that were less than one-half the median (table 7). One-half the median income (annualized) was $7,312 after adjustment for household size. About 20 percent of all households and 29 percent of aged households had income that was less than one-half the median.

When net worth is used instead of financial assets, the wealth cutoff is substantially higher. Median net worth, after adjustment for household size, was ($21,400). Thus, the cutoff of one-half the median was $10,700. About 39 percent of all households and 21 percent of aged households had net worth that was less than one-half the median.

The comparisons between LILW and the other measures are carried out by tabulating the weighted number of households of all ages that have both low income and low wealth as defined above and then identifying that weighted number of households at the bottom of the distribution when each of the other measures is used. The LILFA group consisted of 13.293 million households (15.2 percent of all households). Thus, the bottom 13.293 million households when each of the other measures was used was identified in the comparison that used financial assets. When net worth was used, the LILNW group consisted of 11.636 million households (13.3 percent of all households).

1. Using financial assets

The percentage of each age group that is in the bottom 15.2 percent of the distribution is shown for LILW, TMI, NPI+ANW, and NPI+W/3 in table 8 and figure 5. The age pattern for LILFA shows high percentages at young ages that decline to a low in the 45-54 age group (11.7 percent) and rise in the older age groups. The 75 and over age group has 16.4 percent in this bottom group, while the under 25 age group has 25.3 percent. This pattern is similar to patterns found earlier by Radner (1984, 1989a, 1989b) and Radner and Vaughan (1987) when a slightly different formulation, and, in some cases, earlier data were used.[27]

The relatively high percentages for the aged age groups result from the relatively high percentages with low income for those groups (table 7). The 75 and over age group shows 35.9 percent with low income and 23.7 percent of the 65-74 age group are counted as having low income. These percentages are higher than for any age group in the 25-64 age range. The percentages with low financial assets, however, are lowest for the aged age groups (23.4 percent for the 75 and over age group and 25.7 percent for the 65-74 age group). For the 75 and over age group, only 46 percent of households with low income also had low financial assets, the lowest percentage of any age group. In contrast, 91 percent of households in the under 25 age group that had low income also had low financial assets.

Both of the other income-wealth measures show a similar pattern of high percentages at young ages followed by a decline

to a low in the 45-54 age group and then a rise in the older age groups (figure 5). The TMI measure also shows a similar pattern. The similarity of these patterns reflects the fact that many households have no financial assets or very small amounts of those assets. If the amounts are zero or very small, then the method used to take them into account will make little or no difference. About 15 percent of all households and 12 percent of aged households had no financial assets (Radner 1989a).

Although the results are generally similar for the various measures, there are some differences. For this part of the distribution, the LILFA measure makes the aged relatively better off (i.e., shows a lower percentage) and the young worse off than when the other income-wealth measures shown are used. The NPI+ANFA measure makes the aged relatively worse off and the young relatively better off than when the other income-wealth measures are used. The NPI+FA/3 measure has relatively high percentages for the aged age groups. If TMI were included in these comparisons, TMI would have the lowest percentages for the four age groups under age 55 and the highest for the 65-74 and 75 and over age groups.

The percentages for the 45-54 age group are similar for all of the measures (including TMI). The spread is only 0.6 percentage points (11.1 to 11.7 percent). The spread in the estimates for the under 25 age group is 2.9 percentage points. The differences for the 75 and over age group are much greater. The spread for those estimates is 9.4 percentage points. This sensitivity for the 75 and over age group is primarily due to the

low estimate for LILFA and is related to the presence of households that are just above the cutoff points for inclusion in the bottom group for that measure.[28]

2. Using net worth

The pattern when net worth is used is generally similar to the pattern found when financial assets are used (table 8 and figure 6). The age pattern shows high percentages at young ages that decline to a low in the middle age groups and rise in the older age groups. For the LILNW and NPI+NW/3 measures, however, the lowest percentage occurs in the 55-64 age group, rather than in the 45-54 age group. Also, the NPI+ANNW and NPI+NW/3 measures show substantially lower percentages for the 75 and over age group than when financial assets were used. The LILNW measure has the highest percentage of the three income-wealth measures for that age group. When financial assets were used, LILFA had the lowest percentage in that age group. For the 75 and over age group, there is less difference among the measures than when financial assets were used. For example, the spread among the measures (including TMI) for the 75 and over age group is only 6.8 percentage points when net worth is used. The spread for the under 25 age group, however, is larger (6.0 percentage points) when net worth is used.

As in the case of financial assets, the relatively high percentages for the aged age groups result from high percentages with low income. Only 22.2 percent of the 75 and over age group

had low net worth, and only 44 percent of households in that age group that had low income also had low net worth. The 55-64 age group shows fewer with low net worth (19.1 percent) than with low financial assets (28.4 percent). Thus, the percentage in the LILNW group (8.2 percent) is lower than the percentage in the LILFA group (12.6 percent) for that age group.

3. A three-dimensional classification

The results obtained when a three-dimensional classification is used were also examined. The three dimensions are income, home equity, and wealth excluding home equity. This represents a different way of taking home equity into account. Because home equity plays a unique role in personal portfolios (as a place of residence as well as an asset), it is useful to treat home equity differently from other assets. Home equity is not taken into account in LILFA, but is a part of net worth in LILNW.

In this three-dimensional classification, the income classification was defined as above. Presence or absence of equity in owner-occupied home was used as the home equity classifier -- if the household had positive home equity, then that household was excluded from the bottom group. This is clearly a strong condition. The third dimension, wealth excluding home equity, was applied in two forms -- financial assets and net worth excluding home equity. The financial assets classification was defined as above. The net worth excluding home equity classification was defined in an analogous way.

Households that have net worth excluding home equity that is less than one-half median net worth excluding home equity (for all ages) are considered to be in the lower group. Net worth excluding home equity was adjusted for household size for this comparison.

When financial assets are used, 10.3 percent of all households were in the bottom part of the distribution when the three-dimensional classification (LILFA3) is used (table 9). The percentages are high for the youngest age groups (23.3 percent in the under 25 age group), decline through the 55-64 age group (6.0 percent), and rise slightly for the aged (8.3 percent). For the 75 and over age group, only 23 percent of households with low income also had low financial assets and no home equity. This classification shows that more than 8 percent of aged households have low income, low financial assets, and no home equity. This is a more stringent classification than either LILFA or LILNW.

A comparison of the LILFA and LILFA3 percentages shows that 68 percent of LILFA households had no home equity (10.3/15.2). In the 75 and over age group, 50 percent of LILFA households had no home equity, with the percentage rising to 57 percent in the 65-74 age group. Only 48 percent of the LILFA households in the 55-64 age group had no home equity, but 92 percent of LILFA households in the under 25 age group had no home equity.

When net worth excluding home equity is used, the results are very similar to those obtained when financial assets are used. The bottom group consists of 10.0 percent of all households when LILNW3 is used. The general age pattern is the

same as before. The percentages for the aged age groups, however, are slightly higher than before. For the 75 and over age group, 9.7 percent are in the bottom classification, while 8.8 percent of the 65-74 age group are in the bottom group. For the 75 and over age group, only 27 percent of households with low income also had low net worth excluding home equity and no home equity.

The results obtained when these two variations are used would be expected to be similar because financial assets and net worth excluding home equity are very similar for many households. Business equity, motor vehicle equity, and real estate other than own home are the major asset types that are included in net worth excluding home equity but are excluded from financial assets. Unsecured debt is also subtracted from assets in net worth excluding home equity.

IV. Summary and Conclusions

This paper has examined several methods in which data on both income and wealth were used in the assessment of the economic well-being of age groups in the current period. Basic elements of such measures were discussed and examples of measures that have been used were presented. Three desirable properties of a current period income-wealth measure were suggested. Estimates of the economic well-being of age groups obtained when several methods were used were presented and compared in order to examine the sensitivity of the results to the choice of method.

Medians and the proportion of each age group that was in the bottom of the distribution were analyzed. Data from the 1984 SIPP were used.

One important finding was that the general results were not very sensitive to the income-wealth measure chosen. This was particularly the case when wealth was defined to include only financial assets. Some detailed results, however, were sensitive to the measure chosen, even when financial assets were used. Differences among measures were somewhat larger when medians were examined than when the bottom of the distribution was examined.

The differences among income-wealth measures, however, were generally not very large for medians. For every income-wealth measure used, the median rose as age increased, then fell. This was true when either financial assets or net worth was used. The steepness of the rise and fall varied somewhat among the measures.

The relative economic status of the aged generally improved when the measure of resources was changed from income to a combined income-wealth measure and medians were used, although there were exceptions. The change in relative status of the aged depended on the income-wealth measure used and on whether financial assets or net worth was used. There was a small improvement when most of the specifications of measures that included the annuity value of financial assets were used; one specification, however, produced a very small decline in the relative status of the aged. There was a much larger improvement when the measure that included one-third of net worth was used.

Several other measures produced less improvement than including one-third of net worth, but more than the annuity specifications. Another specification, however, also produced a small decline in the relative position of the aged.

When the bottom of the distribution was examined using a two-dimensional low income and low wealth measure and three other measures, the differences among measures were small. The percentages of households in the 65-74 and 75 and over age groups that were in the bottom of the distribution were higher than the percentages for the 35-64 age groups for each of the measures when financial assets were used. When net worth was used, the 75 and over age group had a higher percentage than the 35-64 age groups for each measure. The percentages for the aged age groups fell when the measure was changed from income to any of the combined income-wealth measures. In general, these percentages were relatively high for the young and old age groups, and relatively low for the middle age groups for each measure. A three-dimensional measure (that considered home equity separately) substantially reduced the percentage of aged households that were in the bottom group.

This is an exploratory paper that has examined several aspects of the very complex problem of combining data on income and wealth into a single measure of current economic well-being. Several income-wealth measures were compared. No generally acceptable measure was identified.

The treatment of income-wealth measures for age groups was quite limited here. Possible differences in levels of need among

age groups were ignored. For example, the aged face a significant probability of large medical expenses and may try to accumulate assets to protect against that contingency. Also, a current period perspective is only one of several possible approaches. Life-cycle issues are ignored by confining the discussion to the current period. For example, the aged have had much more time to accumulate wealth than the young have had, and may have "sacrificed" in order to accumulate that wealth.

A better understanding of the issues involved in combining income and wealth into a single measure is needed before satisfactory income-wealth measures can be constructed. The data (e.g., SIPP) are now available to explore different possibilities for new and better income-wealth measures. In future years more information about changes in wealth should be available, thus allowing combined income-wealth measures to be used for the examination of changes in economic status.

Table 1.--Amounts of wealth included in income-wealth measures, expressed as aggregates and as percentages of total wealth, adjusted for household size, 1984

Item	Definition of Wealth: Financial assets	Definition of Wealth: Net worth
	Aggregates	
Property income	117	117
ANW	103	286
W/3	478	1,434
W/x	103	288
W/c	422	1,342
Wealth	1,436	4,306
TMI	1,541	1,541
NPI	1,424	1,424
	Percentage of Wealth	
Property income	8.1	2.7
ANW	7.2	6.6
W/3	33.3	33.3
W/x	7.2	6.7
W/c	29.4	31.2
Wealth	100.0	100.0

Note: Aggregates are in billions of dollars. See the text for definitions.

Table 2.--Median income and wealth for households, adjusted for household size, 1984

(thousands of dollars)

Age of householder	NPI	Financial assets	Net worth
		Measure	
Under 25	11.6	.3	1.6
25-34	14.3	.5	5.3
35-44	15.6	1.3	19.5
45-54	18.1	2.6	34.4
55-64	15.2	7.2	51.7
65 and over	8.9	10.3	54.2
65-74	10.4	10.5	55.9
75 and over	7.3	9.6	52.0
All ages	13.6	1.7	21.4

Note: See the text for definitions.

Table 3.--Medians of income-wealth measures for households, adjusted for household size, 1984

(thousands of dollars)

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
	Measure				
	Financial Assets				
Under 25	11.6	11.6	11.8	11.6	11.8
25-34	14.5	14.4	15.1	14.5	14.7
35-44	15.9	15.8	16.9	15.9	16.4
45-54	18.7	18.4	20.6	18.5	20.0
55-64	16.8	16.3	20.4	16.5	19.5
65 and over	11.1	11.7	15.0	10.9	14.0
65-74	12.3	12.3	16.3	12.0	15.2
75 and over	9.3	10.2	13.0	9.0	11.9
All ages	14.6	14.6	16.6	14.5	16.0
	Net Worth				
Under 25	11.6	11.8	12.9	11.9	12.3
25-34	14.5	14.7	17.7	15.2	16.8
35-44	15.9	16.7	23.8	17.5	22.5
45-54	18.7	20.3	31.7	21.3	30.4
55-64	16.8	19.4	35.2	19.8	33.8
65 and over	11.1	15.6	28.2	13.5	26.8
65-74	12.3	16.0	30.4	14.8	29.0
75 and over	9.3	15.3	26.0	11.5	24.6
All ages	14.6	16.4	24.0	16.3	22.7

Note: See the text for definitions.

Figure 1
Medians of Alternative Measures
Using Financial Assets, 1984

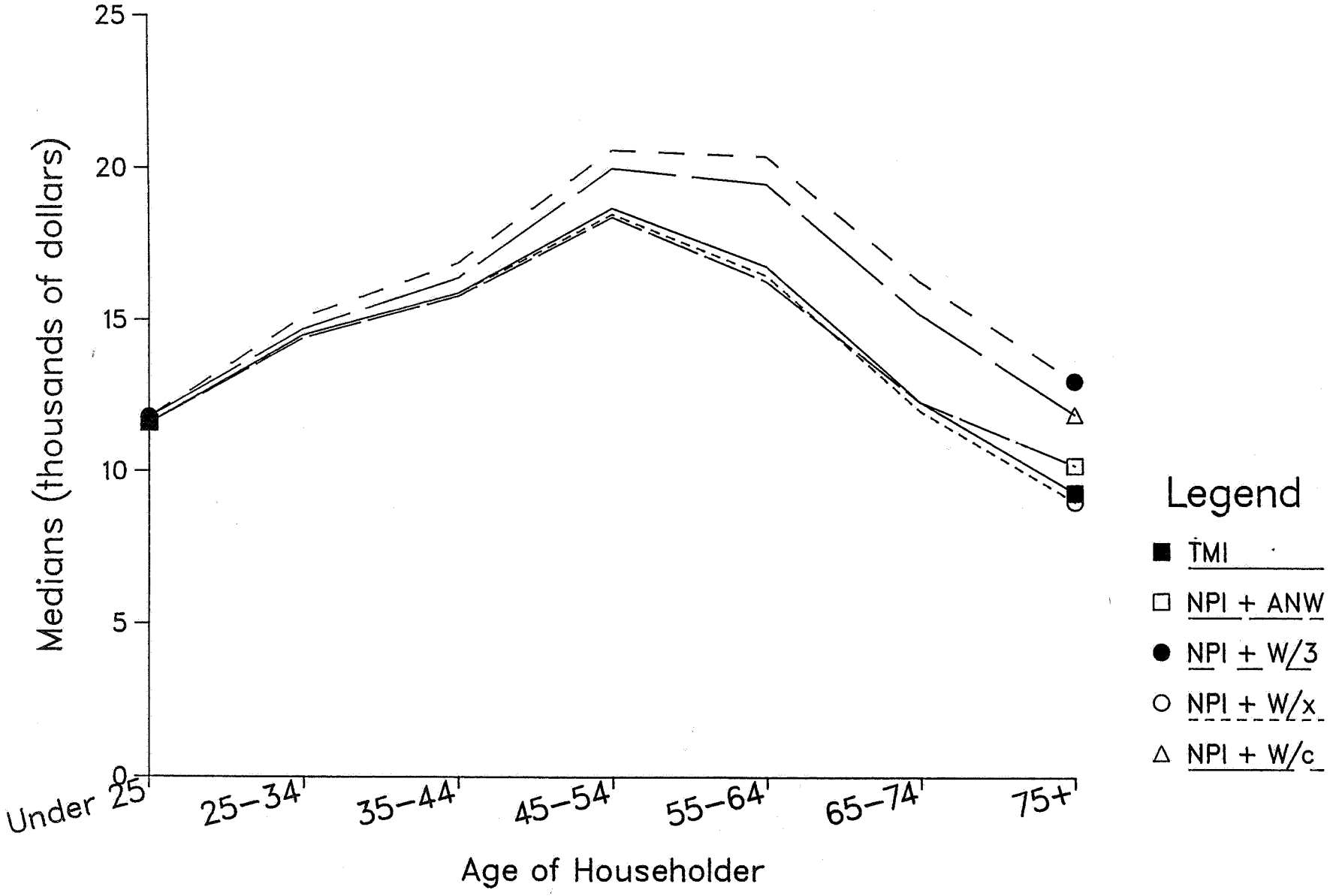

Figure 2
Medians of Alternative Measures
Using Net Worth, 1984

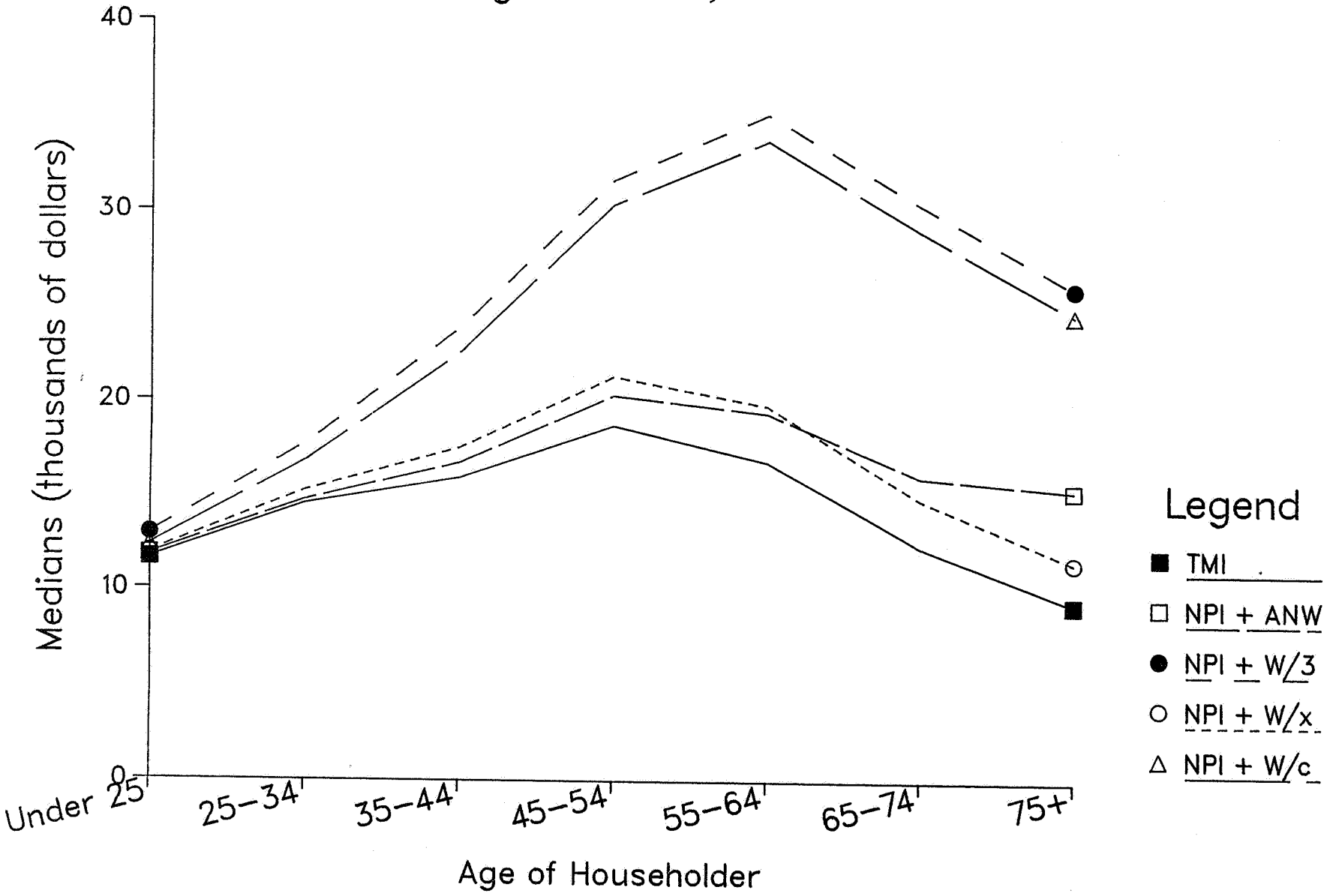

Table 4.--Relative medians of income-wealth measures for households, adjusted for household size, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
			Measure		
			Financial Assets		
Under 25	.79	.80	.71	.80	.73
25-34	.99	.99	.91	1.00	.92
35-44	1.09	1.09	1.02	1.10	1.02
45-54	1.28	1.26	1.24	1.28	1.25
55-64	1.15	1.12	1.23	1.14	1.22
65 and over	.76	.80	.91	.75	.87
65-74	.84	.84	.98	.83	.95
75 and over	.63	.70	.79	.62	.74
All ages	1.00	1.00	1.00	1.00	1.00
			Net Worth		
Under 25	.79	.72	.54	.73	.54
25-34	.99	.90	.74	.94	.74
35-44	1.09	1.02	.99	1.07	.99
45-54	1.28	1.24	1.33	1.31	1.34
55-64	1.15	1.18	1.47	1.22	1.49
65 and over	.76	.95	1.18	.83	1.18
65-74	.84	.97	1.27	.91	1.28
75 and over	.63	.93	1.09	.70	1.08
All ages	1.00	1.00	1.00	1.00	1.00

Note: See the text for definitions.

Figure 3
Relative Medians of Alternative Measures
Using Financial Assets, 1984

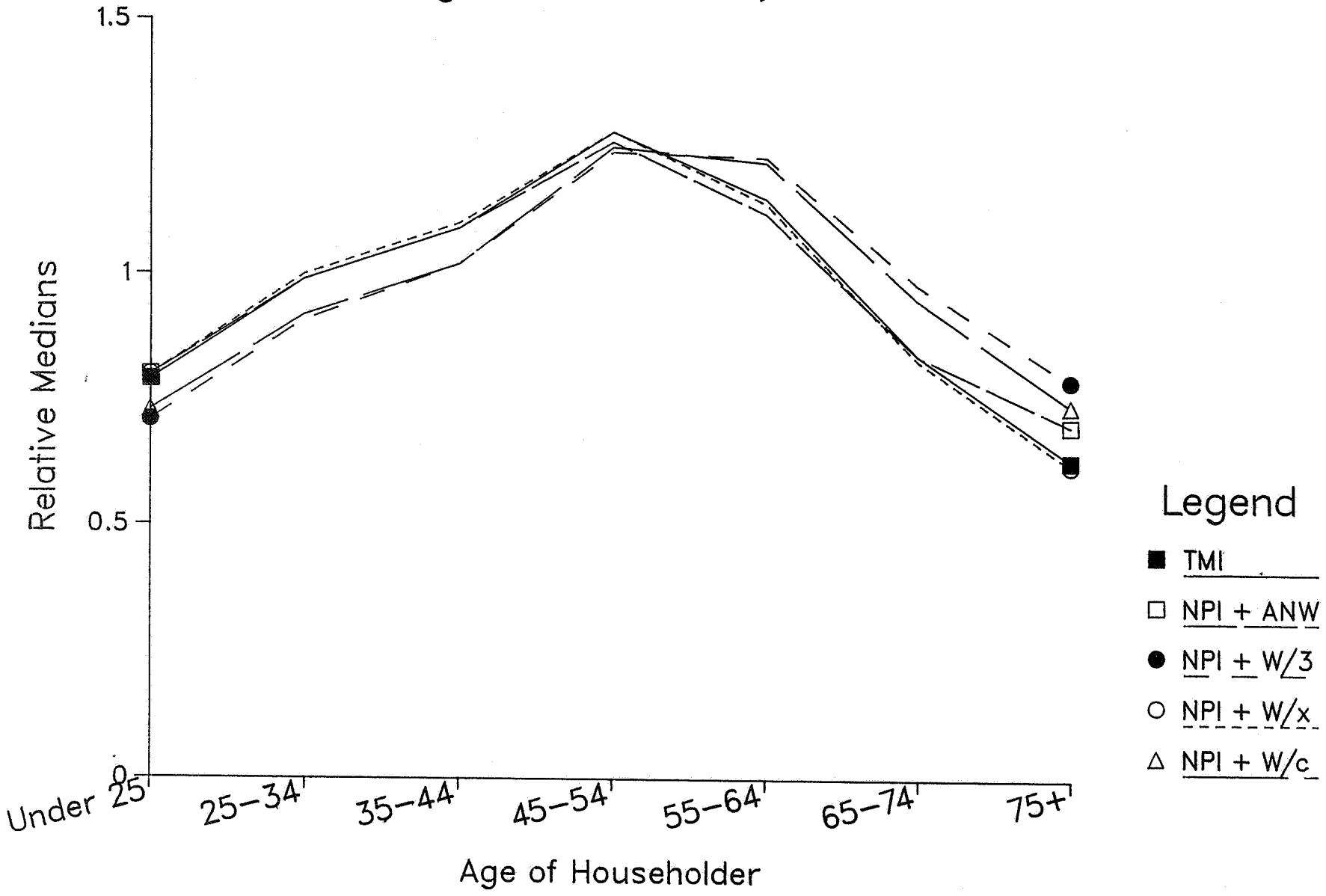

Figure 4
Relative Medians of Alternative Measures
Using Net Worth, 1984

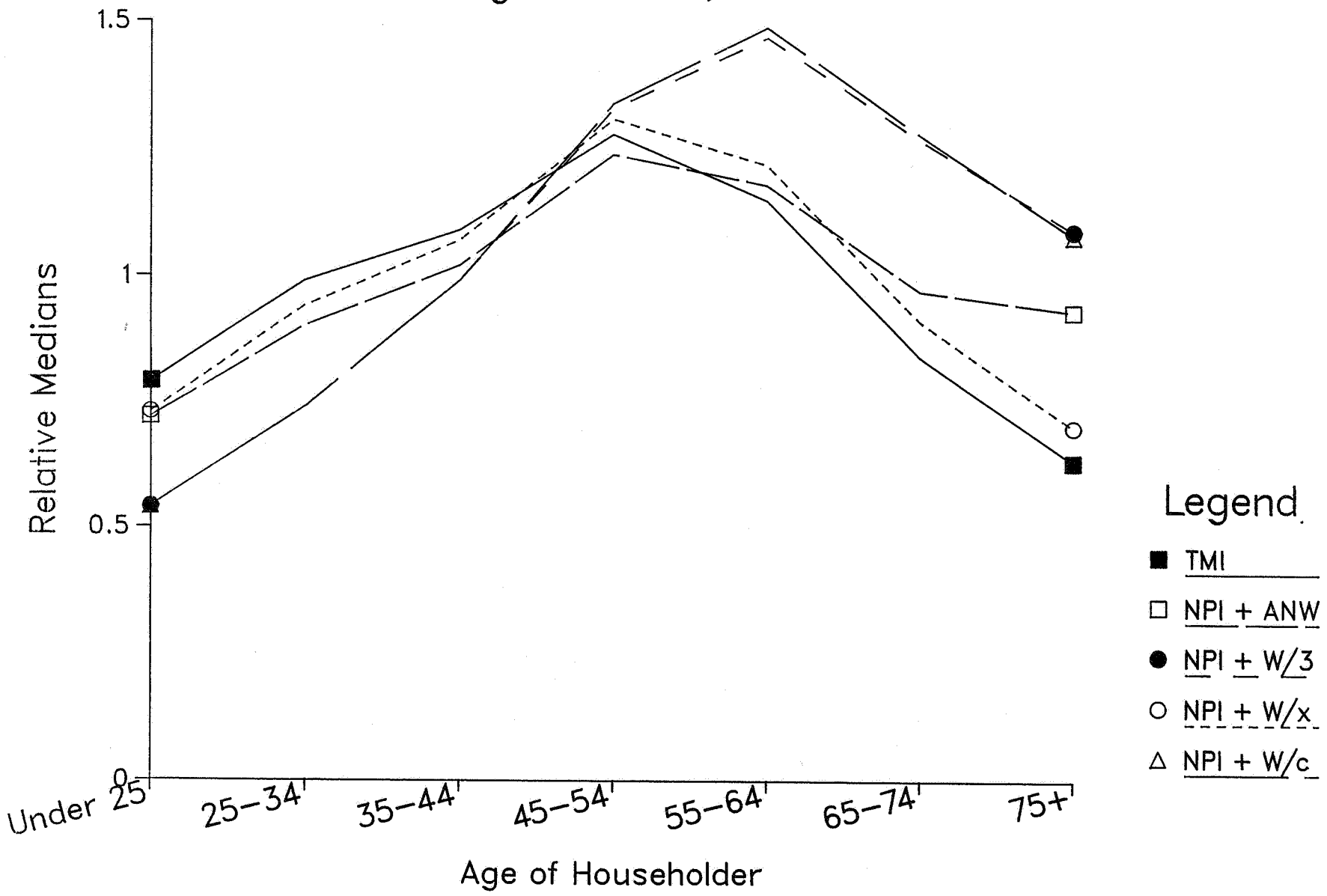

Table 5.--Medians for aged age groups as a percent of the median for the 45-54 age group, adjusted for household size, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
		Measure			
		Financial Assets			
65 and over	59	64	73	59	70
65-74	66	67	79	65	76
75 and over	50	55	63	49	60
		Net Worth			
65 and over	59	77	89	63	88
65-74	66	79	96	69	95
75 and over	50	75	82	54	81

Note: For NPI+NW/3 and NPI+NW/c, the peak median was in the 55-64 age group. For all other measures, the peak median was in the 45-54 age group.
See the text for definitions.

Table 6.--Relative medians of alternative specifications of income-wealth measures, adjusted for household size, 1984

Age of householder	Measure: NPI+ANW r=2%, ERL	NPI+ANW r=5%, ERL	NPI+ANW r=2%, 100-a	NPI+ W/3	TMI+ W/3
			Financial Assets		
Under 25	.80	.79	.82	.71	.70
25-34	.99	.98	1.02	.91	.89
35-44	1.09	1.08	1.12	1.02	1.01
45-54	1.26	1.25	1.30	1.24	1.25
55-64	1.12	1.12	1.14	1.23	1.26
65 and over	.80	.82	.74	.91	.96
65-74	.84	.86	.82	.98	1.03
75 and over	.70	.71	.63	.79	.84
All ages	1.00	1.00	1.00	1.00	1.00
Median ($1,000)	14.6	14.8	14.1	16.6	17.0
			Net Worth		
Under 25	.72	.69	.77	.54	.54
25-34	.90	.89	.96	.74	.73
35-44	1.02	1.01	1.07	.99	.99
45-54	1.24	1.25	1.28	1.33	1.32
55-64	1.18	1.21	1.15	1.47	1.48
65 and over	.95	.98	.83	1.18	1.22
65-74	.97	1.00	.88	1.27	1.29
75 and over	.93	.95	.73	1.09	1.12
All ages	1.00	1.00	1.00	1.00	1.00
Medians ($1,000)	16.4	17.1	15.3	24.0	24.4

Note: ERL = expected remaining lifetime.
100-a = 100 minus the age of the householder.
See the text for other definitions.

Table 7.--Percentage of each age group with low income, low wealth, and low income and low wealth, 1984

Age of householder	LILW	Measure: <1/2 median income	Measure: <1/2 median wealth	LILW as % of col. 2
		Financial Assets		
Under 25	25.3	27.9	72.7	91
25-34	17.7	19.6	57.9	90
35-44	13.9	16.8	44.9	83
45-54	11.7	14.2	36.7	82
55-64	12.6	17.5	28.4	72
65 and over	15.4	28.7	24.8	54
65-74	14.6	23.7	25.7	62
75 and over	16.4	35.9	23.4	46
All ages	15.2	20.4	41.9	75
		Net Worth		
Under 25	26.4	27.9	86.7	95
25-34	17.1	19.6	63.5	87
35-44	11.6	16.8	36.3	69
45-54	9.2	14.2	25.9	65
55-64	8.2	17.5	19.1	47
65 and over	13.4	28.7	20.9	47
65-74	11.9	23.7	20.0	50
75 and over	15.7	35.9	22.2	44
All ages	13.3	20.4	38.6	65

Note: See the text for definitions.

Table 8.--Percentage of each age group in the bottom of the distribution, 1984

Age of householder	TMI	NPI+ ANW	NPI+ W/3	LILW
	Measure			
	Financial Assets			
Under 25	22.4	22.6	23.5	25.3
25-34	15.0	15.0	15.9	17.7
35-44	13.1	13.4	13.8	13.9
45-54	11.1	11.6	11.7	11.7
55-64	13.2	13.9	12.5	12.6
65 and over	19.9	18.6	18.0	15.4
65-74	15.8	15.5	15.5	14.6
75 and over	25.8	23.1	21.6	16.4
All ages	15.3	15.3	15.3	15.2
	Net Worth			
Under 25	20.6	23.3	26.6	26.4
25-34	13.5	15.5	17.3	17.1
35-44	11.8	12.7	11.7	11.6
45-54	10.1	10.4	9.9	9.2
55-64	11.2	10.4	8.0	8.2
65 and over	16.3	12.8	12.8	13.4
65-74	13.4	12.1	11.7	11.9
75 and over	20.5	13.7	14.2	15.7
All ages	13.4	13.4	13.4	13.3

Note: See the text for definitions.

Figure 5
Percentage of Households in Each Age Group
in the Bottom of the Distribution, Financial Assets, 1984

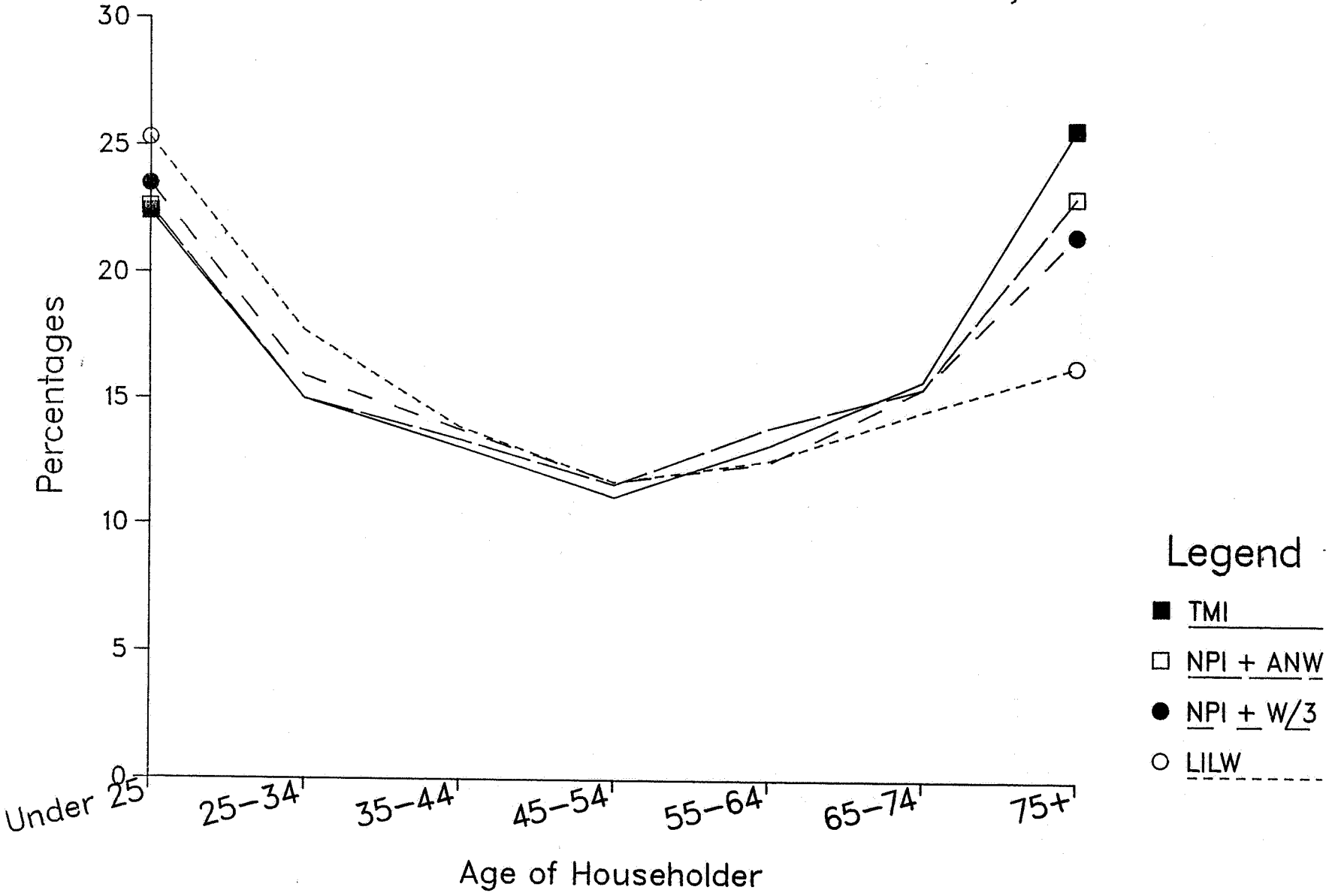

Figure 6
Percentage of Households in Each Age Group
in the Bottom of the Distribution, Net Worth, 1984

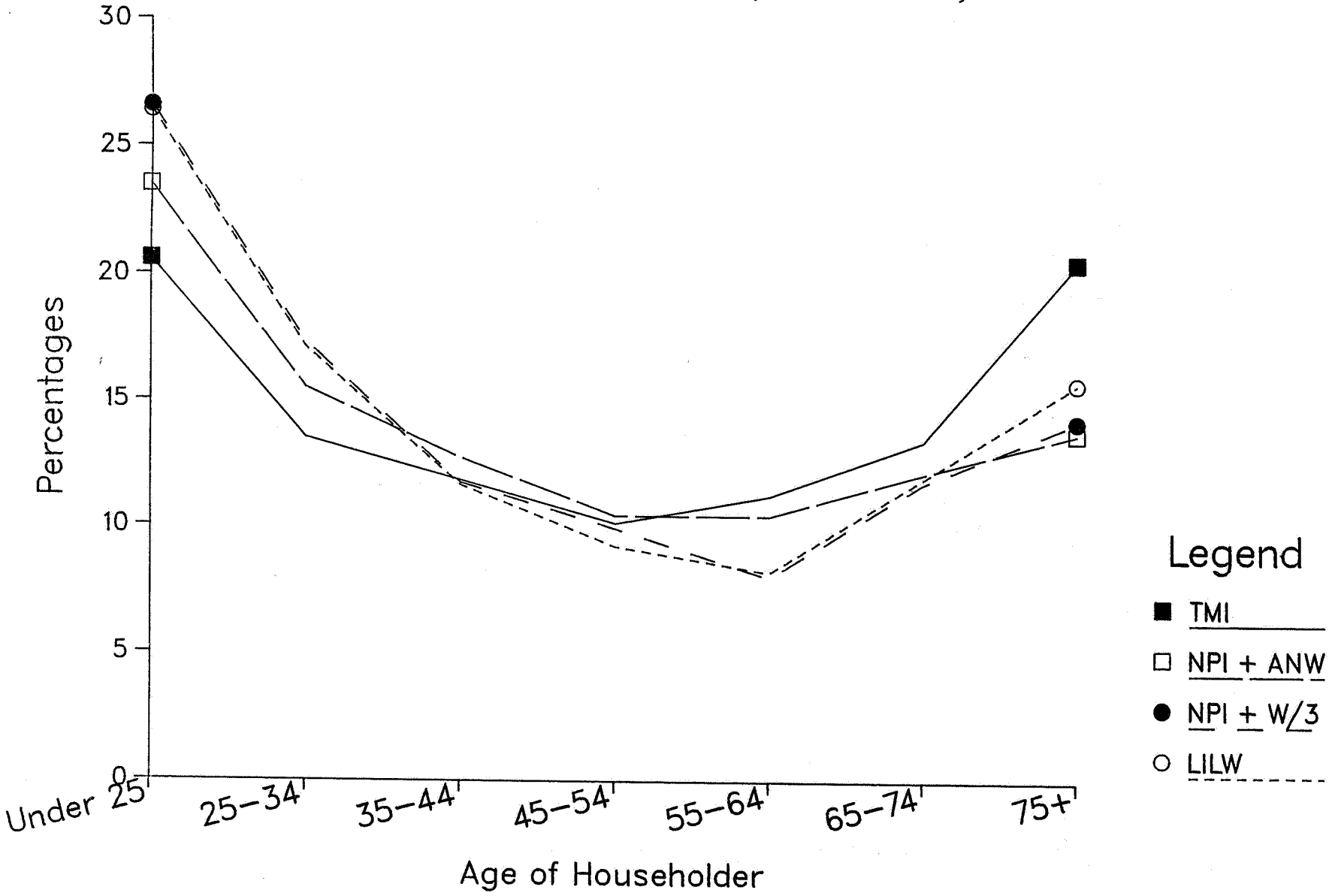

Table 9.--Percentage of each age group with low income, low wealth, and no home equity, 1984

Age of householder	LILW and home eq.=0	Col.1 as a % of <1/2 median income
	Financial Assets	
Under 25	23.3	84
25-34	14.0	71
35-44	9.0	54
45-54	7.4	52
55-64	6.0	34
65 and over	8.3	29
65-74	8.3	35
75 and over	8.2	23
All ages	10.3	50
	Net Worth	
Under 25	22.5	81
25-34	13.5	69
35-44	8.4	50
45-54	7.1	50
55-64	5.5	31
65 and over	9.2	32
65-74	8.8	37
75 and over	9.7	27
All ages	10.0	49

Note: Net worth excludes home equity.
See the text for definitions.

FOOTNOTES

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1. It could also be assumed that the young generally would have a higher proportion of their wealth "available" in the current period than the old do because the young are more likely to be able to replace that wealth with additional wealth accumulation. In this view, the aged are more likely to view their wealth as a fixed amount that cannot be replaced if used. No current period measure has used a higher proportion of wealth for the young than for the aged. Of course, the young generally have little wealth, so the effect of such an assumption might be small.

2. Where the annuity method and the expected remaining lifetime are used, a technical problem has been mentioned (Wolfson 1979). The relationship between wealth levels and the expected remaining lifetime generally is ignored, even though it is known that these two variables are not independent. In general, wealthier persons tend to live longer, ceteris paribus. Thus, wealthier persons are not as well off as they appear to be in this measure because their wealth should be spread out over a longer expected remaining lifetime than is used.

3. Wolfson (1979) raised the issue of using the distribution of life expectancies rather than the expected remaining lifetime. Because roughly one-half of all persons live longer than their expected remaining lifetime, it might be better to use a longer period than the expected remaining lifetime. People are not likely to plan to draw their assets down to zero if they have roughly a 50 percent chance of living beyond that time. A version of the annuity method that computes the annuity for the period from the person's present age to age 100 is shown later in this paper. In that variation the annuity is computed to an approximation of a maximum lifetime.

4. For recent summaries of the evidence on life-cycle saving, see Modigliani (1988) and Kotlikoff (1988).

5. It is assumed here that all types of income are treated identically and all types of wealth are treated identically.

6. See U.S. Bureau of the Census (1986b) for more information about definitions and the data.

7. Age was topcoded at age 85 in the SIPP file used.

8. Although home equity is generally considered to be an illiquid asset, in recent years the availability of home equity loans and lines of credit has become widespread. The general issue of borrowing is not discussed in this paper.

9. Negative amounts of net worth were treated as zero in this paper. There were no negative amounts of financial assets.

10. There is no general agreement on the best equivalence scale to use. No adjustment and a per capita adjustment are usually considered to be extreme treatments. Some adjustment is needed, but the per capita method provides more adjustment than is appropriate, primarily because economies of scale in household consumption are ignored. The use of the scale implicit in the poverty thresholds is an intermediate adjustment, but other intermediate adjustments could have been used instead.

11. The scale values used were: one person (under age 65), 1.023; one person (age 65 or older), 0.943; two persons (under age 65), 1.323; two persons (age 65 or older), 1.190; three persons, 1.568; four persons, 2.010; five persons, 2.381; six persons, 2.692; seven persons, 3.050; eight persons, 3.403; and nine persons or more, 4.026. It should be noted that, for units of size one and two, aged units are assumed to need slightly less than nonaged units. These values were derived from the weighted thresholds in table A-2 in U.S. Bureau of the Census (1986a).

12. Some researchers have included noncash income in the definition of income and/or subtracted taxes from income. The inclusion of noncash income is controversial. Tax data were not available in the SIPP file used.

13. Property income is excluded from current money income here because a property income component is included in the annuity value of wealth that is calculated.

14. The annuity value of $1 of wealth was computed as: $r/[1-(1+r)^{-n}]$, where r is the interest rate and n is the expected remaining lifetime. Expected remaining lifetime for single years of age (ignoring the sex of the householder) was used. For purposes of the general comparisons in this paper, taking into account the sex of the householder and the age of the spouse were unnecessary complications. The expected remaining lifetime values were taken from National Center for Health Statistics (1987).

15. The rate chosen is essentially arbitrary. The 2 percent rate used here is, for example, roughly a long-run average real rate on a portfolio consisting primarily of long-term corporate bonds, with a small proportion of the portfolio in common stocks. Radner (1989c) used a real rate of 5 percent in the annuity calculation.

16. The comparison with the $6,000 cutoff was made after the amounts of wealth were adjusted for household size.

17. Another measure, the sum of nonproperty income and financial assets, was included in Radner (1989c). This is clearly a more extreme measure than the measures shown here. Such a measure is particularly extreme when net worth is used because it assumes that all net worth is "available" in the current period.

18. For the annuity method (with property income excluded from income), asset values should be measured as of the beginning of the income period used. In Wave 4 of the 1984 SIPP, however, asset values were measured as of the end of the income period. This difference is not important for the purposes of this paper. For the NPI+W/3, NPI+W/x, and NPI+W/c measures, strictly speaking, the exclusion of all property income is inconsistent with the assumption that not all of wealth is "used."

19. There is a relatively minor inconsistency between the definitions of nonproperty income and financial assets used. Rent and royalties are excluded from nonproperty income (i.e., are included in property income) even though they are not returns on assets that are included in financial assets. This inconsistency occurred because those income types were not shown separately in the household data on the SIPP file, but were included in a summary property income item.

20. If all households face the same rate of inflation, then this percentage decline is the same for all households.

21. For amounts less than or equal to $6,000, the weight is 1/10. For amounts greater than $6,000, the weight is a weighted average of the 1/10 for the first $6,000 and the 1/3 for the excess over $6,000.

22. For example, at the 2-percent interest rate used here, the factor applied to the wealth of a household with 10 years expected remaining lifetime (roughly 75 years old) is 0.111, while the factor applied to the wealth of a household with 50 years expected remaining lifetime (roughly 25 years old) is 0.032.

23. These ratios were based on aggregates that have been adjusted for unit size.

24. For clarity, where appropriate the names of the measures will reflect whether financial assets (FA) or net worth (NW) is being discussed. Thus, NPI+FA/3, rather than NPI+W/3, is used here.

25. Radner (1989c) showed relative medians for a measure that was the sum of nonproperty income and financial assets (NPI+FA). When that measure was used, relative medians for the aged were much higher than the relative medians shown in this paper for measures that used financial assets. For example, the relative

median for the 75 and over age group was 1.04. The median for that group, however, was only 75 percent of the median for the 55-64 age group (the peak age group).

26. If property income is excluded from income to avoid counting both the asset and the income from that asset, the pattern by age group is very similar to the pattern shown here.

27. The other formulation used the household's relative position in the income distribution and in the wealth distribution. To be counted in the bottom of the distribution, the household had to be in the bottom 20 percent of the (all ages) income distribution and the bottom 40 percent of the (all ages) wealth distribution (in both cases after adjustment for household size). In the 1984 SIPP the income cutoff was 49 percent of the median and the financial assets cutoff was 43 percent of the median when that formulation was used. The results obtained when that formulation was used are close to the results shown here. Several of the papers cited used data from the 1979 Income Survey Development Program, which was similar to SIPP.

28. The percentages of aged households that are in the LILFA group differ greatly by the marital status of the householder. Households in which the householder is married with spouse present show a much lower percentage than other aged households. For example, for the 65 and over age group, 7.1 percent of married aged households and 21.8 percent of other aged households were in the bottom group (Radner 1990).

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