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

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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	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)

<u>Measure</u>

Age of householder	NPI	Financial assets	Net worth
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)

Measure

Age of householder	TMI	NPI+ ANW	NPI+ W/3	NPI+ W/x	NPI+ W/c
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
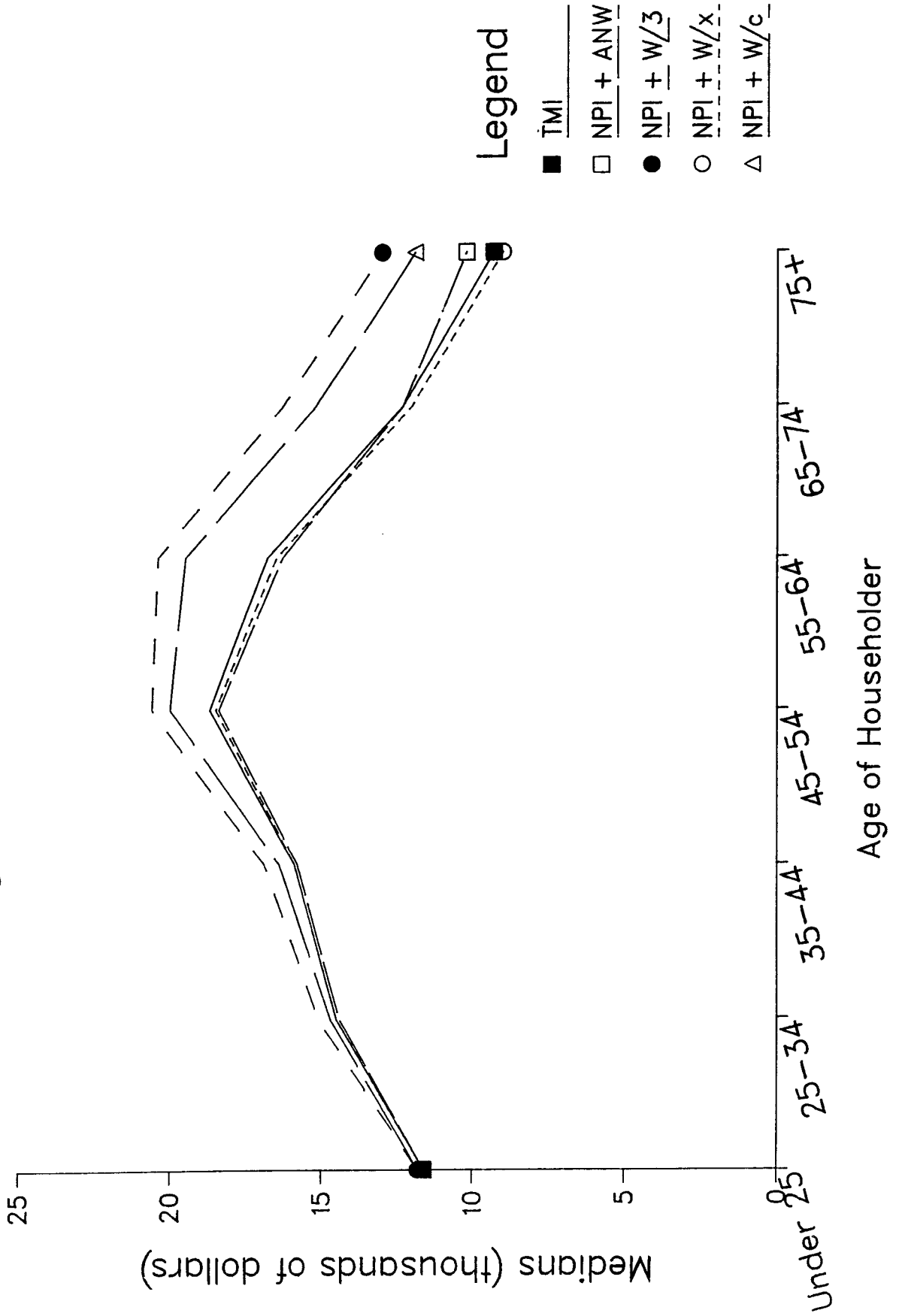Using Financial Assets, 1984

Figure 2
Medians of Alternative Measures
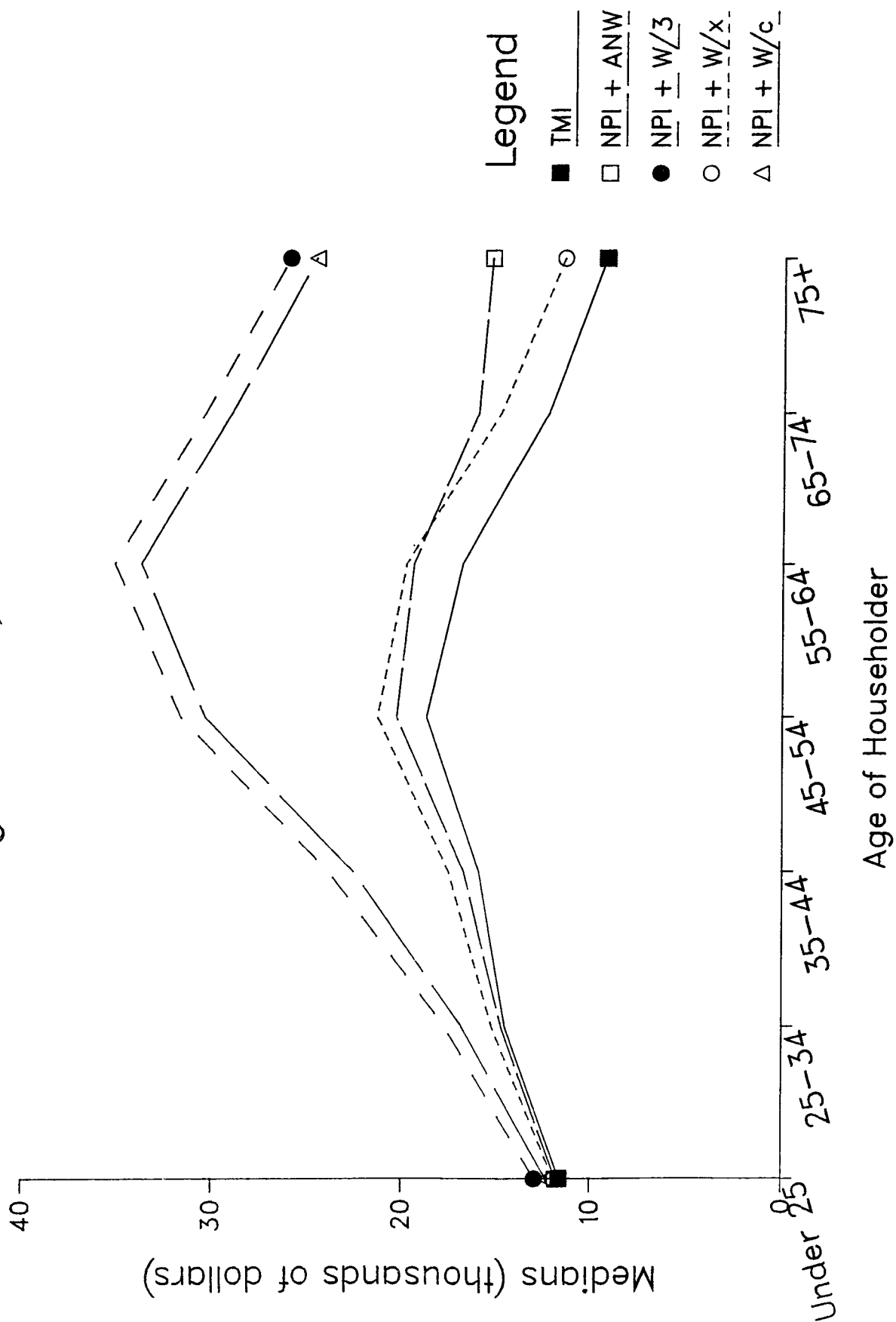Using Net Worth, 1984

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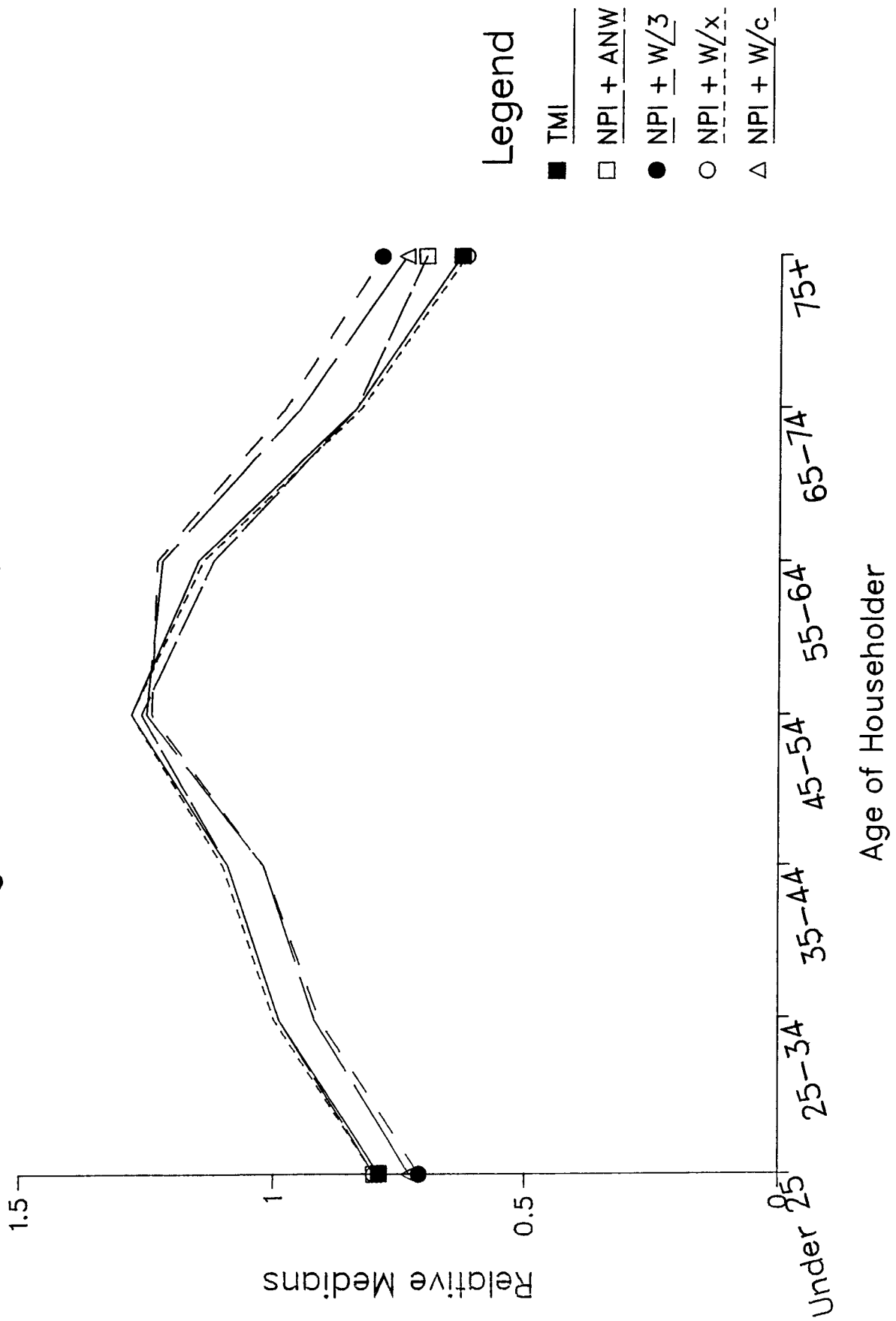
Figure 4
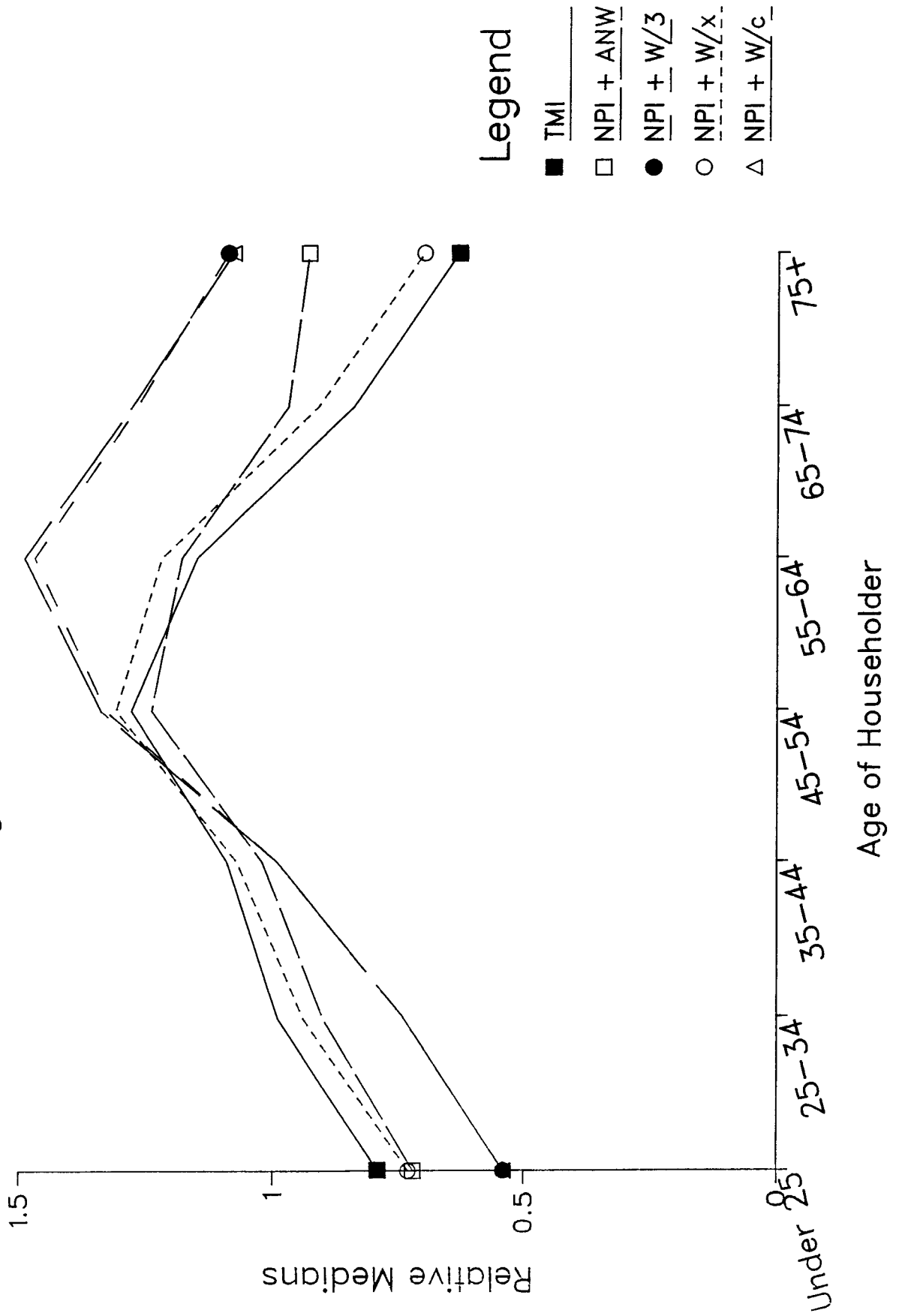Relative Medians of Alternative Measures
Using Net Worth, 1984

Legend

TMI
NPI + ANW
NPI + W/3
NPI + W/x
NPI + W/c

Relative Medians

1.5
1
0.5

Under 25   25-34   35-44   45-54   55-64   65-74   75+

Age of Householder

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

| | | Measure | | | |
| | | NPI+ | NPI+ | NPI+ | NPI+ |
Age of householder	TMI	ANW	W/3	W/x	W/c
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

	Measure				
	NPI+ANW				
Age of householder	r=2%, ERL	r=5%, ERL	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
		Measure		
		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

|		Measure		
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
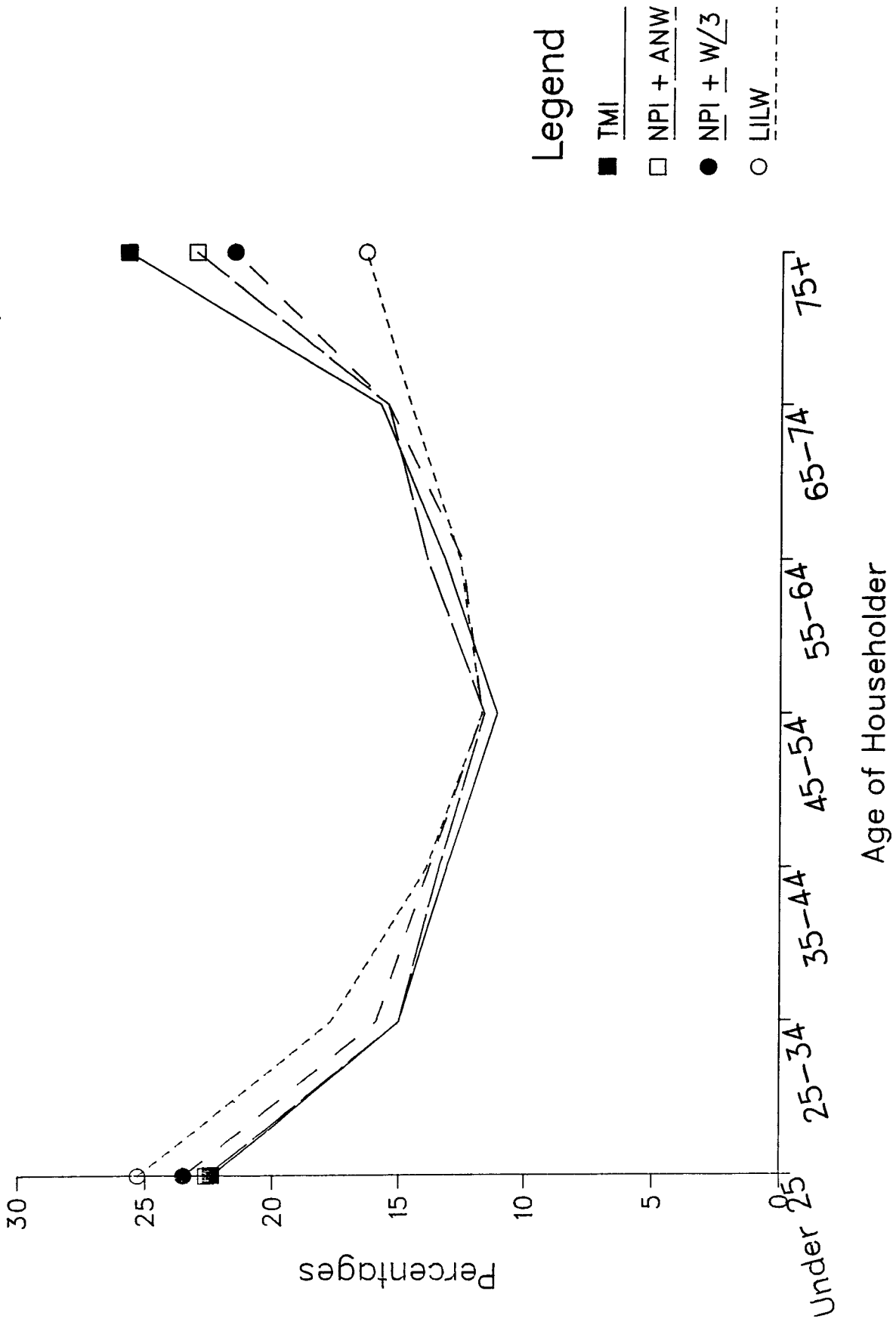
Figure 6

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

Age of Householder
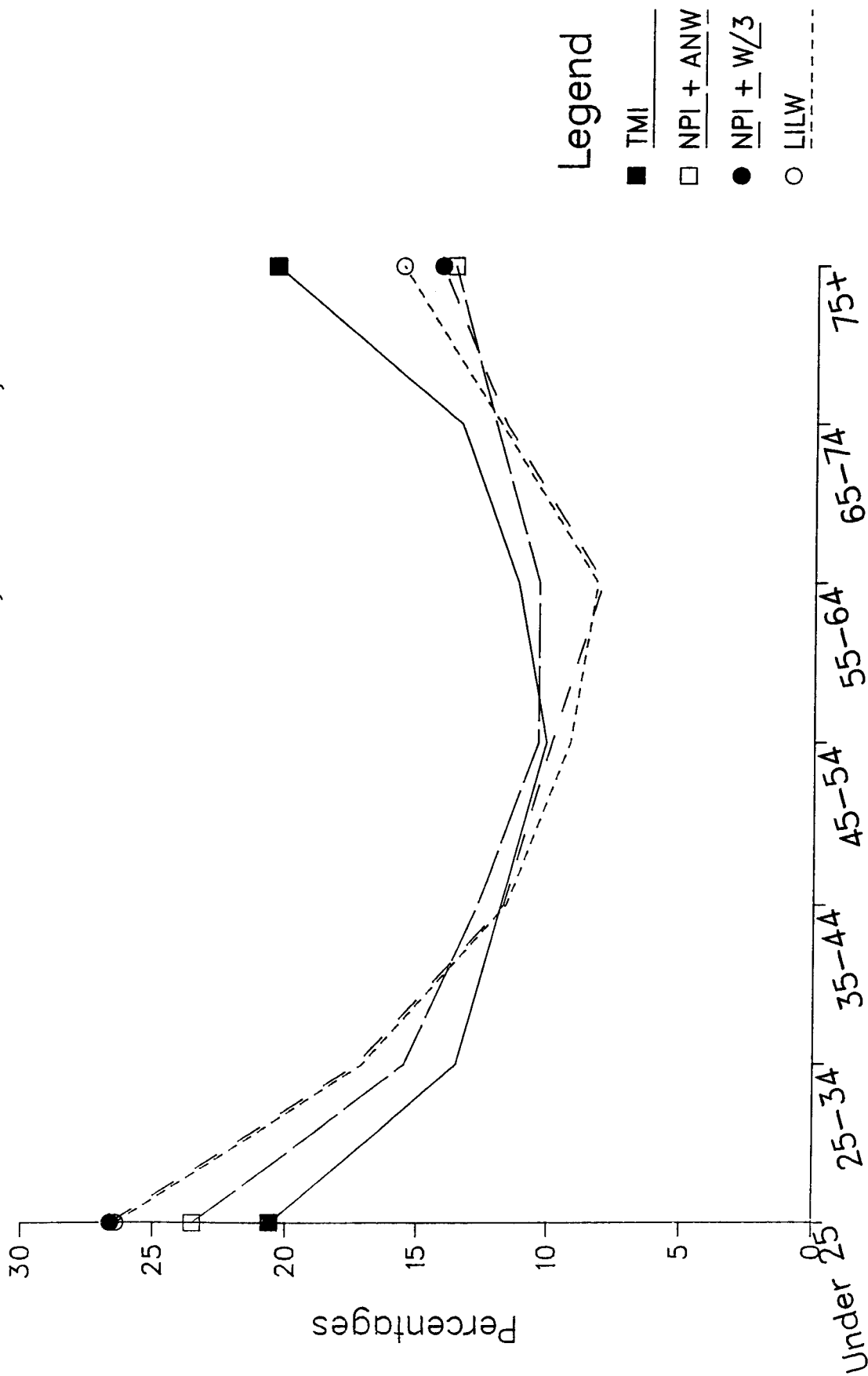
Percentages

Legend

TMI

NPI + ANW

NPI + W/3

LILW

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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