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AN ASSESSMENT OF THE ECONOMIC STATUS OF THE AGED

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ABSTRACT

This paper discusses what is known about the economic status of the aged. Numerous complexities involved in the assessment of the economic status of the aged are discussed. Compared with most other recent assessments, this study shows a less favorable status for the aged relative to other age groups. The focus is on an examination of detailed age groups, rather than summary aged and nonaged groups, thus providing a more complete picture of age differences. More than most other assessments, this study stresses uncertainty about the relative status of the aged and emphasizes what we do not know. The need for better adjustments for differences in needs among age and other subgroups of the population is stressed. The need for consistency between the definition of resources and the specification of needs is also emphasized. The vulnerability of the aged to economic risks is discussed.

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AN ASSESSMENT OF THE ECONOMIC STATUS OF THE AGED*

I. Introduction

The economic status of the aged has been a topic of great interest to researchers and policymakers for many years. Much has been written about the economic status of the aged in recent years, both in academic journals and elsewhere, as pressure has increased to reduce Social Security benefits and revise Medicare in order to alleviate Federal budget deficits. One indication of government interest in the economic status of the aged is that several years ago the annual report of the President's Council of Economic Advisers included a chapter on the economic status of the elderly (Council of Economic Advisers 1985).

The conventional wisdom formerly was that the economic status of the aged was low. In recent years that view has been replaced by the conventional wisdom that the aged are well off. The former view led to sentiment for increases in government assistance, while the latter view has led to sentiment for cutbacks.

Both the present conventional wisdom and the former conventional wisdom, however, are too simplistic. The assessment of the economic status of the aged is far more complex than most popular articles and many other analyses suggest. There is much that is not known about this topic. This paper discusses what is known and what is not known about the economic status of the aged

today and about how the economic status of the aged has changed over time. Recent research is emphasized. Numerous complexities involved in the assessment of the economic status of the aged are discussed.

Although several researchers have concluded, using broad aged-nonaged comparisons, that the aged are better off than the nonaged (e.g., Hurd 1990), such broad comparisons are not the most meaningful ones to make. The comparisons examined usually are simple ones in which much important information is not taken into account and in which measures that are not the most appropriate are used. The comparisons usually are made in terms of broad aged and nonaged groups and aged-nonaged ratios. Comparing broad age groups, however, is not the most useful comparison because much important detail is missed. The examination of detailed age groups, within both the aged and nonaged groups, presents a far more complete and somewhat different picture. Detailed age-income curves are far more useful than aged-nonaged ratios. Comparisons of detailed age groups rarely provide easy, simple answers, as aged-nonaged ratios do. The answers concerning the economic status of the aged, however, are complex, not simple, and a more complete picture is much more useful.

Also, means, rather than medians, often are used in the comparisons. Means, however, are affected by extreme values; medians generally are a much better measure of the status of a "typical" unit in the age group. The difference between means

and medians usually is important empirically in actual comparisons.

Another problem with the general conclusion that the aged are better off than the nonaged is that there is more uncertainty about several aspects of the measurement of the economic status of the aged (and nonaged) than is generally conceded. There is uncertainty about the effect of noncash income on the economic status of the aged. The valuation of some types of noncash income is controversial, and the lack of consistency between valuations of noncash income and measures of needs is a problem that has received relatively little attention. The appropriate valuation of wealth is also controversial. In addition, there is great uncertainty about the general problem of appropriate measures of needs for the various age groups and for other groups. These sources of uncertainty substantially reduce the confidence with which conclusions about the economic status of the aged can be reached.

Compared with most other recent assessments of the economic status of the aged, this study shows a less favorable status for the aged relative to other age groups. This study emphasizes the examination of detailed age groups, rather than summary aged and nonaged groups, thus providing a more complete picture of age differences than many other assessments. More than most other assessments, this study also emphasizes uncertainty about the relative status of the aged and places more emphasis on what we do not know.

In contrast to several other recent surveys of the economic status of the aged, the emphasis in this paper is on the measurement of the economic status of the aged, rather than on an explanation of why their status is what it is or why their status has changed. Although explanations are very important, the measurement aspects of this subject are also important and have received less attention than they deserve.

One important point that the reader should keep in mind is that the aged are not a homogeneous group. Analyses generally show wide differences between the subgroups of the aged that are best off and those that are worst off. For example, aged married couples are generally found to be better off than aged widows. Also, the economic status of the "young old," in general, is generally found to be better than that of the "old old." Wide differences in economic status also are found within each subgroup of the aged. Although many existing estimates are incomplete and/or flawed in fundamental ways, it is clear that wide differences in economic status among the aged in fact exist. The general point about diversity in well-being among the aged has been made by several researchers (e.g., Quinn 1987), but the point warrants even more attention than it has received. Detailed age groups within the aged group are examined in this paper whenever practical. Other subgroups of the aged are discussed in some cases. Estimates for the aged group as a whole are discussed when those estimates are useful for summary purposes or when those are the only estimates available.

Another important point is that although the income of the aged has increased greatly (both absolutely and relative to other age groups) during roughly the last 20 years, it does not necessarily follow that the aged have more than they "should" have. Assessments of how much is "enough" or "fair" are very difficult and depend on value judgments. Needs related to particular stages of the life cycle are important here, as is the choice of the group(s) with whom the aged are compared. Also, it should be noted that at least some of the relative improvement in the economic status of the aged merely offsets the relative decline in their status from the end of World War II to about 1970.

A third important point is that the way comparisons are framed and the technical choices made can affect the conclusions. These technical aspects include the choice of which age groups are compared, the definition of resources chosen, the definition of needs chosen, whether the mean or median is used to summarize the distribution, the choice of the age that separates the aged from the nonaged, the definition of the recipient unit chosen, whether units are weighted using person weighting or unit weighting, and the choice of whose age is used in age classifications (in multi-person units). These aspects are discussed briefly below.

The aged as a whole often are compared with the nonaged as a whole. The use of more detailed age groups, within both the aged and nonaged groups, is preferable because much important variation is hidden if summary age groups are used. The choice

of the age groups to be compared has a great impact on the results of the comparisons. A discussion of various types of comparisons appears later in this introduction.

Economic status is most appropriately assessed by comparing resources and needs. There are many problems associated with the definition and measurement of resources. Cash income, noncash income, and wealth are types of resources discussed here. Consumption as an alternative to resources is also discussed briefly.

The measurement of cash income has fewer problems than the measurement of other resources, but misreporting of income amounts in household surveys (usually in the form of underreporting) and nonresponse are important problems, as is adjustment for price change. The appropriate treatment of pension income is somewhat controversial. In this paper, pension income is included when it is received. The appropriate treatment of capital gains and losses is also controversial. The measurement of interest income poses problems because definitions of income usually include nominal interest income, which includes an inflation premium that compensates for the decline in the real value of the interest-earning asset. Annual income generally is used, although shorter and longer time periods have been used in some cases. Taxes have been taken into account by some researchers.

The types of noncash income included in resources and the valuation of those types are both quite controversial. The inclusion or exclusion of noncash income associated with medical

care is the most controversial and empirically most important definitional issue. With regard to valuation, the cost to the provider is often used, although the value to the recipient has been used for some types of noncash income in some studies. The treatment of Medicare poses particular problems, because of the size of the program and therefore its importance to well-being, the concentration of the benefits on the aged, and the nature of the benefits. Medicare is usually measured as the insurance value of the benefits, but that valuation is controversial. In most cases, a specific type of noncash income cannot be used to meet other needs. For example, medical noncash income in general cannot be used to fully offset deficiencies in cash income (e.g., to buy food). Some estimates of noncash income try to take this fungibility problem into account. Also, when Medicare (or any other type of noncash income) is included on the income side, the estimate of needs should be consistent with that inclusion. That consistency problem is very important, but rarely addressed.

The appropriate treatment of wealth is also controversial. Wealth is often included in assessments of economic well-being only as the cash return on assets. In some cases the annuity value of wealth is included, but that valuation produces the controversial result that, for a given amount of wealth (and income), the older you are the better off you are. Wealth also plays a role in protection against economic uncertainty (e.g., large medical expenses). The definition of wealth discussed in this paper generally excludes social security wealth, pension wealth, and human capital. Human capital, of course, is very

important for the nonaged. Household survey and other estimates of wealth generally are considered less accurate than estimates of cash income.

In assessing economic well-being, if only resources are examined, then it is implicitly assumed that needs are the same for all units being compared. It is generally agreed, however, that needs differ among different units and many sets of equivalence scales have been constructed to address this problem. For example, an equivalence scale might show that a family of four persons needs twice the income of a one-person family to be equally well off. In the ideal case, needs would be specified for each unit and the resources of that unit would be compared with those needs. Since this is not feasible, it would be useful to specify needs for detailed groups. Such a detailed specification of needs, however, has not been accomplished. Needs for broad groups have been specified, but there is substantial controversy about the proper specification. For example, although equivalence scales are usually assumed to be unaffected by income level, it is uncertain whether differential needs are the same for high-income units as for low-income units. It is very important for the needs specified to be consistent with the definition of resources used. This is a particularly important issue in the case of noncash income.

The needs issue as usually discussed has two aspects, equivalence among different types of units, and levels of needs. Equivalence scales are important in assessing the relative economic status of the aged, in part because aged units generally

are smaller than nonaged units. Also, there might be life cycle differences in needs. The aged sometimes are assumed to need less than the nonaged need, for a unit of equal size, but there is no general agreement that such a differential exists. Sometimes an aged-nonaged difference is associated with lower expenses assumed for retirement, although in that case different equivalence categories for aged retirees and aged workers perhaps should be used. An aged-nonaged difference is sometimes associated with relatively low housing costs for the aged. This housing cost difference results from the relatively high proportion of the aged living in owner-occupied mortgage-free homes. Such a difference would also suggest the use of separate equivalence categories within the aged group. The proper treatment of medical needs, which are very important for the aged, is a controversial topic.

The same equivalence scale generally is used regardless of the definition of resources used. This is inappropriate conceptually and is likely to be important empirically in some cases. For example, in general cash income should be compared with needs for cash income, while cash plus noncash income should be compared with needs for cash income plus needs satisfied by noncash income. Inconsistencies between the income and needs sides can produce misleading results.

Levels of needs are most frequently discussed in connection with the measurement of poverty. The official U.S. poverty thresholds incorporate assumptions about both equivalence and levels of needs. Those thresholds are often used to compute

welfare ratios that show the income of the unit relative to the poverty threshold.

The poverty thresholds and the equivalence scales that are usually used can be interpreted as average (mean) needs. The distribution of some expenses (e.g., medical expenses), however, can be highly skewed, or, more generally, have high variance. A relatively small number of units will face very large expenses, while most units will face much smaller expenses. For such expenses, mean needs are not typical needs. It could be asked how many aged units have sufficient income to cover high (or low) expenses from the distribution. It could also be asked how many aged units have sufficient assets (liquid or total) to cover high (or low) expenses. The role of insurance is important in this context. An important question for the assessment of the economic well-being of the aged is whether medical expenses (and other expenses that have distributions with high variance) are being taken into account properly on the needs side. Some aspects of this topic of uncertainty or vulnerability to economic risks are discussed in this paper. It is important to specify the average needs of the aged relative to the average needs of other age groups. It is also important, however, to specify the distribution of needs faced by the aged relative to the distribution of needs faced by other age groups.

Consumption, instead of resources, is sometimes used in assessing the distribution of economic well-being. Service flows from owner-occupied homes and consumer durables (such as automobiles) ordinarily are included in estimates of consumption,

while saving is excluded. For many aged units, consumption may provide a different picture of economic status than cash income does. Some aged units draw down assets to finance consumption; those assets generally are not included in income. Some aged units save substantial amounts; those amounts are not included in consumption. The treatment of medical expenditures in consumption is very important for the aged. Higher medical expenditures generally should not be interpreted as making the unit better off. Assets may be drawn down to pay for medical expenses.

The choice of a measure of central tendency of the distribution (median or mean) is another aspect of measurement that is very important. The distinction between median and mean has received less emphasis that it should receive. As noted earlier, this choice is often important empirically. The median generally is preferable because it is more representative of typical units in the distribution.

The definition of who is "aged" can also be important. Age 65 traditionally has been used as the dividing line between aged and nonaged, and that age is used in this paper. Other age cutoffs, sometimes as young as age 55, have also been used. In general, the younger the age at which the aged-nonaged cutoff occurs, the better off the aged are measured to be relative to the nonaged.

The choice of the recipient (or asset-holding) unit can affect the comparisons. The resources of all persons in the unit generally are summed. If aged and nonaged persons share a unit

(household, family, or consumer unit), then resources received or held by aged and nonaged persons are summed. The question of whether all persons in a unit have equal access to the unit's resources is important here. Family units (families plus unrelated individuals) are used in many of the studies discussed. In that definition, the many aged unrelated individuals are considered to be one-person units regardless of whether they live alone. It is important for the equivalence scale used to be consistent with the recipient unit used.

In the case of multi-person units, there is a choice between unit and person weighting. In unit weighting, each unit (e.g., household) is counted once, regardless of the number of persons in the unit. In person weighting, the unit is counted once for each person (of any age, child or adult) in the unit. For example, a four-person household would be counted four times. Unit weighting often approximates counting each economic decision-making unit once, while person weighting assigns equal weight to each person's well-being. The issue of the distribution of economic well-being within the multi-person unit is more important in the case of person weighting. Compared with unit weighting, person weighting often raises aged-nonaged income ratios, primarily because person weighting effectively assigns a higher weight to young (relatively low income) families with children.

Whose age is used to determine aged status can also be important. The age of the person and the age of the family or household head have been used. When the age of the head is used,

aged persons living in units with a nonaged head are excluded from the aged group.

As mentioned above, an important question is what group or groups the aged (or detailed subgroups of the aged) are compared with in order to assess their economic well-being. The aged can be compared with the nonaged as a group or with detailed nonaged groups in cross-section comparisons. Those comparisons can be made for a single year or in terms of changes over time. Also, today's aged group can be compared with the aged group at an earlier time period in another type of cross-section comparison. These types of comparisons have been used in assessing different aspects of the economic status of the aged and are discussed in this paper. Cohort comparisons, in which today's aged are compared with themselves at a younger age, are not discussed.

The comparisons mentioned above referred to groups in the United States. International comparisons are also discussed in this paper. The economic status of the aged in the U.S. is compared with the economic status of the aged in several other countries, based on the economic status of the aged relative to other age groups within each country.

An annual time period, rather than a longer (e.g., lifetime) or shorter period, usually is used in the discussions in this paper. Measures of central tendency of the distribution (usually medians) are generally used in the comparisons here. The examination of percentages below specified thresholds (such as poverty thresholds) are the only aspect of inequality discussed.

The composition of income is another important topic that is not discussed.

As noted earlier, a different aspect of economic status, vulnerability to economic risks, is discussed in this paper. Selected types of risks, such as large medical expenses, are examined. Volatility of income is mentioned briefly. Life events, such as loss of spouse, that produce risk of adverse economic change are not discussed.

Subsections containing the major findings and the plan of the paper complete this introduction.

A. Major Findings

1. There is great diversity in economic status within the aged group. Subgroups of the aged differ substantially in median incomes. Married couple units have a higher median than unrelated individuals, and the "young old" have a higher median than the "old old." Within each subgroup, however, there is substantial diversity in economic status. Differences in wealth within the aged group are large. Poverty rates for subgroups of the aged differ greatly.

2. Looking at the entire age range, in a given year median cash income is highest for middle-aged units and lowest for the oldest and youngest units. Thus, the median cash income of the aged is below the medians for the middle age groups. Technical measurement choices, such as the method of adjustment for different needs of different groups, affect the shape of the age-

income relationship somewhat, but the basic pattern is the same for all moderate specifications that have been used. When family unit income adjusted for differential needs using the equivalence scale implicit in the poverty thresholds is used, the median for each detailed aged age group is below the median for each age group in the 30-64 age range. Existing estimates would be improved if better adjustments for differential needs were available.

3. When detailed age groups are combined into summary aged and nonaged groups, the level of the aged-nonaged ratio of cash incomes depends greatly on the technical measurement choices made. The ratio of aged to nonaged medians of family units, with income adjusted for differential needs using the equivalence scale implicit in the poverty thresholds, was 0.725 in 1990. That ratio would rise somewhat if an adjustment were made to improve the accuracy of the income information used. The ratio would fall if aged and nonaged needs were assumed to be the same for each size of unit.

4. When noncash income is considered in addition to cash income, the economic status of the aged generally improves relative to that of the nonaged. The amount of the improvement, however, is uncertain. The amount of improvement depends on several technical measurement choices, such as the types of noncash income included and the valuation of those income types. Both of those measurement aspects are controversial. The inclusion and valuation of Medicare are particularly problematic. The inclusion of Medicare has a large positive impact on the

measured status of the aged. A very important problem, the need for consistency between the income definition used and the adjustment for differential needs used, has received little attention. This problem is particularly important in the case of Medicare. When taxes are taken into account, the income of the aged rises relative to the income of the nonaged.

5. When wealth (excluding social security wealth, pension wealth, and human capital) is considered in addition to cash income, the economic status of the aged improves relative to the economic status of the nonaged. Some methods of taking wealth into account improve the relative status of the aged substantially, while other methods improve it very little. The valuation of home equity is very important here. The whole topic of combining income and wealth into a single measure, however, is very controversial and no fully satisfactory method of combining those items into a single measure exists at this time. The role of wealth in the economic status of the aged is related, at least in part, to the ability to pay for large uncertain expenses (e.g., medical expenses), but that relationship has not been explored comprehensively. The general question of the measure of needs that should be used in conjunction with a measure of resources that includes wealth has received little attention.

6. The poverty rate for aged persons is above the rates for other adult age groups, but below the rate for children. Within the aged group, the poverty rate is much higher for the "old old" than for the "young old." Relatively more aged persons than persons in other age groups are slightly above the official

poverty threshold. The appropriate level for the poverty thresholds is controversial, particularly because the official thresholds are not adjusted for increases in living standards over time. If the poverty thresholds were raised, relatively more aged persons than nonaged persons would be added to the poverty group. The aged-nonaged poverty threshold differential, which reduces the relative number of aged persons who are classified as poor, is also controversial. Using controversial experimental estimates of poverty that take noncash income into account, the 65-74 age group has the lowest poverty rate. When wealth, as well as cash income, is taken into account in another set of controversial estimates, the poverty rate for the aged falls relative to the rate for the nonaged.

7. When the cash income of the U.S. aged relative to other age groups in the U.S. is compared with the cash income of the aged relative to other age groups for several other industrialized countries, the aged in the U.S. generally appear to be at least as well off as the aged in those other countries. Poverty rates for the U.S. aged, however, tend to be relatively high.

8. The aged (and other age groups) are subject to substantial economic risks that are not easily taken into account in the usual measures of economic status. Acute health care expenses and long-term care expenses are the most frequently cited risks for the aged. These risks are an important aspect of needs that has not been explored in detail in assessing economic

status. As noted above, the role of wealth in the economic status of the aged is related to those risks.

9. The real money income before taxes of the aged generally has been rising for several decades, although the rise has been faster in some subperiods than in others, and there have been relatively brief periods of decline. Median cash income (adjusted for differential needs using the equivalence scale implicit in the poverty thresholds) of aged family units rose substantially relative to the median of nonaged family units from about 1970 to 1984, declined slightly from 1984 to 1989, and rose in 1990. The 1990 ratio was similar to the 1984 ratio. The rapid relative improvement from 1979 to 1984 was associated with low (or negative) economic growth, high inflation, and high interest rates. The slight relative decline for the aged from 1984 to 1989 was associated primarily with the decline in interest rates and improved income growth for the nonaged. Lags in the cost of living adjustment of Social Security benefits also played a role. The relative improvement for the aged in 1990 was related in part to the general slowdown in economic activity. The relative improvement from 1970 to 1984 offset, in rough terms, the relative decline experienced by the aged from 1947 to 1970.

10. The poverty rate for aged persons fell dramatically from 1959 to 1990, although the decline has been much slower in the later part of that period than in the earlier part. The decline for the aged was the largest of any age group. If the poverty thresholds for 1990 were raised to incorporate increases

in the standard of living over time, the decline in the poverty rate for aged persons would be smaller than the decline shown by the official estimates.

B. Plan of the Paper

This paper contains four main sections. Following this introduction, the current economic status of the aged is discussed in section II. Diversity among the aged, the aged compared with other age groups, international comparisons, and the role of uncertainty and vulnerability are discussed in that section. Change over time is then examined in section III. That section covers change over time for the aged and for the aged compared with other age groups. Finally, section IV contains a summary and conclusions.

II. Current Status of the Aged

This section covers several aspects of the current economic status of the aged. A discussion of diversity among the aged is followed by a comparison of the aged with other age groups. International comparisons and the role of uncertainty and vulnerability in the economic status of the aged are also discussed.

A. Diversity Among the Aged

The income of the aged has been examined using several different definitions of recipient units and different socioeconomic groups. Median cash income (not adjusted for differential needs) of households with an aged householder was $16,855 in 1990, but there was a wide range of incomes around that median. At the extremes of the distribution, 7 percent of all aged households had incomes below $5,000, but 8 percent were between $50,000 and $100,000, and 2 percent had incomes of $100,000 or more (Bureau of the Census 1991a):

Size of income	Percent
Under $5,000	7
$5,000-9,999	21
$10,000-14,999	17
$15,000-19,999	13
$20,000-24,999	10
$25,000-34,999	13
$35,000-49,999	9
$50,000-99,999	8
$100,000 and over	2

The income of the aged varies by demographic group and by detailed age group, and within each of those groups. In 1990 the median income (not adjusted for differential needs) of aged married couples was far above the medians for nonmarried men and nonmarried women (Grad 1992). The median for aged white married couples and nonmarried persons was much higher than the median for aged black units or the median for aged units of Hispanic origin:

Aged units	Median income
Couples	$23,352
Nonmarried men	10,893
Nonmarried women	8,746
Couples and nonmarried persons	
White	$14,542
Black	6,987
Spanish origin	7,879

The median for aged black nonmarried women was only $5,481, and the median for aged nonmarried women of Hispanic origin was only $5,700. The median for aged couples and persons in the 85 and over age group ($8,668) was less than half the median for those in the 65-69 age group ($18,352) (Grad 1992).

It is important to note that differences among detailed aged age groups often are related to differences in composition by type of unit. The older aged age groups contain relatively more unmarried persons (primarily widows) and smaller units on average. After adjustment for size of unit, however, substantial income differences remain among family units (families and unrelated individuals) in detailed aged age groups (Radner 1987a). For example, after adjustment for size of unit using the equivalence scale implicit in the poverty thresholds, the median cash income of the 85 and older age group was only 55 percent of the median for the 65-69 age group in 1990.

In 1990, 12.2 percent of aged persons were officially classified as poor (Bureau of the Census 1991b).[1] As in the case of median incomes, poverty rates vary greatly among subgroups of the aged. In 1990 the poverty rate for aged white persons was

10.1 percent, while the rate for aged black persons was 33.8 percent, and the rate for aged persons of Hispanic origin was 22.5 percent. Aged black females had a poverty rate of 37.9 percent in that year. Aged black unrelated individuals had a poverty rate of 54.9 percent; the poverty rate was 60.1 percent for aged female black unrelated individuals (Bureau of the Census 1991b). The percentage poor also varies among detailed aged age groups. Although only 8.4 percent of persons age 65-69 were poor, 20.2 percent of persons age 85 or older were poor in 1990.

Many aged persons are slightly above the poverty threshold. In 1990, 26.3 percent of aged persons had income below 150 percent of the poverty threshold. The percentage below that higher threshold varies among detailed aged age groups. For the 65-69 age group, 18.7 percent were below 150 percent of the threshold, while 39.8 percent of the 85 and older age group were below 150 percent of the threshold.

Wealth is an important resource for the aged. Median net worth (not adjusted for differential needs) of households with a householder age 65 or older was $73,471 in 1988 (Bureau of the Census 1990). When home equity was excluded, median net worth was $23,856. As in the case of income, wealth ranges widely around the median. Seventeen percent of aged households had net worth of less than $10,000, 21 percent were between $10,000 and $50,000, 21 percent were between $50,000 and $100,000, 26 percent were between $100,000 and $250,000, and 14 percent had net worth of at least $250,000 (Bureau of the Census 1990).

Median net worth was $83,478 for households in the 65-69 age group and $61,491 for the 75 or older age group. When home equity was excluded from net worth, the median was $27,482 in the 65-69 age group and $18,819 in the 75 or older age group.

Median net worth differed greatly among subgroups of the aged based on race and Hispanic origin and type of household. Median net worth of aged white households in 1988 was $81,648, while the median for aged black households was only $22,210. The median for aged households of Hispanic origin was $40,371. Aged households headed by a married couple had median net worth of $124,419 ($45,890 excluding home equity). Aged households headed by unmarried males had median net worth of $48,883 ($15,914 excluding home equity), while aged households headed by unmarried females had median net worth of $47,233 ($10,693 excluding home equity) (Bureau of the Census 1990).

B. Aged Compared With Other Age Groups

In this section the economic status of the aged is compared with that of other age groups using cash income before taxes and broader definitions of resources that include noncash income or wealth. Poverty among the aged and other age groups is also compared.

1. Cash Income Before Taxes

Median cash income of family units, adjusted for differential needs, in 1990 was highest for the middle age groups and lowest for the oldest and youngest age groups (table 1 and figure 1). These estimates use Current Population Survey (CPS) data, the equivalence scale implicit in the poverty thresholds, and family unit weighting (i.e., each family unit was counted once using the sample weight).[2,3]

The median for the group aged 85 and older was the lowest of any age group shown. The relative median for that age group (i.e., the median for the group divided by the median for all ages) was only 0.53. The relative median for the 65-69 age group, which was the highest for any aged group, was 0.97. The median for the 85 and older group was only 39 percent of the median for the peak age group (45-49), and the median for the 65-69 age group was only 70 percent of the median for the peak age group. Within the aged group, the older the age group the lower the median. The median for each aged group was below the median for each age group in the 30-64 age range.

The differences in medians are large within both the aged and nonaged groups. Within the nonaged group, the median of the group aged 20-24 was only 43 percent of the median for the group aged 45-49. Within the aged group, the median for the 85 or older group was only 55 percent of the median for the 65-69 age group.

Although much important information is lost in the process, the estimates for detailed age groups can be summarized in the aged-nonaged income ratio.[4] The ratio of aged to nonaged median cash income of family units was 0.725 in 1990. That estimate was made using CPS data, the equivalence scale implicit in the poverty thresholds, and family unit weighting.

The aged-nonaged ratio can vary substantially if different measurement choices are made. Using data for 1983, Radner (1986) examined aged-nonaged ratios of median incomes for several measurement choices. When family unit income and family unit weighting were used, the aged-nonaged ratio was 0.53 with no adjustment for differential needs, 0.71 with the poverty threshold equivalence scale applied (the estimate shown above for a different year), and 0.82 with the per capita adjustment for needs applied.

When person weighting (i.e., each person is counted once using the sample weight) is used, the 1983 ratios of medians are higher--0.56 when no adjustment is applied, 0.81 when the poverty threshold scale is applied, and 0.96 when the per capita scale is applied. Person weighting tends to raise the ratio primarily because large young families, which on average have relatively low incomes, in effect receive higher weights.[5]

It should be noted that, for units of size one or two, the poverty threshold equivalence scale assumes that aged units need less income than nonaged units. The scale value for aged units is 8 percent less than the nonaged scale value for one-person units and 10 percent less for two-person units. These

differentials raise the aged-nonaged ratio above what it would be if there were no differentials. The 1990 aged-nonaged ratio of medians falls from 0.725 to 0.665 when the aged differential is eliminated.[6]

The per capita adjustment for needs is too extreme because it does not take into account family-size related economies of scale or age-related (e.g., adult vs. child) differences in needs. The per capita adjustment usually produces higher aged-nonaged ratios than more moderate adjustments primarily because large families, which are almost all nonaged, have their incomes reduced relatively more using the per capita scale.

Many other equivalence scales have been used by researchers. See Buhmann et al. (1988) for comparisons of many different scales.

It has been shown above that even when the income definition is held constant and medians are used, large differences among aged-nonaged ratios are possible when adjustments for needs vary. The choice between means and medians also affects these ratios. Means, which are affected more than medians by extreme unrepresentative amounts, generally produce higher ratios. For family unit income and family unit weighting, with the poverty threshold equivalence scale used, in 1990 the aged-nonaged ratio was 0.842 using means and 0.725 using medians. Thus, the difference associated with the choice between median and mean is similar in magnitude to the difference associated with the choice between the poverty threshold scale and per capita adjustments for differential needs.

In this paper, medians are considered to be preferable to means, and the per capita adjustment and no adjustment are considered to be inferior to more moderate adjustments for needs, such as the poverty threshold scale. Thus, whenever possible, medians and moderate equivalence scales are used in the discussion. In some cases, however, researchers have used only other measures and their results should be interpreted with these differences in mind.

Income data obtained from household surveys suffer from errors in the data that produce net underestimates of total cash income. Those underestimates, which are usually called "underreporting," differ among age groups, with the aged showing a higher percentage of underreporting of total income than other age groups. The effect of underreporting of income on the relationship between income and age has been examined by combining different microdata sources and utilizing independent control aggregates of income types (Radner 1983). Using 1983 income data from the CPS and a crude adjustment for underreporting based on detailed 1972 estimates, it was found that the aged-nonaged ratio of medians for family units (adjusted for unit size) rose from 0.71 before adjustment for underreporting to 0.85 after adjustment. The ratio of the median for the aged to the median for the 45-54 age group (the peak) rose from 0.57 before adjustment to 0.66 after adjustment (Radner 1986).

In another estimate, cash income data for 1983-84 from the Survey of Income and Program Participation (SIPP) have been

adjusted for underreporting using income tax data and independent control totals (Crystal and Shea 1990). In these estimates, the ratio of mean household income of aged persons to mean household income of nonaged persons rose from 0.939 (after adjustment for differential needs using the poverty threshold equivalence scale) to 1.028 after the adjustment for underreporting was also applied.[7,8] The Radner and Crystal-Shea estimates show that adjustments for underreporting would raise the estimated money income of the aged relative to that of the nonaged, although the amount of the increase can vary.

There are also issues regarding the appropriate definition of total cash income. Capital gains, both realized and unrealized, are excluded from the definition of income used in this section. Pension benefits are included when received, rather than as accrued. Nominal interest income is included in total income. Part of the nominal interest rate, however, is an inflation premium that adjusts for the decline in the real value of the interest-earning asset. If only real interest income were included, then the ratio of aged to nonaged total income would be expected to decline somewhat because interest income is more important to the aged than to the nonaged (Radner 1987b). Estimates that take taxes into account are discussed in the next section.

2. Other Definitions of Resources

Definitions of income that are limited to cash income types generally are considered incomplete. Several types of noncash income have been included by some researchers to examine the well-being of age groups. In most cases taxes have been deducted. Wealth has also been considered.

a. Estimates Including Noncash Income

When noncash income is considered in addition to cash income, the economic status of the aged generally improves relative to that of the nonaged. The amount of the improvement, however, is uncertain. The amount of improvement depends on several technical measurement choices, such as the types of noncash income included and the valuation of those income types. Both of those measurement aspects are controversial. The inclusion of Medicare has a large positive impact on the measured status of the aged.

In trying to take account of noncash income in an appropriate manner, it is essential to consider the needs side as well as the income side. This argument for consistency between the income and needs sides has been made primarily in connection with the measurement of poverty (Bureau of the Census 1986, Shoven 1989, Radner 1990c). But this argument is relevant for the analysis of the distribution of income (or economic well-being) in general.

Imputed rent on owner-occupied homes and Medicare are the two types of noncash income usually considered that have the greatest impact on the economic status of the aged. The inclusion of imputed rent on owner-occupied homes improves both the absolute and relative status of the aged in part because a relatively high proportion of the aged own their own homes. The valuation of that type of noncash income is relatively noncontroversial, although several different estimating methods have been used.[9] The inclusion of Medicare also improves the absolute and relative status of the aged. The inclusion of Medicare, and the valuation if included, however, are controversial.

Discussions of the valuation of Medicare generally have been confined to the income side. The insurance value of Medicare is usually added to income.[10] The aged, however, have a greater need for medical care than other age groups, and this difference on the needs side is generally not considered directly in the valuation. The appropriate specification of such needs has received little attention.[11]

Depending on the valuation method used, subgroups of the aged that have greater need for medical care may be assigned higher income values for Medicare. If the value of Medicare is included in income and medical needs are underestimated, then groups that are "sicker" (i.e., have greater medical needs) could be estimated to be "richer." This result can occur because needs are underestimated while income (including Medicare) is measured fully. The aged as a group are relatively "sicker" than the

nonaged are and therefore could be estimated to be relatively "richer" on this basis. Also, if the needs side is ignored, changes over time in medical care needs could lead to incorrect estimates of improved (worsened) economic status resulting from increased (decreased) medical needs and therefore more (less) Medicare noncash income. For a given level of needs, however, persons with Medicare are better off than those who are without it.

Assume, for purposes of assessing the economic well-being of the aged at a specific time, that there are only two kinds of medical needs, those paid for with cash and those paid for by Medicare. If the value of Medicare is included in income, then the needs side should include all medical needs, including those that are paid for by Medicare.[12] For most types of comparisons, if the value of Medicare is not included in income, then the needs side should include only those medical needs that are not paid for by Medicare. It is not appropriate to include the value of Medicare in income, but to include on the needs side only those medical expenses that are not paid for by Medicare. Such a treatment biases the measured economic status of the aged upward.[13]

The ratio of the needs of the aged to the needs of other age groups is not likely to be the same for needs associated with cash income and needs associated with cash plus noncash income.[14] If those ratios differ, either the poverty threshold equivalence scale is incorrect for use with cash income plus the value of Medicare or it is incorrect for use with cash income, or both.

The poverty threshold equivalence scale is not likely to be correct for both definitions of income, even though that scale has been used in conjunction with both definitions of income. Other equivalence scales would also be expected to have this limitation. Also, the method used to value Medicare and the specification of needs should be consistent.

Several estimates that included noncash income are discussed in this section. The types of noncash income included and the valuation methods used differed among these estimates.

Bureau of the Census

The income of aged households can be compared with the income of all households using comprehensive estimates produced by the Bureau of the Census (Bureau of the Census 1991c). These estimates were based on CPS data for 1990, augmented with information from several other data sources.[15] Aged households were defined as households containing at least one person who is age 65 or older. Estimates for several definitions of income, including a comprehensive one that takes account of several taxes and several types of noncash income, were shown. Income was not adjusted for household size or for other differential needs in these estimates. When income was defined as cash income before taxes, the ratio of median income for aged households to the median for all households was 0.603 (table 2). When several types of taxes (Federal and state income taxes and Social Security employee and self-employment taxes) were subtracted and realized capital gains and selected types of noncash income (government noncash benefits, which are primarily Medicare, and

health insurance supplements to wages) were added, that ratio rose to 0.783. Those changes caused the median for aged households to rise by $3,638, while the median for all households fell by $2,223. When imputed rent on owner-occupied homes was also included in the definition of income, the ratio rose to 0.830.[16] That addition raised the median for aged households by $2,890, while the median for all households increased by $1,895. The net effect of all of the adjustments was to raise the median income of aged households by $6,528 (an increase of 36 percent) and to decrease the median income of all households by $328 (a decrease of 1 percent).

It should be noted that the ratios shown here would be lower if the medians for these aged households were compared with the medians for nonaged households, rather than all households. Also, the median cash income for households containing at least one member age 65 or older is almost 7 percent higher than the median for households that have a householder (head) age 65 or older, the classification that is used most frequently. Although arguments can be made for either definition of aged households, it should be noted that the definition used here by the Bureau of the Census tends to make the income of the aged relatively higher than the other definition does. It should also be noted, however, that adjustment for differences in household size would tend to raise the adjusted income of aged households relative to the adjusted income of all households because aged households generally are smaller.

The estimates of medians shown by the Bureau of the Census make it difficult to assess the effects of most components of the change in the definition of income because of the specific order of the addition of components. If means, rather than medians, are used, then the order of the changes shown in the published estimates can be altered. If means are used, it is also possible to separate households into aged (i.e., containing at least one member age 65 or older) and nonaged (i.e., containing no member age 65 or older) groups. It should be noted, however, that means are not as appropriate as medians because of the influence of very high amounts on means. Because of the shapes of the distributions, levels of aged-nonaged or aged-all ages ratios usually are higher when means are used than when medians are used.

When cash income before taxes is used, the ratio of the mean for aged households to the mean for nonaged households is 0.646 (table 3). The addition of realized capital gains (increase in mean of $763 for aged households and $1,291 for nonaged households) has a very small effect, reducing the ratio to 0.645. The subtraction of Federal and state income taxes and payroll taxes ($3,487 for aged households and $9,083 for nonaged households) has an important effect, raising the ratio to 0.716. Aged households paid an average of 12.8 percent of their cash income (including capital gains) in those taxes, while nonaged households paid an average of 20.1 percent. The addition of government noncash transfers excluding Medicare (e.g, Medicaid, food stamps) ($287 for aged households and $444 for nonaged

households) reduces this after-tax ratio slightly to 0.715. When imputed rent on owner-occupied homes is also added in ($3,417 for aged households and $2,004 for nonaged households), the ratio rises to 0.771. The further addition of employer health insurance supplements ($378 for aged households and $1,761 for nonaged households) reduces the ratio, but the decline is small, to 0.745. Finally, the addition of Medicare ($3,006 for aged households and $80 for nonaged households) raises the ratio to 0.824.[17] Taken together, all of these changes raised the mean income of aged households by $4,364 (17 percent) and lowered the mean income of nonaged households by $3,503 (9 percent).

In summary, among the noncash income types estimated by the Bureau of the Census, only imputed rent on owner-occupied homes and Medicare had important impacts on the aged-nonaged ratio. The addition of Medicare, however, is very controversial. It is important to note that these estimates were not adjusted for household size or other sources of differential needs.

Congressional Budget Office

The income of age groups for 1989 has been examined by the Congressional Budget Office (CBO) using CPS data and an income definition that takes account of several types of taxes and noncash income (Committee on Ways and Means 1991).[18] Important differences from the Bureau of the Census estimates discussed above include the use by CBO of an adjustment for differential needs and the exclusion by CBO of Medicare and imputed rent on owner-occupied homes from the definition of income.

Family units (families plus unrelated individuals), the age of the unit head, and person weighting were used in these estimates. A size of family unit adjustment was made using the equivalence scale implicit in the poverty thresholds, but no aged-nonaged differential was included. The definition of income used was cash income minus Federal income and payroll taxes plus the estimated cash value of food stamps, school lunches, and government housing benefits.

In 1989, the ratio of the mean income of family units with an aged head to the mean for all family units (the relative mean) using this comprehensive definition of income was 0.94. This was higher than the ratio obtained when cash income before tax was used as the definition of income (0.88). Using the comprehensive definition of income, the relative mean for aged units (0.94) was below the relative means for the 50-64 and 35-49 age groups (1.24 and 1.06, respectively) and above the relative mean for the under 35 age group (0.79).

When the mean of the middle income quintile was used as an approximation of the median, the aged-all ages ratio was 0.87 using the comprehensive definition of income and 0.78 using cash income before tax. Using the comprehensive definition of income, the relative mean of the middle quintile for the aged (0.87) was below the relative means for the 50-64 and 35-49 age groups (1.26 and 1.11, respectively) and above the relative mean for the under 35 age group (0.80).

Thus, in the CBO estimates, the relative income of aged family units rose when the income definition was changed from

cash income before tax to a more comprehensive definition. The income level of aged family units was relatively lower when the mean of the middle quintile was used than when the mean for all quintiles was used.

Smeeding

In another study that used a comprehensive definition of resources, aged and nonaged households were compared for 1979 taking into account cash income, several types of noncash income, and several types of taxes (Smeeding 1989). Important differences between the Smeeding and Census estimates include adjustments by Smeeding for differential needs and underreporting of income. Important differences between the Smeeding and CBO estimates include the inclusion by Smeeding of Medicare and imputed rent in the definition of income and the use by Smeeding of an adjustment for income underreporting. Also, Smeeding's estimates were for an earlier year.

The data used were primarily from the CPS. Health, food, and housing benefits, employment-related benefits, and imputed rent on owner-occupied homes were included in the estimates. Noncash income was generally valued at the cost to the provider. Differences in needs were taken into account through the use of several alternative equivalence scales, and the effects of underreporting of income and the use of the recipient value of noncash income were examined, although all of these adjustments were not applied simultaneously.

When the poverty threshold equivalence scale was used, the aged-nonaged ratio of means was 0.80 for a comprehensive

definition of resources.[19] For the estimates that incorporated the poverty threshold scale, the ratio rose from 0.64 for cash income, to 0.74 for cash income after tax, and to 0.83 when noncash benefits were added. The ratio fell to 0.78 when discretionary employment-related benefits (e.g., employer pension contributions) were added, and rose to 0.80 when imputed rent and rent-free housing were added. Thus, the subtraction of taxes raised the ratio by 10 points, while the net effect of noncash income was an increase of only 6 points. Adjustments for underreporting of income (which increased the aged-nonaged ratio substantially) and for recipient valuation of noncash income (which decreased the ratio slightly) were not included in those estimates. On balance those two adjustments raised the aged-nonaged ratio substantially. Using Smeeding's estimates, Hurd (1990) calculated that those two adjustments raised the aged-nonaged ratio to 0.99.

Smeeding's results are quite sensitive to the equivalence scale used. For example, for the comprehensive definition of income discussed above, the aged-nonaged ratio of means was 1.04 using a constant utility equivalence scale, rather than the 0.80 obtained using the poverty threshold scale.[20] Based primarily on his estimates that used equivalence scales other than the poverty threshold scale, Smeeding concluded that, on average, the aged were better off than the nonaged. The ratio of aged to nonaged mean cash incomes has risen since 1979, thus suggesting a rise in the ratios using more comprehensive definitions of resources.

In-kind medical benefits played an important role in the relatively high status found for the aged by Smeeding. The valuation of those benefits, however, is controversial. As in the other estimates discussed in this paper that include Medicare, an adjustment for differential needs that explicitly reflected the inclusion of Medicare was not applied.

Also, if medians rather than means had been used, the relative status of the aged would have been somewhat lower. If the mean of the middle three quintiles were used as an approximation of the median (the closest approximation possible from the estimates shown), the aged-nonaged income ratios would be about 10 percent lower than the values shown. For example, the aged-nonaged ratio for the comprehensive definition that includes imputed rent (using the poverty threshold scale) would fall from 0.80 to 0.73.[21] Thus, the choice of the mean rather than the median was as important as several of the adjustments to the data that were performed.

Budd, Radner, and Whiteman

Estimates were prepared for 1972 for a definition of income that subtracted taxes from cash income and included several types of noncash income (Budd, Radner, and Whiteman 1984). The estimates shown here omitted Medicare from the definition of income (as CBO did) and included adjustments for differential needs (as CBO and Smeeding did) and income underreporting (as Smeeding did). The Budd, Radner, and Whiteman estimates were for an earlier year than the other three estimates.

Data from the CPS, Federal income tax returns, and Social Security records were used to produce these estimates. The amounts of cash income were adjusted for underreporting so that those amounts were consistent with independent aggregate income controls. The unpublished estimates of income discussed here were adjusted for size of unit and age using the equivalence scale implicit in the poverty thresholds. The taxes subtracted were Federal, state, and local income taxes, personal property taxes, and personal contributions for social insurance. The noncash income types included were imputed rent on owner-occupied homes, wages in kind, food and fuel consumed on farms, food stamp bonuses, and imputed interest.[22] Medicare was excluded from these estimates.

In these estimates, the median for the aged group was below the median for each age group in the 25-64 age range. The ratio of aged to nonaged medians was 0.86. The ratio of the aged median to the peak median (which occurred in the 45-54 and 55-64 age groups) was 0.71. As is generally the case, the median for the old old was substantially below the median for the aged as a whole. Because the ratio of aged to nonaged median cash incomes has risen substantially since 1972, it is likely that the current aged-nonaged ratio for the definition of resources used here would be higher than 0.86.

Danziger, van der Gaag, Smolensky, and Taussig

Danziger et al. (1984a) examined the economic status of the aged and nonaged using a definition of income that included cash income after tax plus the value of food stamps and imputed

service flows from owner-occupied homes and major durable goods (including vehicles). Danziger et al. omitted Medicare from the definition of income (as CBO and Budd, Radner, and Whiteman did) and, like the Bureau of the Census and CBO, made no adjustment for income underreporting. An adjustment for differential needs was used. The Danziger et al. estimates were for a much earlier year than the Bureau of the Census, CBO, and Smeeding estimates.

Consumption (including those service flows) was shown as an alternative measure of well-being. Data from the 1973 Consumer Expenditure Survey were used in the analysis. Data on rental value of homes were available for most units; service flows from durables were estimated. It appears that out-of-pocket medical expenditures were included in consumption. It is important to avoid interpreting higher medical expenditures as generally producing a higher level of economic well-being.

Although Danziger et al. used aged-nonaged ratios of mean amounts, in most cases enough information was provided so that medians could be approximated (see below). Estimates for detailed age groups, however, were not provided. Several combinations of definitions of resources and adjustments for differential needs were shown. The authors preferred the estimates that used person weighting, rather than unit weighting. The authors concluded that adjustments for needs were more important than the adjustments to the definition of resources that they examined.

The addition of service flows on homes and durables increased the mean income of aged consumer units by 24 percent;

the increase for nonaged units was 16 percent. The estimated service flows from durables were not very large--about 4 percent of mean after-tax income for both the aged and nonaged. The service flows from homes were much larger--about 19 percent of mean after-tax income for the aged and about 12 percent for the nonaged.

When no adjustment for needs was used, 1973 aged-nonaged mean income ratios (including service flows) were 0.55 for income before tax and 0.58 for income after tax, and the aged-nonaged ratio of means was 0.61 for consumption (using person weighting). Using the authors' constant-utility equivalence scale, the ratios were 0.88 for income after tax and 0.92 for consumption. When the poverty threshold equivalence scale was used, the ratios were 0.91 for after-tax income and 0.95 for consumption.[23] When consumer unit weighting was used, the ratios with no needs adjustment and constant utility scale adjustment were slightly lower, but the ratios with poverty scale adjustment were substantially lower.

Medians can be approximated by using the mean of the third quintile.[24] Ratios using this approximation (and person weighting) were lower than the ratios for means. When the constant utility equivalence scale was used, the ratios were 0.76 for after-tax income and 0.88 for consumption. Using the poverty threshold equivalence scale, the ratios were 0.82 for after-tax income and 0.93 for consumption. The differences between the ratios for mean and median were greater for after-tax income than for consumption.

Another estimate by the same researchers for the same time period used similar adjustments (Danziger et al. 1984b). When service flows on owner-occupied homes and major consumer durables were added to cash income before tax, the ratio of aged to nonaged mean income rose from 0.49 to 0.52. (Medians could not be estimated from the estimates shown.) The deduction of Federal and state taxes raised that ratio to 0.56. Adjusting for differential needs had a much greater effect. When a constant utility equivalence scale was applied, that ratio rose sharply to 0.85. When person weighting, rather than household weighting, was used, that ratio rose slightly to 0.88. A final adjustment applied the age of the person, rather than the age of the head. This adjustment increased the ratio slightly to 0.90.

In summary, the inclusion of noncash income in the definition of income tends to increase the income of the aged relative to that of the nonaged, but serious measurement problems exist. Medicare and imputed rent on owner-occupied homes are the noncash income types that have the greatest impact on the aged-nonaged income relationship. The valuation of Medicare, however, is controversial. Also, consistency between the definition of resources and the specification of needs is essential, but often is not present when noncash income is included.

b. Estimates Including Wealth

Several estimates that included both cash income and wealth are summarized in this section. The types of wealth included and

the valuation methods used differed among the estimates. All of the estimates discussed exclude social security wealth, pension wealth, and human capital.

The topic of combining income and wealth into a single measure is very controversial, and no fully satisfactory method of combining those items into a single measure exists at this time. The role of wealth in the economic status of the aged is related, at least in part, to the ability to pay for large uncertain expenses (e.g., medical expenses), but that relationship has not been explored comprehensively. The general question of the measure of needs that should be used in conjunction with a measure of resources that includes wealth has received little attention.

Crystal and Shea (1990) examined the economic status of the aged using data for 1983-84 from SIPP and a measure of resources that included cash income and the annuitized value of assets. Adjustments were made for differential needs and underreporting of some income and asset types. The adjustment for differential needs used the poverty threshold equivalence scale. The annuity value of financial assets and the annuity value of 70 percent of home equity were added to income. The 70 percent figure was an approximation of the fungible portion of home equity. The expected remaining lifetime of each person and a real interest rate of 2 percent were used in the calculation of the annuity values. Property income was excluded from the definition of income when the annuity value of wealth was added.

These adjustments improved the relative economic status of the aged substantially. The ratio of mean household income of aged persons to mean household income of nonaged persons was 0.652 when unadjusted cash income was used, 0.939 when the poverty threshold equivalence scale adjustment was applied, 1.028 when the adjustment for underreporting was also applied, and 1.239 when the annuity value of assets was also added. If medians had been used instead of means, these ratios would have been somewhat lower (see below). Also, the choice of a person basis, including children in the estimates, gave a large weight to the relatively low incomes of young families. The use of different weighting would probably have produced lower ratios. As noted earlier, the annuity valuation of assets is controversial because it implies, for a given amount of assets, that "older is better" (Projector and Weiss 1969, Radner 1990b).

Detailed age groups were also shown. For both unadjusted income and fully adjusted income (including the annuity value of assets), the mean generally rose as age increased, then fell, but the decline was much smaller for fully adjusted income. Mean income for the 65-74 age group was 29 percent below the mean for the 55-64 age group when unadjusted income was used, but only 7 percent lower when fully adjusted income was used. The decline in mean income from the 65-74 age group to the 75 and over age group was 23 percent when unadjusted income was used and only 3 percent when fully adjusted income was used. The "older is better" characteristic of the annuity valuation of assets played a role in the smaller declines as age increased.

When the annuity value of net worth was added to cash income adjusted for differential needs and underreporting (and property income was subtracted), the mean income of the 65-74 age group rose 15 percent and the mean income of the 75 and over age group rose 37 percent. In contrast, the means of the under 18 age groups fell (2 percent for both the under 7 and 7-17 age groups) because property income exceeded the annuity value of net worth for those age groups.[25]

The choice between median and mean was important in these estimates. If the mean of the middle quintile is used as an estimate of the median, the ratio of the estimated median fully adjusted income of the 65-74 age group to the estimated median of the 45-54 age group (the group that had the highest estimated median) is 0.846, whereas the ratio of means was 0.938. The ratio of the estimated median of the 75 and older age group to the estimated median of the 45-54 age group is 0.799, while the ratio of means was 0.908. Thus, when estimated medians are used, the age-income curve shows much more of a decline from the middle age groups to the aged groups than when means are used.

Radner (1989c, 1990a, 1990b) has examined the economic status of age groups using several definitions of resources in which both cash income and wealth were included. Data from the 1984 SIPP were used and the poverty threshold equivalence scale was applied. Estimates including two definitions of wealth, financial assets and net worth, were shown. Methods that incorporated the annuity value of wealth, as well as simpler methods, were considered. The measures considered included

nonproperty income plus the annuity value of wealth, nonproperty income plus one-third of wealth, and several other measures (Radner 1990b). Medians of the combined income-wealth measures for the aged were below the medians for the 45-64 age groups for all measures examined. In general, the relative status of the aged improved when wealth was taken into account. When financial assets were used, the impact of the inclusion of wealth on the relative status of the aged was much smaller than when net worth was used as the definition of wealth. Some extreme treatments of wealth improved the relative economic status of the aged greatly.

When financial assets were used, the relative median (i.e., the median for the group relative to the median for all units) for aged households, which was 0.76 for total money income, rose to 0.91 when one-third of wealth was added to nonproperty cash income. The relative median for the aged group rose to 0.80 when the annuity value of wealth was added. When net worth was used, the relative median for aged households rose to 1.18 when one-third of net worth was added, and rose to 0.95 when the annuity value of wealth was added. Relative medians for the 75 and over age group were lower than for the 65-74 age group, but rose more in percentage terms when wealth was taken into account.

Radner (1989a, 1989b), among others, has examined wealth alone as an indicator of economic well-being for age groups. On average, the wealth of the aged far exceeds the wealth of the nonaged, regardless of whether net worth or financial assets is used as the definition of wealth.

Median net worth of all households was $35,752, based on data for 1988 from SIPP (Bureau of the Census 1990)(table 4). That figure was less than half of the median of $73,471 for aged households. The relationship between age of householder and median net worth shows a sharp rise from the under 35 age group to a peak in the 55-64 age group. The median for the aged group is higher than for all groups except the 55-64 age group. An examination of detailed age groups within the aged group shows that median net worth actually peaked in the 65-69 age group and was higher in the 70-74 age group than in any nonaged age group. The median for the 75 and older age group was substantially lower than for the other two aged age groups. It should be noted that earlier wealth survey data generally show a peak before age 65 (Radner 1989b).

Median net worth excluding home equity in 1988 was only $9,840 for all households, far below the median of $23,856 for aged households. Median net worth excluding home equity rises from the under 35 age group to a peak in the 70-74 age group, before falling in the 75 or older age group.

In summary, the inclusion of wealth in the definition of resources improves the relative status of the aged. The appropriate valuation of wealth for this purpose, however, is controversial. The valuation used has an important effect on the improvement in the status of the aged.

3. Poverty

In this section, the official poverty rates for various age groups are discussed. The near poor and one set of experimental estimates of poverty that took noncash income into account are also examined. In addition, several estimates that considered the role of wealth are discussed.

In 1990, 13.5 percent of all persons, 13.7 percent of nonaged persons, and 12.2 percent of aged persons were officially classified as poor (Bureau of the Census 1991b). Much attention has been given to the fact that the poverty rate for aged persons is below the poverty rate for nonaged persons. The rate for aged persons, however, is above the rate for other adults (see below).

The comparison between aged and nonaged poverty rates is very sensitive to the characteristics of the poverty measure used. This particular result depends on a controversial aspect of the thresholds, the differential between aged and nonaged thresholds. For units of size one or two, aged units are assumed to need less income than nonaged units. If the nonaged poverty thresholds were used for both the nonaged and aged, then in 1990 the poverty rate for aged persons would be 14.4 percent, which is above the poverty rate for nonaged persons.

Although the poverty rates were not very different for the aged and nonaged groups as a whole, there are large differences by age within those broad groups. Within the nonaged group, poverty rates ranged from a low of 7.3 percent for the group aged 45-49 to a high of 24.0 percent for children under 5 years of age

(table 5). The poverty rate for the 65 and over age group was higher than for each age group in the 30-64 age range. Within the aged group, poverty rates ranged from a low of 8.4 percent for the group aged 65-69 to a high of 20.2 percent for the group aged 85 or older.

The general pattern by age showed high percentages at young and old ages, with lower percentages in the middle age groups (figure 2). The percentages fell without exception as age rose until the lowest value in the group aged 45-49, then rose in the 50-54, 55-59, and 60-64 age groups. The 65-69 group showed a decline. The percentage for the 65-69 age group was below the percentages for the groups aged 55-59 and 60-64. This relationship resulted in part from the aged-nonaged differential in the official poverty thresholds. If the nonaged thresholds were used for all ages, the poverty rate for the group aged 65-69 would be above the rate for the group aged 55-59, but still below the rate for the group aged 60-64. Beginning with age 70, the percentage poor rose as age increased. The percentages for the groups aged 80-84 and 85 or older were higher than for all groups in the 15-79 age range. The highest percentages were for the groups under 10 years of age.

Many persons have family unit income that is not very far above the poverty threshold. When persons with income below 125 percent of the poverty threshold or below 150 percent of the poverty threshold in 1990 are examined, the pattern is similar to the pattern for poverty--percentages are high at young and old ages, with relatively low percentages in the middle age groups

(table 5 and figure 2). Relatively more aged than nonaged persons, however, are not far above the poverty threshold. The percentage of aged persons below 125 percent of the poverty threshold (19.0 percent) was above the percentage of nonaged persons (17.9 percent); the percentage of aged persons below 150 percent of the poverty threshold (26.3 percent) was farther above the percentage of nonaged persons (22.2 percent). In both measures, the 85 and older age group had the highest percentage of any age group (30.4 percent below 125 percent of the threshold and 39.8 percent below 150 percent of the threshold). As in the case of poverty rates, there was a wide range in percentages within the nonaged and aged groups in both of these measures.

It has also been argued that the general level of the poverty thresholds is too low because growth in real income has been ignored in the updating of the thresholds over time (e.g., Ruggles 1990).[26] As noted above, if 125 percent of the official thresholds is used as the threshold, then a higher percentage of aged persons than nonaged persons is below that higher threshold (which has been called the "near-poor" threshold). If 150 percent or 175 percent or 200 percent of the official thresholds is used, then a higher percentage of aged persons than nonaged persons is below those higher thresholds.

Experimental estimates of poverty rates using a broader definition of income and the official thresholds have been published for 1990 (Bureau of the Census 1991c).[27] These estimates are controversial, in part because the thresholds were not adjusted to reflect noncash income, either for general levels

of the thresholds or for differential needs of some groups. Also, the methods of valuation of some types of noncash income are controversial. The official estimates classified 12.2 percent of aged persons as poor in 1990. When selected types of taxes were subtracted and capital gains and selected types of noncash income (including Medicare and Medicaid, but excluding imputed rent) were added, the poverty rate for aged persons fell to 9.5 percent.[28]

Those experimental estimates of poverty that used a broader definition of income and the official poverty thresholds produced a general pattern of poverty by age in 1990 that was slightly different from the pattern present in the official estimates (Bureau of the Census 1991c). When the official measure was used, poverty was lowest in the 45-64 age group, next lowest in the 65-74 age group, and highest for related children under 6 years of age (table 6). When the comprehensive definition of income described above was used, the 65-74 age group showed the lowest rate (slightly lower than the rate for the 45-64 age group) and related children under 6 years of age again had the highest rate. The rate for the 75 and older group was substantially above the rates for the 25-44 and 45-64 age groups using both the official definition and the broader definition.

Several researchers recently have taken wealth into account in the measurement of poverty. Alternative poverty rates that took both income and wealth into account were estimated using data from the 1983 Survey of Consumer Finances (Wolff 1990). Two methods were used in this research. In the first method,

fungible net worth was converted into an annuity that was added to money income (excluding property income). That sum was then compared with the official poverty thresholds. Using a three percent interest rate for the annuity, the poverty rate for aged families fell by 11.5 percent and the rate for nonaged families fell by 2.5 percent compared with the official rate. The results were very similar when imputed rent was also added to income. Higher interest rates produced larger reductions in poverty.

In the second method, a joint threshold of income and net worth was used. The official threshold was used for income in these estimates. Several wealth thresholds were examined. When median net worth was used as the wealth threshold and families had to be below both the income and wealth thresholds to be considered poor, the poverty rate for aged families fell by 23.2 percent and the rate for nonaged families fell by 12.9 percent. A "wealth poverty line" was also calculated by multiplying the official income threshold by the ratio of median household wealth to median household income. Poverty was then defined as being below the threshold for income, below the threshold for wealth, or below both. That calculation raised the poverty rate by 16.9 percent for aged families and by 21.3 percent for nonaged families.

In research that is related to the measurement of poverty, a two-dimensional income-wealth measure has been used to identify the lower part of the distribution of economic well-being. The proportion of households in each age group that had both low income and low wealth has been examined by Radner (1984, 1990a,

1990b) and by Radner and Vaughan (1987). In one version of this measure, the bottom portion of the distribution was defined to be those households that had total money income less than one-half median total money income (for all ages) and wealth less than one-half median wealth (for all ages). Both income and wealth were adjusted for household size (Radner 1990b). Estimates were shown using financial assets and net worth as the definitions of wealth. In 1984, 15.4 percent of aged households had low income and low financial assets and 13.4 of aged households had low income and low net worth. For both definitions of wealth, the percentage of aged households that had low income and low wealth was higher than the percentages for the 35-64 age groups, and lower than the percentages for the under 25 and 25-34 age groups (Radner 1990b). When a three-dimensional classification was used, 8.3 percent of aged households had low income, low financial assets, and no equity in an owner-occupied home. This percentage was lower than the percentages for the age groups under age 45 and higher than the percentages for the 45-64 age groups.

Available assets have been compared with poverty gaps for short-term spells to see how many of those spells would be "eliminated" (Ruggles and Williams 1989). Using a definition in which a poverty spell could be as short as 1 month, more than one-third of spells were eliminated by taking account of financial assets to fill the poverty gap. For aged persons, more than half of poverty spells were eliminated when financial assets were taken into account. Those aged persons who remained poor

even after financial assets were considered were more likely to have long spells of poverty. Data from the 1984 SIPP for 32 months were used to produce these estimates.

In summary, the poverty rate for aged persons is above the rate for other adult age groups, but is below the rate for children. Relatively more aged persons than nonaged persons are near-poor. Controversial estimates of poverty that include noncash income show a pattern of poverty by age that differs slightly from that obtained using the official rates.

C. International Comparisons

In recent years the economic status of the aged relative to nonaged age groups has been compared for the U.S. and several other industrialized countries, primarily in Western Europe.

Several papers that compared the relative incomes of the aged in different countries have used the microdata from the Luxembourg Income Study (LIS). In those data, the definitions of income, recipient unit, and socioeconomic characteristics were made as comparable as the basic data permitted (Smeeding, Rainwater, and Simpson 1989). Cash income has been used as the principal definition of income for the studies that used these data. Although the definitions of cash income in those data are quite comparable across countries, it should be noted that cash income could account for different proportions of a comprehensive income definition (e.g., cash plus noncash) in different countries. Thus, using comparable definitions of cash income

might not produce good comparative estimates of economic well-being in different countries. This problem, of course, exists for other international comparisons that use cash income. The LIS data, however, are a significant improvement over published data that are not very comparable.

The relative economic status of the aged was compared for six countries -- Canada, Norway, Sweden, the United Kingdom, West Germany, and the U.S. -- using microdata for about 1980 from the LIS (Smeeding, Torrey, and Rein 1987). Mean after-tax income adjusted for family size and composition was used in the income comparisons. For each country, relative means for age groups were computed by dividing the mean for the age group by the mean for all ages for that country. The relative mean adjusted income of the U.S. aged (0.94) was the highest of any of these countries. The U.S. relative mean for the 65-74 age group (0.99) was the second highest--Norway had a relative mean of 1.01. The U.S. relative mean for the 75 or older age group, however, was the highest (0.84). Poverty rates for the U.S. aged obtained using a relative poverty measure were substantially higher than the rates for four other countries; only the rate for the United Kingdom was higher. Using similar data, Hedstrom and Ringen (1987) found that income inequality for the U.S. aged was also higher than inequality for the aged in most of the other countries examined.

Coder, Rainwater, and Smeeding (1989) compared the relative economic status of the aged and children in ten countries using LIS data for the 1979-83 period. The countries compared were

Australia, Canada, Israel, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, the United States, and West Germany. The study used adjusted disposable income, which consisted of cash income net of income and payroll taxes, adjusted for family size using an equivalence scale that was derived from the scales for several countries. For each country the income distribution was separated into four sections based on percentages of the country's adjusted median income. The four sections were: (1) below 50 percent of the median ("poor"); (2) between 50 percent and 62.5 percent of the median ("near poor"); (3) between 62.5 percent and 150 percent of the median ("middle class"); and (4) above 150 percent of the median ("well-to-do").

For all countries combined, compared with all persons, the aged were more likely to be poor or near poor and less likely to be middle class or well-to-do. The U.S. had the third highest percentage poor for the aged (24.6 percent), behind the United Kingdom (34.7 percent) and Israel (25.0 percent). When the poor and near poor were combined, the U.S. had the fifth highest percentage for the aged (36.1 percent), behind the United Kingdom (56.4 percent), Australia (45.2 percent), Israel (39.3 percent), and Canada (37.1 percent). In the Netherlands, only 6.6 percent of aged persons were poor or near poor. The U.S. aged had a higher percentage poor or near poor than the U.S. children. The data used, however, were for 1979 and in the U.S. poverty for the aged has fallen relative to poverty for children since that time.

In an early study the relative income of the aged in the U.S. was compared with the relative income of the aged in Canada,

Israel, and Norway (Radner 1985). Published data were used for Norway and Israel and published data and special tabulations were used for the U.S. and Canada. The data were for the 1979-81 period. Income was defined primarily as cash income before taxes, although the definitions for the different countries were not identical. Because the data for the different countries could not be made strictly comparable, small differences between estimates for the different countries were considered to be insignificant. Also, due to data limitations, measures that were not very appropriate (e.g., per capita income) were used in part of this analysis.

For each country, the relative mean (median) for the aged is the mean (median) for the aged divided by the mean (median) for units of all ages. When relative mean incomes before adjustment for size of unit were examined, the U.S. relative mean for the 65 and over age group was 0.63; the relative means for other countries ranged from 0.48 (Israel) to 0.57 (Canada). Relative medians for the aged were 0.50 for the U.S., 0.45 for Canada, and 0.43 for Norway (no estimate for Israel was available).[29] Relative mean incomes per person (per capita) for the aged were 0.94 for the U.S., about the same as the 0.95 shown by Israel and the 0.92 for Norway, but slightly above the 0.87 for Canada. Adjustments for size of unit that were more detailed than the per capita adjustment produced lower relative means for the U.S. (0.83-0.84) and Canada (0.78-0.79), the only two countries for which those estimates were available.[30] Results for the age 70 and over group showed a similar pattern, but in every case the

relative income for that age group was below the corresponding estimate for the 65 and over age group.

When the 65 and over age group was compared with the 55-64 age group, the U.S. and Canada showed very similar values for all income measures.[31] Norway and Israel showed lower values prior to adjustment for size of unit. The ratios for mean income per person were roughly similar for all four countries. For the 70 and over age group, the estimates for Norway were below those for the U.S. and Canada. Taking into account the data problems, the author's conclusion was that aged units in the U.S. were roughly as well off relative to the other age groups as aged groups were in the other countries examined.

In summary, comparisons of the income of the aged relative to the nonaged for several Western industrialized countries show that the aged in the U.S. generally are at least as well off as the aged in those other countries. Poverty among the aged, however, generally is higher in the U.S. than in those other countries.

D. Uncertainty and Vulnerability

In this section, a different aspect of economic well-being, one that concerns risks, is discussed.[32] Estimates of risks such as inflation and large medical bills are examined. The ability to cope with such risks financially, which relates to vulnerability, is also discussed.

In recent years there has been increased interest in the ability of the aged to cope with unexpected financial shocks on the resource side (e.g., unexpectedly high inflation) and/or relatively rare large expenses (e.g., some medical expenses).[33] These issues involve risks in an uncertain future; usual assessments of economic well-being are made on the basis of actual outcomes in the past (e.g., income last year).[34]

Uncertainty is also an important concern on the needs side. Income is usually compared with average needs. The distributions of some types of expenditures (e.g., medical expenses) among the population are very skewed. Relatively few persons have very large expenses. Such large but uncertain expenses can be viewed as a dimension of needs that differs from average needs.[35] Thus, it is useful to ask how many units could pay for certain large uncertain expenses (e.g., by drawing down assets) if those units were faced with such expenses. Analogously, it could be asked how many units could pay for the typical low expenses out of their income, but not the high expenses.[36]

Hurd and Shoven (1985, 1983) assessed the vulnerability of the aged to inflation using data on wealth for 1969, 1975, and 1979 from the Retirement History Study.[37] Because home equity, Social Security, Medicare, and Medicaid, which were very important resources for the aged, were assumed to be fully protected against inflation, the aged as a group were only slightly vulnerable to inflation in these estimates. High-wealth households were more vulnerable than low-wealth households.

It should be noted, however, that low-wealth households had very little wealth to be protected against inflation. This illustrates the point that not being very vulnerable to inflation (or to some other risk) does not necessarily mean being well off. The level of well-being could be very low, but not subject to that risk.

There was substantial dispersion in the vulnerabilities. Some households would actually have gained from inflation, while others would have had losses that were far higher than the median loss. Full indexing of Social Security made the aged much less vulnerable than if there had been no indexing and reduced the dispersion in the risk.

Another example of research concerning vulnerability found that aged households whose cash income was between the poverty threshold and twice the poverty threshold are more vulnerable to selected economic risks than those with lower or higher ratios to the poverty threshold (Smeeding 1986). The reason for this vulnerability was the nature of the distribution of nonmoney income. CPS data and other data were used in this analysis.

Three sources of economic uncertainty were specified: (1) risk of large medical bills (measured by reliance on Medicare as the only subsidized health insurance);[38] (2) risk of unexpected housing cost increases (measured by lack of in-kind housing income); and (3) risk of adverse changes in Social Security benefits (measured by reliance on Old-Age and Survivors Insurance as the primary source of money income). The first two risks, as specified, were on the needs side; these risks were a mixture of

differential average needs and risk of large expenses. Average medical or housing costs were higher and there was risk of large unexpected expenses for those households that had those sources of uncertainty. The third risk primarily involved the resource side. Social Security benefits could fall in nominal and real terms as a result of the death of a spouse or they could fall in real terms (but not in nominal terms) due to less than full protection against inflation.[39] None of these sources of uncertainty compare uncertain expenses with available assets.

Households that had two or more of these sources of uncertainty and income between the poverty threshold and twice the poverty threshold were called "'tweeners." In 1979, about 20 percent of aged households had income between the poverty threshold and twice the poverty threshold and had two or more of those sources of uncertainty. About 60 percent of the aged households in that income group had two or more sources of uncertainty. Households below the poverty threshold more often received means-tested noncash benefits, while higher income households often had the resources to protect themselves from these risks.

It should be noted that households with income greater than twice the poverty threshold (or below the threshold) can be vulnerable to the risks discussed. Also, the three risks are not all of the same type. It is useful to make a distinction between usual expenses (e.g., housing costs) that are higher for some groups than for others and large uncertain expenses that constitute a risk. In addition, the case for the uncertainty of

the inflation protection of Social Security benefits, at least relative to some other income types, is not clear.

The argument that the 'tweeners are economically more insecure than the poor raises an important issue. The 'tweeners may be worse off than the poor in terms of one aspect of economic well-being (risk), but the 'tweeners may be better off than the poor in terms of another aspect (level of living). Perhaps the most important point is that both the poor and the 'tweeners (and perhaps many with incomes above those of the 'tweeners) either suffer from a low standard of living, are quite vulnerable to substantial economic risks, or both. The results of this study point out that a satisfactory way of combining information on level of living with information on vulnerability to economic risks to produce a single measure of economic well-being has not been found.

In a continuation of the same line of research, economic risk among the aged was examined by Holden and Smeeding (1990) using data from the 1984 SIPP. They identified five sources of risk: (1) lack of satisfactory insurance for acute health care (measured as Medicare being the only subsidized acute health-insurance); (2) lack of assets to pay for long-term care (measured as insufficient financial resources to cover 2 years in a long-term-care facility);[40] (3) Social Security benefits as a constraint on Medicaid eligibility (measured as ineligibility for SSI even if all income other than Social Security benefits ceased); (4) high housing costs (measured as housing costs above the accepted maximum percent of income); and (5) chronic

disabilities (measured as high costs of living due to physical disability). It should be noted that these five sources do not all represent the same type of insecurity. For example, source (2) compares a large uncertain expense with available resources. Sources (4) and (5) appear to be mixtures of higher average needs and risks of large expenses.

Holden and Smeeding found that 35 percent of aged persons faced at least two of these sources of insecurity and 14 percent faced at least three sources. Among poor aged persons, 43 percent faced at least two sources and 23 percent faced at least three sources. Among the "lower middle class" aged (defined as having a ratio of income to the appropriate poverty threshold ("welfare ratio") of 1.00 to less than 2.00), 61 percent had at least two sources and 28 percent had at least three sources. Because the lower middle class had higher percentages than the poor did, Holden and Smeeding concluded that the lower middle class suffered from more insecurity than the poor did. Eligibility for Medicaid played a very important role in that difference. Fewer middle and upper class aged persons (welfare ratio 2.00 or greater) faced insecurity--22 percent had two or more sources and only 6 percent had three or more sources.

Del Bene and Vaughan (1992) focused on one type of risk, expenses for acute health care. They examined the ability of the aged to pay for selected medical expenses taking both income and assets into account. Data from the 1984 SIPP and health expenditure estimates from other data sources were used. For those aged persons whose only health insurance was Medicare

(about 20 percent of aged persons), the amounts of contingency assets (essentially financial assets) held by those persons were compared with costs for acute care services to estimate how many of those persons could pay for those costs. Of Medicare-only persons, 39 percent had contingency assets of less than $500. About 19 percent of Medicare enrollees faced out-of-pocket expenses for Medicare-covered services of $500 or more. About 50 percent of Medicare-only persons had contingency assets of less than $1,500. Roughly 4 percent of Medicare enrollees faced out-of-pocket expenses that were at least that high. The percentages with low amounts of contingency assets fell as the person's family welfare ratio rose. Average hospitalization costs also were compared with amounts of contingency assets.

Some methods of taking both income and wealth into account in a single measure of economic well-being are also related to the ability to pay for large uncertain expenses (Radner 1990b). For example, as discussed earlier, the effect on the economic status of the aged of adding one-third of wealth to income was examined by Radner (1990b). A method of valuation of wealth that converts wealth into an annuity that is then added to income is more consistent with comparisons with average needs than with ability to pay for large uncertain expenses.

In summary, analyses of economic risks faced by the aged show that many aged units face substantial risks, particularly risks associated with high medical expenses. Many aged units are not financially prepared to cope with those risks.

E. Summary of Current Status

There are large differences in economic status within the aged group. After adjustment for differences in needs using the poverty threshold equivalence scale, the median for each detailed aged age group was below the median for each detailed age group in the 30-64 age range in 1990. The ratio of median cash income of aged family units to that of nonaged units was 0.725 in that year. The poverty rate for aged persons is above the rate for other adult age groups, but is below the rate for children. Relatively more aged persons than nonaged persons are near-poor.

The inclusion of noncash income in the definition of income tends to increase the income of the aged relative to the income of the nonaged, but serious measurement problems exist. Medicare and imputed rent on owner-occupied homes are the noncash income types that have the greatest impact on the aged-nonaged income relationship. The valuation of Medicare, however, is controversial. Also, consistency between the definition of resources and the specification of needs is essential, but often is not present when noncash income is included. The inclusion of wealth in the definition of resources also improves the relative status of the aged. The appropriate valuation of wealth for this purpose, however, is controversial.

When the economic status of the aged is compared with that of the nonaged within several Western industrialized countries, it is found that the aged in the U.S. generally are at least as well off as the aged in those other countries. Poverty among the

aged, however, generally is higher in the U.S. than in those other countries. Analyses of economic risks faced by the aged show that many aged units face substantial risks, particularly risks associated with high medical expenses. Many aged units are not financially prepared to cope with those risks.

III. Change Over Time

Change over time in the economic status of the aged is discussed first in this section. Then change for the aged is compared with change for other age groups.

A. The Aged

Changes in cash income and changes in wealth for the aged are discussed in this section. Changes in poverty rates are also examined.

The real money income before taxes of the aged generally has been rising for several decades, although the rise has been faster in some subperiods than in others, and there have been relatively brief periods of decline. The general rise has been shared by all subgroups of the aged, although the rise has been faster for some subgroups than for others. The real income of the aged has been rising despite the decline in labor force participation of the aged.[41]

The real median money income of aged family units (adjusted for differential needs using the poverty threshold equivalence

scale) rose by 2.6 percent per year from 1967 to 1990 (table 7). The rate of increase fluctuated among subperiods.[42] The rate of increase was 4.9 percent per year from 1967 to 1972, 1.9 percent per year from 1972 to 1979, and 3.4 percent per year from 1979 to 1984, but only 0.9 percent per year from 1984 to 1990. An important factor in the decline in the rate of increase from the 1979-84 period to the 1984-90 period was the fall in interest rates, and therefore in interest income, between those two periods.[43]

All the detailed aged age groups shared in the rapid income growth from 1967 to 1990. The average annual percentage increase in real median income ranged from 2.4 percent per year for the 65-69 age group to 2.9 percent per year for the 75-79 age group.

It is important to put these rates of increase into historical perspective. The real mean cash income before taxes of aged family units rose 1.5 percent per year from 1947 to 1990 (Radner 1987a, author's computations).[44] The rates of change varied greatly among the subperiods of that period. The real mean generally rose more rapidly in the later part of that period than in the earlier part. The real mean rose 1.1 percent per year from 1947 to 1967, and 1.8 percent per year from 1967 to 1990. Within the earlier subperiod, the rate of increase was highest from 1957 to 1962 (3.4 percent per year), and there was a decline of 1.0 percent per year from 1952 to 1957. Within the later subperiod, the rate of increase was highest from 1979 to 1984 (3.4 percent per year) and lowest from 1972 to 1977 (0.7 percent per year).

From 1970 to 1986, the median real money income (adjusted using the poverty threshold equivalence scale) of both aged childless families and aged unrelated individuals rose by 2.6 percent per year (Congressional Budget Office 1988). Despite the fact that those two rates were equal for the entire period, the time paths of the increases were somewhat different. From 1970 to 1979, the real median income of aged unrelated individuals rose by 3.0 percent per year, while the increase for aged childless families was only 2.5 percent per year. From 1979 to 1986, however, the rate of increase for aged unrelated individuals was 2.0 percent per year, while the rate for aged childless families was 2.6 percent per year.

The economic status of aged households in 1967, 1974, and 1981 has been analyzed using data from the CPS (Ross 1984). Mean welfare ratios (the ratio of income to the applicable poverty threshold) for aged households generally rose from 1967 to 1974, but changed only slightly from 1974 to 1981. Aged households headed by white men, white women, black men, and black women were examined separately. Growth rates for aged households headed by men, both white and black, were higher than the growth rates for aged households headed by women during the 1967-1981 period. Within each of the four subgroups, growth rates for households headed by persons age 75 or older generally exceeded the growth rates for households headed by persons age 65-74.

Changes in the wealth of the aged have also been examined. Because of the scarcity of comparable data, however, only a few such estimates have been made. Changes in wealth from 1984 to

1988 have been examined using data from SIPP (Bureau of the Census 1990). Constant dollar median net worth of aged households rose 7.1 percent from 1984 to 1988. The percentage change varied among the three aged age groups. The 65-69 age group showed an increase of 9.9 percent and the 70-74 age group showed an increase of 19.8 percent. In contrast, the 75 and older age group showed a decline of 2.2 percent. The estimates for these detailed aged age groups, however, are subject to substantial sampling error and therefore the pattern of the true changes may be somewhat different.[45] Constant dollar median net worth excluding home equity rose 10.7 percent for the aged group as a whole, 11.0 percent for the 65-69 age group, and 32.1 percent for the 70-74 age group. The 75 and older age group, however, showed a decline of 3.3 percent.

Mean net worth of aged households in 1962 and 1983 was examined by Greenwood and Wolff (1988) using data from the 1962 Survey of Financial Characteristics of Consumers and the 1983 Survey of Consumer Finances. Although estimates from those two surveys are not strictly comparable, general trends can be identified with those data.[46] Households with an aged head showed a constant dollar increase of 45 percent in mean net worth from 1962 to 1983.[47] The 65-69 age group showed an increase of 81 percent, while the 70-74, 75-79, and 80 and over age groups showed increases of 24-28 percent. It should be noted, however, that sample sizes in the two surveys were small and estimates for detailed age groups are subject to substantial sampling error. When the household wealth of each person (adjusted for

differential needs using the poverty threshold equivalence scale) was examined by age of person, mean constant dollar net worth of aged persons rose by 52 percent from 1962 to 1983.

The poverty rate for aged persons fell sharply from 35.2 percent in 1959 to 12.2 percent in 1990. The 1990 rate for each detailed age group in the 65-84 age range was less than half its 1967 rate. The official poverty thresholds, however, are updated only for changes in the price level. If the thresholds were also updated to adjust for changes in living standards, then the decline in the poverty rate for aged persons would be much smaller. If the 1990 thresholds were raised by 50 percent, which is a large increase, the percentage of aged persons who were poor would be about the same in 1990 as in 1967.[48]

In summary, the real money income before taxes of the aged generally has been rising for several decades, although the rise has been faster in some subperiods than in others. There have also been relatively brief periods of decline. The wealth of the aged has been rising since 1962, the date of the earliest comparable estimates. The poverty rate for aged persons fell dramatically from 1959 to 1990, although the decline has been much slower in the later part of that period than in the earlier part.

B. Aged Compared With Other Age Groups

The aged and other age groups are compared in terms of changes in income in this section. Both cash income and broader

definitions of income are used in these comparisons. Changes in wealth and in poverty rates are also discussed.

1. Cash Income Before Taxes

In this section, changes in cash income are compared for different age groups. Changes in the incomes of detailed age groups and in summary aged-nonaged income ratios are examined.

Although there have been differences in the rates of income growth for different age groups, the basic cross-section age-income pattern has not changed -- income is low at young ages, is at a peak in middle age, and is low at older ages.

The ratio of aged to nonaged median incomes of family units (adjusted for differential needs using the poverty threshold equivalence scale) rose from 0.526 in 1967 to 0.727 in 1984 (Radner 1987a). More than half of that increase occurred from 1979 (0.604) to 1984. During the 1979 to 1984 period, which contained a severe recession, the median real income of the nonaged fell 0.3 percent per year, while the median real income of the aged rose 3.4 percent per year (Radner 1991) (table 7 and figure 3). The aged-nonaged ratio then fell slightly for four consecutive years from 0.727 in 1984 to 0.693 in 1988 and remained at 0.693 in 1989 (Radner 1991)(table 8 and figure 4). The 1989 ratio was roughly at the 1982 level. The ratio rose sharply to 0.725 in 1990, in part because the beginning of a general economic slowdown affected the income of the nonaged.

During the 1967-90 period, the median real income (adjusted for differential needs) of each detailed aged age group rose faster than the median real income of each detailed nonaged age group (Radner 1987a and author's update)(table 9).[49] This was also true during the 1979-84 subperiod, but was not true during the 1967-79 and 1984-90 subperiods.[50] Despite substantial differences among age groups in rates of income growth, the basic shape of the age-income curve did not change very much during the 1967-90 period (figure 5).

Looking at a longer time span, the ratio of aged to nonaged mean incomes of family units (not adjusted for differential needs) fell from 0.663 in 1947 to 0.491 in 1970, rose to 0.647 in 1984, and fell slightly to 0.629 in 1989. The ratio then rose to 0.647 in 1990 (Radner 1987a, 1991, author's calculations) (table 10 and figure 6). Thus, although this ratio has generally been rising in the last two decades, that rise, in rough terms, has only offset the fall in the ratio during the prior two decades. The absence of an adjustment for differential needs in these estimates does not have an important impact on these changes over time. Unit size generally has been falling slightly faster for nonaged units than for aged units since 1947. The level of the ratio is lower than if an adjustment for differential needs had been used.

The ratios of the mean income of aged family units to the mean incomes of detailed nonaged age groups (not adjusted for differential needs) are available for the 1947-90 period (Radner 1991, author's calculations). From 1947 to 1990, aged income

fell relative to the incomes of the 35-44, 45-54, and 55-64 age groups, rose relative to the income of the 25-34 age group, and rose sharply relative to the income of the under 25 age group (table 11). From 1947 to 1979, aged income fell relative to the income of each of these nonaged groups. From 1979 to 1984, aged income rose substantially relative to the income of each of these nonaged groups. From 1984 to 1990, aged income changed little relative to the 35-44, 45-54, and 55-64 age groups, rose slightly relative to the 25-34 age group, and rose relative to the under 25 age group.

In summary, median cash income of aged family units rose substantially relative to the median of nonaged family units from about 1970 to 1984, declined slightly from 1984 to 1989, and rose in 1990. The relative improvement from 1970 to 1984 offset, in rough terms, the relative decline experienced by the aged from 1947 to 1970.

2. Other Definitions of Resources

Changes in cash plus noncash income for different age groups are discussed in this section. Changes in wealth are also examined.

Relatively little research has been done on changes over time using comprehensive definitions of income. Changes in the income of age groups from 1979 to 1989 were examined by CBO using a definition of income that included cash income after Federal income and payroll taxes and the estimated cash value of food

stamps, school lunches, and government housing benefits (Committee on Ways and Means 1991).[51] Family units, the age of the unit head, person weighting, an equivalence scale based on the poverty thresholds (omitting the aged-nonaged differential), and CPS data were used in these estimates.

Using the comprehensive definition of income, the mean income of aged family units relative to the mean income of all family units (the relative mean) rose from 0.88 in 1979 to 0.94 in 1989. The relative mean for the 50-64 age group rose from 1.22 to 1.24, the relative mean for the 35-49 age group rose from 1.02 to 1.06, and the relative mean for the under 35 age group fell from 0.87 to 0.79.

The constant dollar mean income of aged units rose 20 percent from 1979 to 1989. The increases for the other age groups were smaller--13 percent for the 50-64 age group, 16 percent for the 35-49 age group, and 2 percent for the under 35 age group.

When the mean of the middle income quintile was used as an approximation of the median, the relative mean of aged units rose from 0.81 in 1979 to 0.87 in 1989. The increases in constant dollar mean income from 1979 to 1989 were lower for the middle quintile than for all quintiles for each age group that had an increase. For the middle quintile, the increases were 15 percent for the aged group, 7 percent for the 50-64 age group, and 12 percent for the 35-49 age group. The under 35 age group showed a decline of 4 percent.

For aged units, the relative mean using the comprehensive definition of income rose slightly less (0.88 to 0.94) than the relative mean rose using cash income before tax (0.80 to 0.88). When the mean of the middle quintile was used, the increase in the relative mean for aged units again was slightly lower for the comprehensive definition of income (0.81 to 0.87) than for cash income before tax (0.71 to 0.78).

Hurd and Shoven (1982, 1983) examined changes in the relative economic status of the aged during the 1970's. Their definition of income included cash income before tax and imputed income from owner-occupied housing, Medicare, and Medicaid. Estimates unadjusted for differential needs and adjusted using a per capita scale were shown. The aged were compared with the entire population using mean amounts. The ratio of aged to all ages means, without adjustment for needs, rose from 0.52 in 1970 to 0.58 in 1978. Almost all of that increase had occurred by 1976. A substantial part of the rise in this ratio was associated with a fall in the mean real income of the nonaged from 1973 to 1976. The ratio of aged to all ages per capita amounts rose only slightly, from 1.04 in 1970 to 1.06 in 1978. That ratio had peaked at 1.09 in 1976. Their estimates showed that Medicare and Medicaid rose sharply as a share of the income of the aged.

Changes in the wealth of age groups have also been examined. In contrast to the rise from 1984 to 1988 of 7.1 percent in constant dollar median net worth of aged households, all households showed a decline of 3.4 percent (Bureau of the Census

1990). Each nonaged age group showed a decline, ranging from 4.4 percent for the 55-64 age group to 17.6 percent for the 35-44 age group. Median net worth of each detailed aged age group shown improved (i.e., rose more or fell less) relative to the median net worth of each nonaged age group.[52]

When net worth excluding home equity was examined, however, the median for all households (in constant dollars) rose 11.8 percent, which was slightly higher than the increase of 10.7 percent for aged households. The 35-44, 45-54, and 55-64 age groups all showed small increases, while the under 35 age group showed a very small decrease. The 65-69 and 70-74 age groups showed the largest increases of any age group, while the 75 and older age group showed the largest decrease.

As discussed earlier, Greenwood and Wolff (1988) examined changes in net worth from 1962 to 1983. While aged households showed an increase in constant dollar mean net worth of 45 percent, nonaged households had an increase of 47 percent. Thus, there was little change in the aged-nonaged ratio. The largest increases in constant dollar means were for the 45-54 age group (121 percent) and the 60-64 age group (92 percent), while the under 25 age group had the smallest increase (18 percent). When the household wealth of persons (adjusted using the poverty threshold equivalence scale) was examined by age of person, constant dollar mean net worth of children under age 18 rose by 70 percent from 1962 to 1983, while the 18-64 age group showed an increase of 62 percent and aged persons showed an increase of 52 percent.

In summary, comparisons using a definition of income that included some types of noncash income showed an increase in the relative economic status of the aged. The wealth of the aged rose relative to the wealth of the nonaged in recent years, but from 1962 to 1983 there was little change in the aged-nonaged wealth ratio.

3. Poverty

Changes in the official poverty rates for age groups are examined in this section. Changes using alternative thresholds that rise or fall as average income rises or falls are also discussed briefly.

The poverty rate for all persons fell from 22.4 percent in 1959 to 13.5 percent in 1990. During that period the poverty rate for aged persons fell sharply from 35.2 percent to 12.2 percent. In contrast, the poverty rate for persons 18 to 64 years old fell from 17.0 percent to 10.7 percent and the poverty rate for persons under age 18 fell from 27.3 percent to 20.6 percent (Bureau of the Census 1991b).

The 1967-1990 period showed even larger differences by age. During that period, the poverty rate for all persons fell slightly from 14.2 percent to 13.5 percent, the rate for persons under age 18 rose from 16.6 percent to 20.6 percent, and the rate for persons age 18-64 rose slightly from 10.0 percent to 10.7 percent, but the rate for aged persons fell sharply from 29.5 percent to 12.2 percent (Bureau of the Census 1991b).

The 1990 poverty rate for each detailed aged age group except the 85 and over group was less than half of its 1967 rate (Radner 1991 and author's tabulations)(table 12 and figure 7).[53] In contrast, poverty rates for persons under age 35 rose substantially during that time period. In 1967, aged age groups had by far the highest poverty rates; in 1990, however, the age groups under 10 years of age had the highest rates.

As noted earlier, the official poverty thresholds are updated only for changes in the price level. If the thresholds were also adjusted for changes in the standard of living, then from 1967 to 1990 the fall in poverty for aged persons would be smaller and the rise for nonaged persons would be larger. If the 1990 thresholds were 25 percent higher than the official thresholds, for example, the decline for aged persons would be from 27.9 percent in 1967 to 19.0 percent in 1990 and the increase for nonaged persons would be from 11.6 percent to 17.9 percent (tables 5 and 12). If the 1990 thresholds were 50 percent higher than the official thresholds, the decline for aged persons would be only from 27.9 percent to 26.3 percent and the increase for nonaged persons would be from 11.8 percent to 22.2 percent.

From 1970 to 1986, the official poverty rate for aged childless families fell from 14 percent to 4 percent and the rate for aged unrelated individuals fell from 46 percent to 20 percent (Congressional Budget Office 1988). The percentage of aged childless families that were below 125 percent of the poverty threshold fell from 22 percent in 1970 to 8 percent in 1986,

while the percentage of that group that was below 150 percent of the threshold fell from 31 percent to 12 percent. The percentage of aged unrelated individuals that were below 125 percent of the threshold fell from 59 percent to 33 percent, while the percentage below 150 percent of the threshold fell from 69 percent to 46 percent.

The percentages for nonaged groups either rose somewhat or fell less. For all families with children, the poverty rate rose from 11 percent in 1970 to 15 percent in 1986, the percentage below 125 percent of the threshold rose from 16 percent to 19 percent, and the percentage below 150 percent of the threshold rose from 21 percent to 23 percent. For nonaged unrelated individuals, the poverty rate fell from 22 percent to 18 percent, the percentage below 125 percent of the threshold fell from 27 percent to 22 percent, and the percentage below 150 percent of the threshold fell from 32 percent to 26 percent (Congressional Budget Office 1988).

Changes in relative poverty over a longer time span, from 1949 to 1979, have been examined (Ross, Danziger, and Smolensky 1987, 1985). Relative poverty was defined as being below 44 percent of the median welfare ratio for all family units. The percentage of all persons in relative poverty fell from 24.3 percent in 1949 to 19.9 percent in 1979. Almost all of that decline occurred from 1949 to 1959. Relative poverty declined for persons in family units headed by white and nonwhite aged men and women from 1949 to 1979. Persons in aged family units headed by men showed larger percentage declines in relative poverty than

persons in aged family units headed by women. Among aged family units, persons in units headed by white men showed the largest percentage decline, while persons in units headed by nonwhite women showed the smallest. For all four of the aged groups shown, the decline in relative poverty was primarily during the 1950's and 1970's, rather than during the 1960's. Persons in aged units headed by white men and white women showed a small rise in relative poverty during the 1960's. Persons age 25 to 64 also showed declines in relative poverty from 1949 to 1979, as did nonwhite men and women age 15 to 24. White men and women age 15 to 24, however, showed increases in relative poverty.

In summary, the decline in the poverty rate of the aged from 1959 to 1990 was the largest for any age group. From 1967 to 1990, changes in poverty rates differed greatly among age groups. The rate for nonaged persons rose, while the rate for aged persons fell sharply during that period.

C. International Comparisons

At this time, little research on changes over time in international comparisons has been completed. In one paper, the economic status of the aged in Australia, Canada, and the U.S. in the 1979-81 and 1985-87 periods has been compared using LIS data (Coder, Smeeding, and Torrey 1990). The ratio of aged to all ages median family unit income adjusted for unit size was highest in the U.S. at both times, and rose during the period. The proportion of the aged who were poor (using a threshold that was

50 percent of median family income after adjustment for unit size), however, was higher in the U.S. than in the other two countries at both times. The percentage of families below the relative poverty threshold fell substantially in Canada during this period primarily as a result of changes in the Canadian pension system. The percentage of aged married couples in the U.S. who were poor also fell. The percentage of single aged women in the U.S. who were poor fell only slightly, remaining at a relatively high level.

IV. Summary and Conclusions

Although several researchers have concluded, using broad aged-nonaged comparisons, that the aged are better off than the nonaged, such broad comparisons are not the most meaningful ones to make. The comparisons usually are simple ones in which much important information is not taken into account and in which measures that are not the most appropriate are used. The comparisons usually are made in terms of broad aged and nonaged groups and aged-nonaged ratios. The examination of detailed age groups, within both the aged and nonaged groups presents a far more complete and somewhat different picture.

Also, means, rather than medians, often are used in the comparisons. Means, however, are affected by extreme values; medians generally are a much better measure of the status of a "typical" unit in the age group. The difference between means

and medians usually is important empirically in actual comparisons.

Another problem with the general conclusion is that there is more uncertainty about several aspects of the measurement of the economic status of the aged than is generally conceded. Those aspects include the effect of noncash income, the measurement of differential needs among groups, and the relationship between noncash income and needs. These sources of uncertainty substantially reduce the confidence with which conclusions about the economic status of the aged can be reached.

Compared with most other recent assessments of the economic status of the aged, this study shows a less favorable status for the aged relative to other age groups. This study emphasizes the examination of detailed age groups, rather than summary aged and nonaged groups, thus providing a more complete picture of age differences. More than most other assessments, this study also emphasizes uncertainty about the relative status of the aged and places more emphasis on what we do not know.

This paper has emphasized several fundamental points about assessing the economic status of the aged. First, the aged are not a homogeneous group. There are large differences between the aged who are best off and those who are worst off. Second, assessments of how much the aged "should" have depend on value judgments. Although the economic status of the aged has improved greatly (both absolutely and relative to other age groups) during roughly the last two decades, it does not necessarily follow that the aged have more than they "should" have. At least some of

that relative improvement in the economic status of the aged merely offset the relative decline from the end of World War II to about 1970. Third, the way comparisons of age groups are framed and the technical choices made can affect the conclusions reached. For example, who is compared with whom is very important, as are the definitions of resources and recipient units, the adjustments for differential needs, and the measure of central tendency (median or mean) of the distribution that are chosen. It is much more useful to compare detailed age groups, rather than just the broad aged and nonaged groups, because of very important differences among age groups within both of those broad age groups.

Median cash income of the aged varies by socioeconomic group, by detailed age group, and within each of those groups. Aged married couples have median income (not adjusted for differential needs) that is far higher than the medians for aged nonmarried men or women. Aged nonmarried women who are black or of Spanish origin have particularly low median incomes. Median income for the young aged (age 65-69) is far higher than the median for the old aged (age 85 or older). Levels of wealth also differ among subgroups of the aged, and the differences are even larger than for income. In general, subgroups that have relatively high income also have relatively high wealth.

After taking account of differences in needs associated with different unit sizes (and ages of householders), the ratio of the median cash income of aged family units to the median for the nonaged was 0.725 in 1990. There were, however, large

differences in medians within both the aged and nonaged groups when detailed age groups were examined. The median is highest in the 45-49 age group and lowest at the oldest and youngest ages. In 1990, the median for each detailed aged age group was below the median for each detailed age group in the 30-64 age range. Adjustments for underreporting of income amounts in household surveys tend to raise the income of the aged relative to the income of the nonaged.

The poverty rate for aged persons is slightly below the rate for the nonaged, but the rate for the aged is above the rates for other adult age groups. The rate for children is the highest of any age group. When both the poor and the near-poor are considered, the rate for the aged is above the rate for the nonaged.

The inclusion of noncash income in the definition of income tends to increase the income of the aged relative to the income of the nonaged, but serious measurement problems exist. Medicare and imputed rent on owner-occupied homes are the noncash income types that have the greatest impact on the aged-nonaged income relationship. The valuation of Medicare, however, is controversial and some researchers do not include that income type in their estimates. Consistency between the definition of resources and the specification of needs is essential, but often is not present when noncash income is included. When taxes are taken into account, the income of the aged rises somewhat relative to the income of the nonaged.

The inclusion of wealth, in addition to income, in the definition of resources also improves the status of the aged relative to that of the nonaged. The appropriate valuation of wealth for this purpose, however, is controversial. The most common valuation converts wealth into an annuity. An annuity valuation, however, implies that, for identical amounts of wealth and of income, the older the person is the better off he or she is ("older is better"). The amount of the relative improvement of the status of the aged depends heavily on the valuation of wealth used. Human capital, which is excluded (along with social security wealth and pension wealth) from the definition of wealth used here, is very important for the nonaged.

Comparisons of the economic status of the aged relative to the nonaged for several countries show that the aged in the U.S. in a relative sense generally are at least as well off as the aged in other Western industrialized countries. Poverty of the aged generally is higher in the U.S. than in those other countries. Analyses of economic risks faced by the aged show that many aged units face substantial risks, especially risks associated with high medical expenses.

The ratio of aged to nonaged median incomes of family units (adjusted using the poverty threshold equivalence scale) rose from 0.526 in 1967 to 0.727 in 1984. That ratio then fell slightly for four consecutive years to 0.693 in 1988 and remained at that level in 1989. The ratio rose sharply to 0.725 in 1990, in part as a result of the general economic slowdown. The ratio of aged to nonaged mean incomes of family units (not adjusted for

differential needs) fell from 0.663 in 1947 to 0.491 in 1970, rose to 0.647 in 1984, fell slightly to 0.629 in 1989, and rose to 0.647 in 1990. Thus, although this ratio has generally been rising in the last two decades, that rise has only offset the fall in the ratio during the prior two decades. The inclusion of noncash income possibly would alter this pattern somewhat, but estimates of that type over a long time period are not available.

The poverty rate for aged persons fell sharply from 29.5 percent in 1967 to 12.2 percent in 1990. In contrast, the poverty rate for persons age 18 to 64 rose slightly from 10.0 percent to 10.7 percent and the rate for persons under age 18 rose from 16.6 percent to 20.6 percent during that period. If the poverty thresholds for 1990 were raised to reflect increases in the standard of living over time, the decline in the poverty rate for aged persons would be smaller than the decline shown by the official estimates.

In the next several years, progress can be expected in several aspects of research on the economic status of the aged. More analyses of changes in wealth over time are expected as new data from the Survey of Income and Program Participation and the Surveys of Consumer Finances become available. Such analyses should provide a more complete picture of changes over time in the income and wealth of the aged. Also, more estimates of changes over time in broad income measures that take noncash income and taxes into account are likely to become available. Most of the research on the effects of noncash income has been confined to single-year estimates. Finally, more research on

international comparisons is expected. More international analyses of changes over time are expected and international comparisons that include noncash income are possible.

Our understanding of the distribution of economic well-being would be enhanced if more were known about several aspects of the measurement of economic status in general and for the aged in particular. Those aspects include adjustments for differential needs, the treatment of noncash income, the treatment of wealth, vulnerability to economic risks, and the effect of inflation on measured amounts of income.

The adjustment for differential needs has an important effect on measured relative economic status. The U.S. poverty thresholds, which are often used to adjust for differential needs, imply that, for units of size one or two, the aged need less than the nonaged. That differential, however, is based on food needs, rather than on total needs. Medical needs are higher for the aged than for the nonaged and this difference is usually not explicitly taken into account. It is possible, however, that nonmedical needs could be lower for the aged than for the nonaged; child-rearing expenses are an example of such needs. There are also important general issues, such as whether equivalence varies by income level, the appropriate treatment of children in equivalence scales, and whether levels of needs differ between groups such as renters and owners or retirees and workers in the same age group. The specification of needs should be consistent with the definition of resources used. The question of the appropriate measurement of needs is related to

the valuation of noncash income and to the vulnerability issue, as discussed below.

The treatment of noncash income has been controversial for some time. A better understanding of the valuation of such income is important. The need for consistency between the definition of resources used and the specification of needs generally has been ignored. Medical benefits appear to have the greatest impact on the measured economic status of the aged. The greater medical needs of the aged relative to the nonaged ordinarily are not explicitly taken into account. Thus, a group (the aged or some subset of the aged) could be measured as "better off" because that group has higher medical needs ("is sicker"). That is, greater noncash medical benefits are not offset, as they should be, by higher medical needs.

This consistency issue is in addition to the valuation issues on the income side (e.g., recipient value or provider value). Valuation on the income side and valuation on the needs side are closely related. For example, if provider value is used in the valuation of noncash income, then the specification of needs should be consistent with that value. Consistency between the two sides is essential. Further analysis in this area is very important.

The appropriate way (or ways) to take wealth into account is also controversial. The valuation of wealth, especially for the aged, is related to the issue of needs. Some aged persons attempt to protect themselves against possible medical (or other)

expenses of uncertain size using their wealth. Bequests are also an intended use of wealth for some aged persons.

Uncertainty and vulnerability to economic risks is another important topic. The relationship of this topic to economic well-being needs further study. Uncertainty is an ex ante concept, rather than the actual outcomes that are ordinarily assessed. This uncertainty can occur on the income side, the needs side, or both. On the income side, loss of real income is the adverse change. Loss of real income can occur as a result of loss of nominal income (e.g., from loss of spouse or job) or as a result of loss of real income with no loss of nominal income (e.g., from less than full protection against inflation). Volatility of income is also an aspect of economic uncertainty. For example, income from assets can fluctuate as interest rates move up and down. The ability to cope with such risks financially should be explored more fully.

On the needs side, large uncertain expenses can occur (e.g., medical expenses, necessary home repairs). Ordinarily such expenses are treated only as part of average expenditures and the skewed nature of the distribution of such expenses is ignored. The important characteristic of such expenses is that large amounts are relatively rare. The ability to pay for such large, relatively rare, expenses is related to the availability of wealth. Also, the presence of insurance is related to this issue.

The final aspect is the effect of inflation on the measurement of income. For the aged, the effect on measured

interest income is particularly important. The usual adjustment for inflation reduces interest income for the change in the price level, but does not fully recognize the inflation premium component of interest income. Thus, the decline in the real value of the asset that produces the interest income is not fully accounted for. In a period of high inflation (and high nominal interest rates), the usual adjustment produces estimates of constant dollar interest income that are too high. This problem is related to the role of wealth in measured economic well-being.

In addition to the problems mentioned above, there are problems related to the appropriate way or ways of combining different aspects of economic well-being. The combination of income and wealth into a single measure of economic well-being is a topic that requires much more exploration. It can be argued that no existing measure takes both income and wealth into account in a satisfactory manner. Similarly, it would be useful to integrate estimates of level of living (which has received a substantial amount of attention at the poverty level) and vulnerability to risk (which has been studied relatively little). This integration would involve the combination of average needs and the distribution of needs into a single measure. Such a combined measure does not exist at the present time.

Several important topics were not discussed in this paper. One area that would benefit from more attention is longitudinal comparisons. We need to know more about how the aged got to their present level of economic well-being. For example, of the aged who are currently poor, how many were poor when they were

younger? Cross-section comparisons cannot provide answers to such questions. Longitudinal data should be exploited even more than they have been so far. The relationship between life events (e.g., widowhood) and economic status also requires more exploration, as does the volatility of income.

In summary, it is important to better understand both the level and the distribution of needs for units of different ages and other characteristics. A way to jointly take both the level and the distribution of needs into account is needed. In assessing economic well-being, the specification of needs should be consistent with the measure of resources used. A better understanding of resources is also needed. The valuation of wealth, the valuation of noncash income, and an appropriate adjustment of cash income for inflation are also areas that require further research. The integration of the values of income and wealth into a single measure is an important area about which little is understood. Economic risks faced by various types of units, on both the needs side and the resource side, and the ability of those units to cope with those risks is another important area for further research. International comparisons of various kinds are difficult, but much can be learned from such comparisons. Also, the paths by which the aged reached their current status should be examined more fully. Longitudinal data are essential to this area of research.

There is much that is not known about the economic status of the aged. Further research on this topic is very important. Of particular importance is the question of the proper measurement

of the needs of the aged and of other age groups and consistency between the specification of those needs and the measure of resources used.

Table 1.--Median income adjusted for unit size and age and relative median, by age of unit head, family units, 1990

Age of unit head	Median	Relative Median
20-24	$11,241	0.59
25-29	17,588	.92
30-34	19,176	1.00
35-39	20,845	1.09
40-44	22,815	1.19
45-49	26,305	1.37
50-54	25,983	1.36
55-59	24,884	1.30
60-64	20,527	1.07
65-69	18,506	.97
70-74	15,591	.81
75-79	13,476	.70
80-84	11,500	.60
85 or older	10,220	.53
Under 65	20,401	1.06
65 or older	14,782	.77
15 or older	19,174	1.00

Source: Tabulations from the March 1991 CPS.

Figure 1
Median Income by Age of Head of Family Unit, 1990

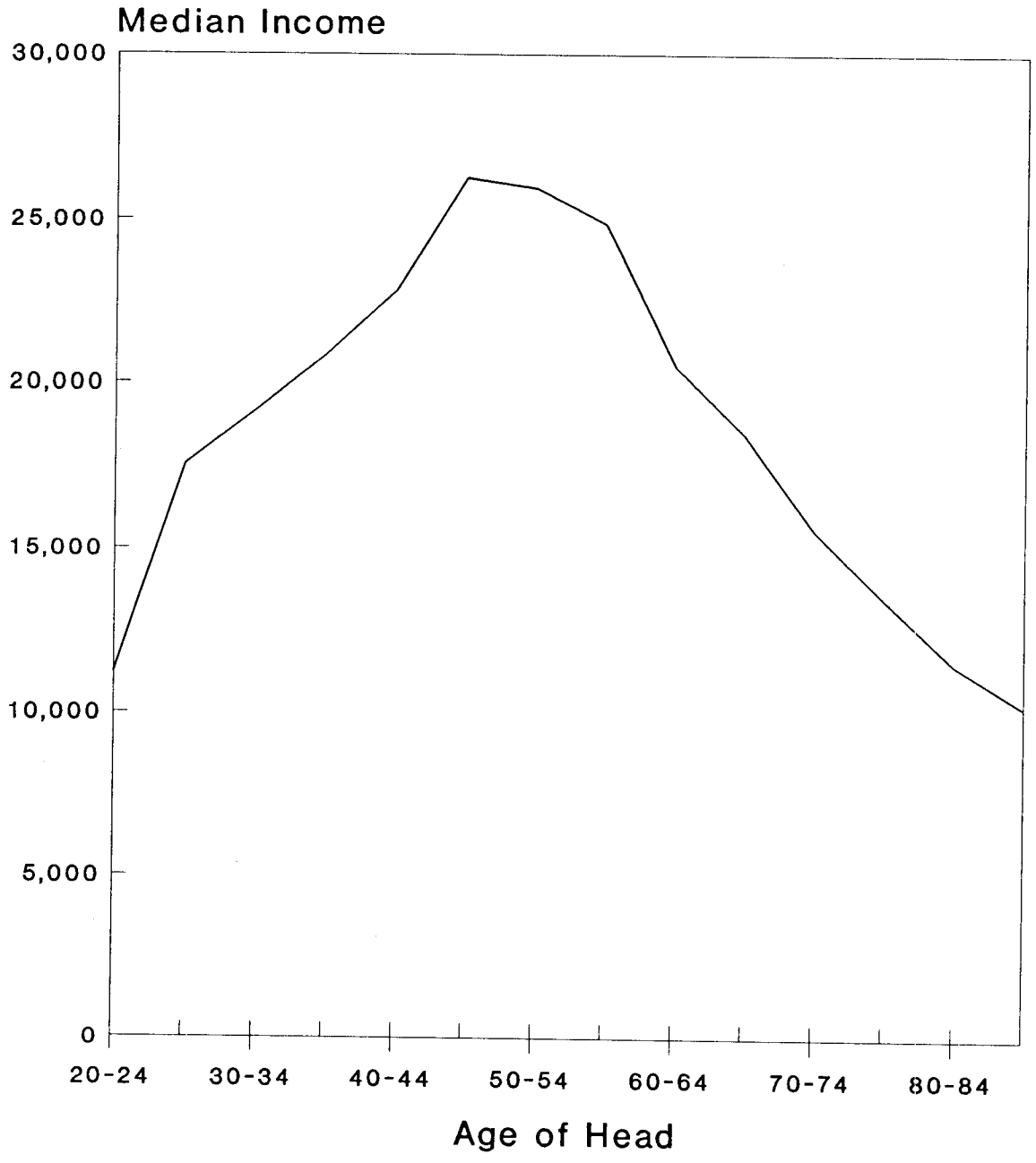


Table 2.--Median incomes and ratio of the median for aged households to the median for all households, 1990

Definition of income	Aged	All	Ratio
Cash income before taxes	$18,062	$29,943	0.603
- taxes + selected noncash income types	21,700	27,720	.783
+ imputed rent	24,590	29,615	.830

Source: Bureau of the Census 1991c, table 1.

Table 3.--Mean incomes for aged and nonaged households using alternative definitions of income, and aged-nonaged ratios of means, 1990

Definition of income	Aged	Nonaged	Ratio
Cash income before taxes	$26,403	$40,847	0.646
+ capital gains	27,166	42,138	.645
- taxes	23,679	33,055	.716
+ govt. noncash income excluding Medicare	23,966	33,499	.715
+ imputed rent	27,383	35,503	.771
+ employer health insurance supplements	27,761	37,264	.745
+ Medicare	30,767	37,344	.824

Source: Derived from Bureau of the Census 1991c, table 1.

Table 4.--Median wealth of households by age of householder, 1988

Age of householder	Net Worth	
	Total	Excluding home equity
Under 35	$6,078	$3,258
35-44	33,183	8,993
45-54	57,466	15,542
55-64	80,032	26,396
65 or older	73,471	23,856
65-69	83,478	27,482
70-74	82,111	28,172
75 or older	61,491	18,819
All ages	35,752	9,840

Source: Bureau of the Census 1990, table E.

Table 5.--Percentage of persons poor or near poor, by age of person, 1990

Age of person	Percentage of age group below: Poverty threshold	125% of poverty threshold	150% of poverty threshold
Under 5	24.0	29.5	35.0
5-9	21.3	27.0	32.8
10-14	18.7	24.1	29.1
15-19	16.4	21.3	26.0
20-24	15.8	21.0	26.6
25-29	12.8	17.2	21.8
30-34	11.4	15.5	19.6
35-39	9.1	12.3	15.8
40-44	7.7	10.4	13.4
45-49	7.3	9.7	12.3
50-54	8.4	10.8	13.4
55-59	9.0	12.1	15.4
60-64	10.3	14.8	18.9
65-69	8.4	13.4	18.7
70-74	11.3	17.3	24.3
75-79	13.3	21.5	30.0
80-84	17.5	26.8	36.9
85 or older	20.2	30.4	39.8
Under 65	13.7	17.9	22.2
65 or older	12.2	19.0	26.3
All ages	13.5	18.0	22.7

Source: Tabulations from the March 1991 CPS.

Figure 2
Percent of Persons Below Poverty and Near-Poverty Thresholds, 1990

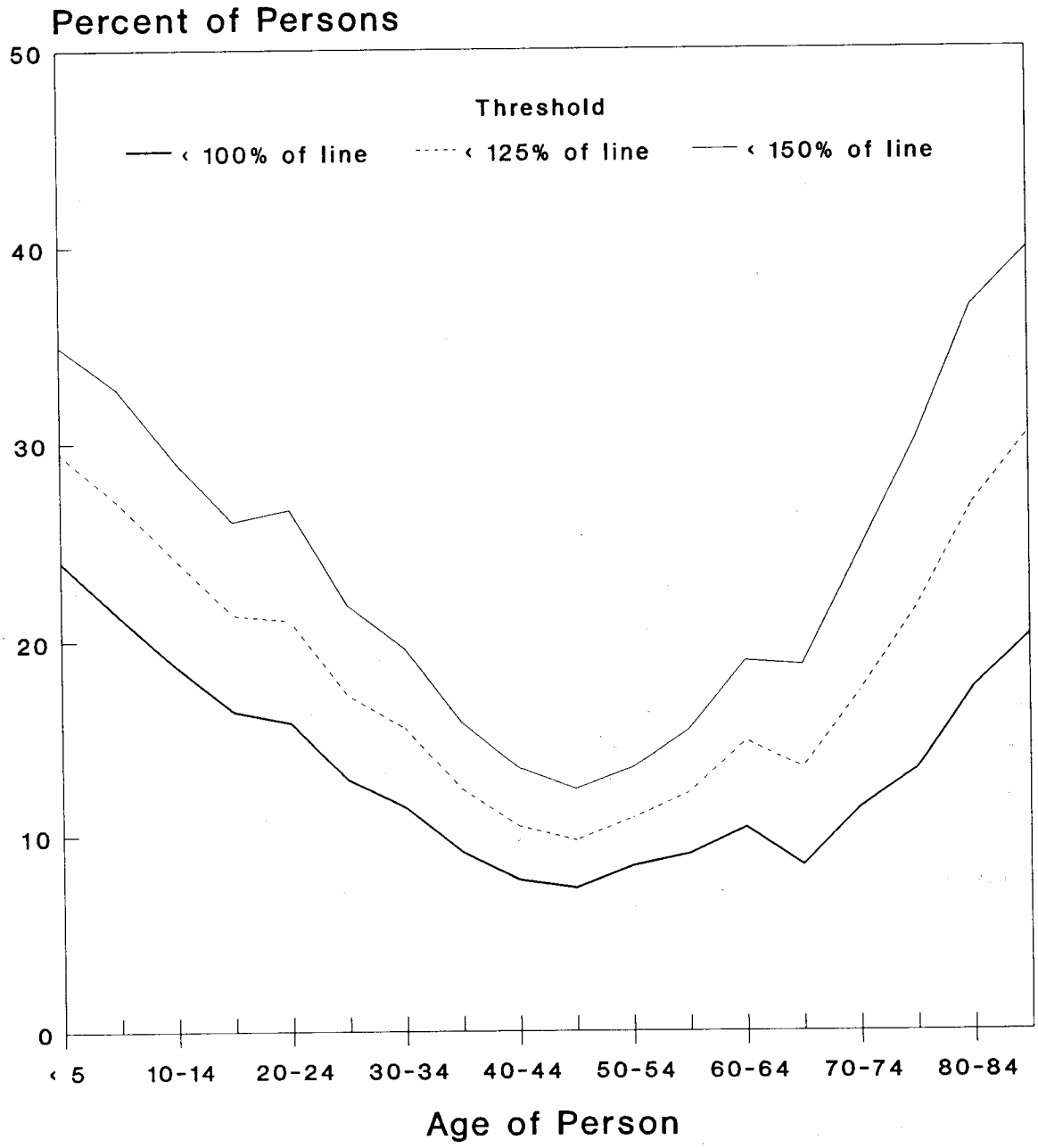


Table 6.--Poverty rates using the official definition and an experimental definition, by age of person, 1990

Age of person	Percent poor	
	Official	Experimental[1]
Under 18	20.6	15.8
Under 6[2]	23.0	17.2
18-24	15.9	14.3
25-44	10.4	8.6
45-64	8.6	7.6
65 or older	12.2	9.5
65-74	9.7	7.3
75 or older	16.0	12.9
All ages	13.5	11.0

1. Using Census income definition 14, in which taxes are deducted, several types of noncash income are added, and imputed rent on owner-occupied homes is excluded.

2. Related children.

Source: Bureau of the Census 1991c, table 2.

Table 7.--Average annual percentage change in median real income of family units, by age of unit head, adjusted for size of unit and age

Time period	Under age 65	Age 65 or older
1967-1972	3.1	4.9
1972-1979	1.1	1.9
1979-1984	-0.3	3.4
1984-1990	1.0	0.9
1967-1990	1.2	2.6

Source: Radner 1991 and tabulations from the March 1991 CPS.

Figure 3
Average Annual Percentage Change in
Real Median Income, 1967-1990

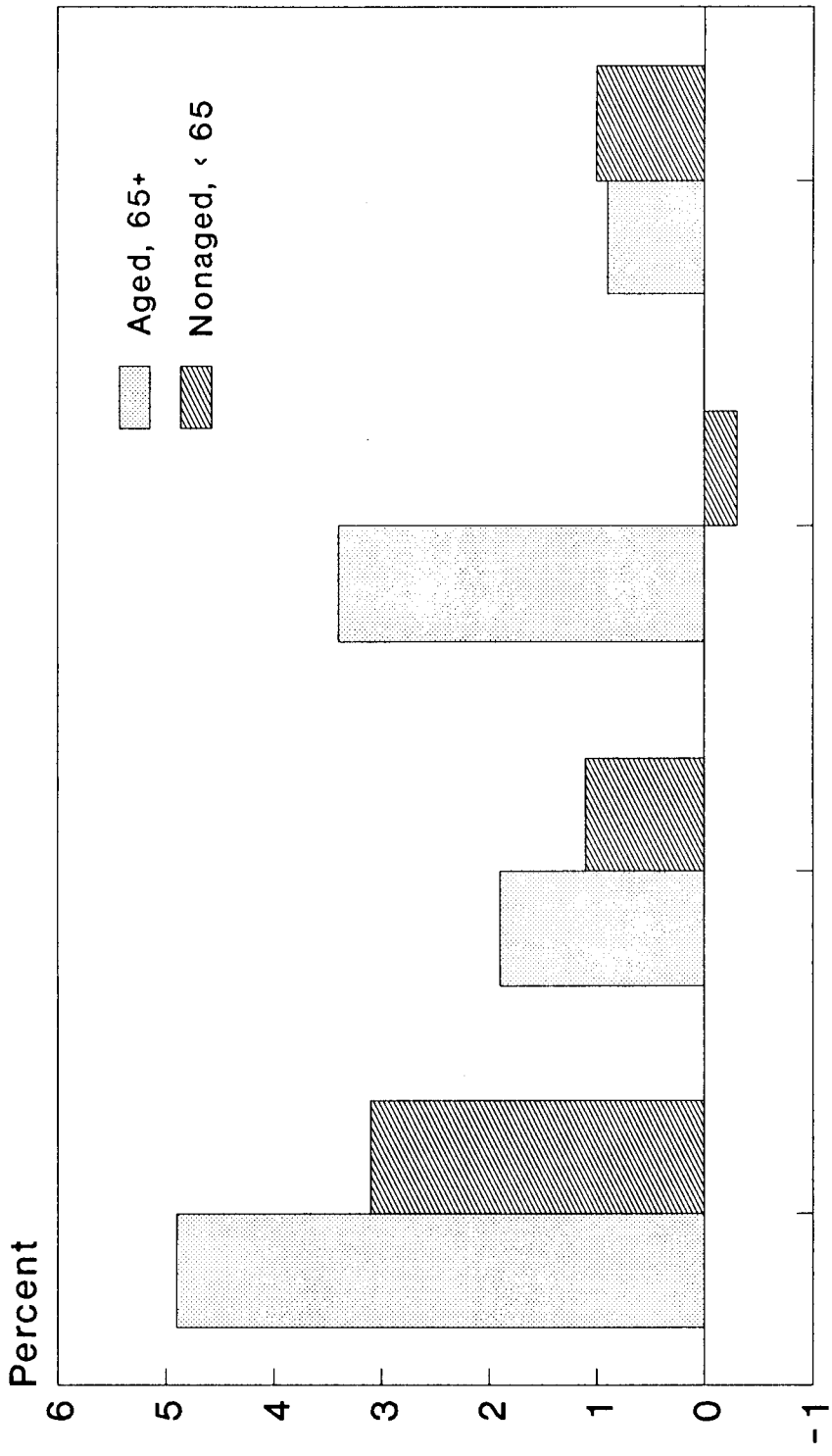


Table 8.--Ratio of aged to nonaged median incomes of family units, adjusted for size of unit and age, selected years 1967-90

Year	Ratio
1967	.526
1972	.572
1977	.603
1979	.604
1980	.631
1981	.668
1982	.699
1983	.710
1984	.727
1985	.712
1986	.706
1987	.697
1988	.693
1989	.693
1990	.725

Source: Radner 1991 and tabulations from the March 1991 CPS.

Figure 4
Ratio of Aged to Nonaged Median Incomes, 1967-1990

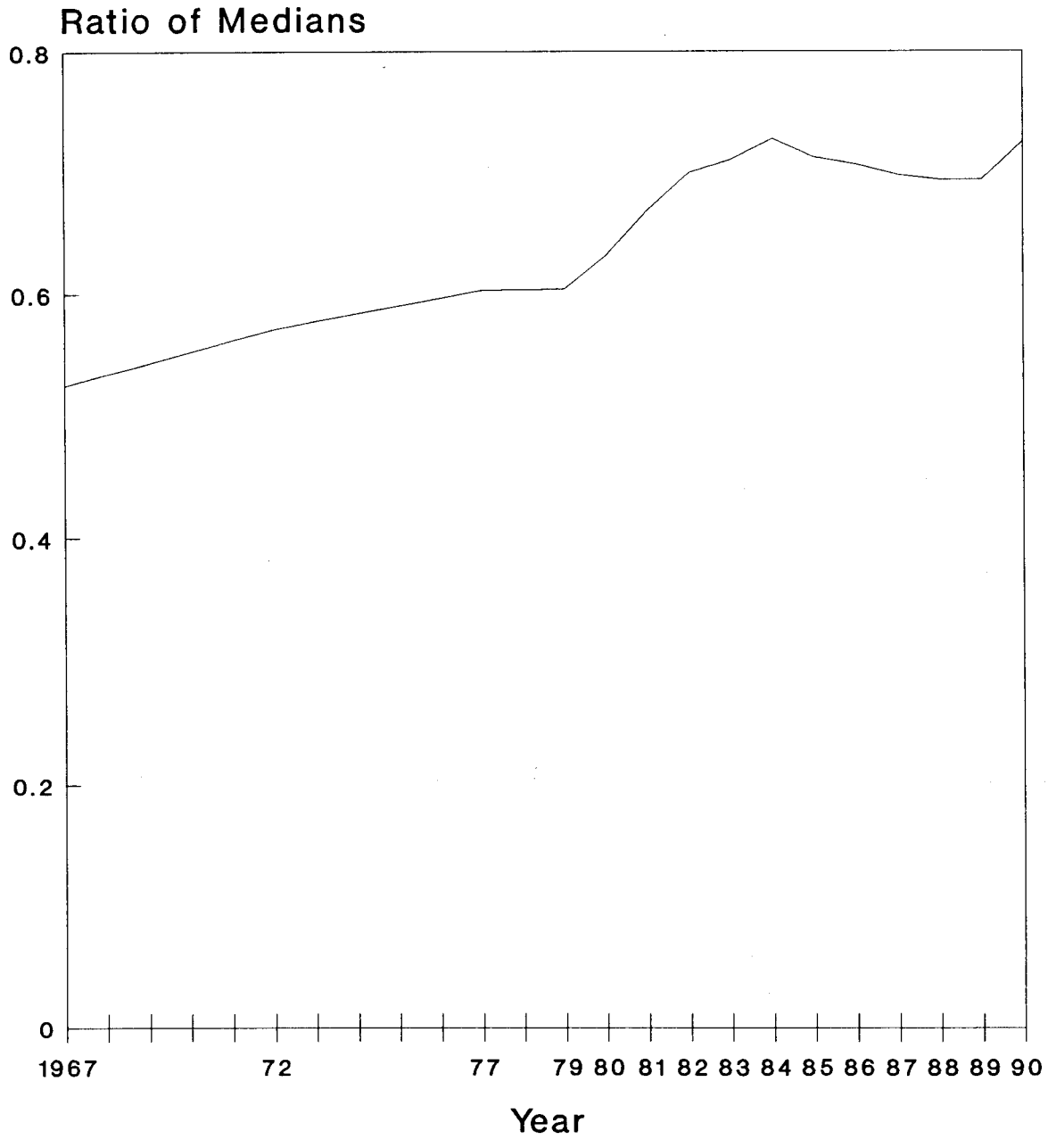


Table 9.--Relative median incomes of family units, by age of unit head, adjusted for size of unit and age, and average annual percentage change in real median income, 1967-1990

Age of head	1967	1990	Average annual percentage change 1967-1989
20-24	.88	.59	-0.5
25-29	1.05	.92	0.7
30-34	.99	1.00	1.3
35-39	1.00	1.09	1.6
40-44	1.10	1.19	1.6
45-49	1.24	1.37	1.7
50-54	1.32	1.36	1.4
55-59	1.25	1.30	1.4
60-64	1.10	1.07	1.1
65-69	.74	.97	2.4
70-74	.60	.81	2.6
75-79	.48	.70	2.9
80-84	.43	.60	2.7
85 or older	.38	.53	2.7
Under 65	1.09	1.06	1.2
65 or older	.57	.77	2.6
All ages	1.00	1.00	1.3

Source: Tabulations from the March 1968 and March 1991 CPS files.

Figure 5
Relative Median Incomes for Age Groups, 1967 and 1990

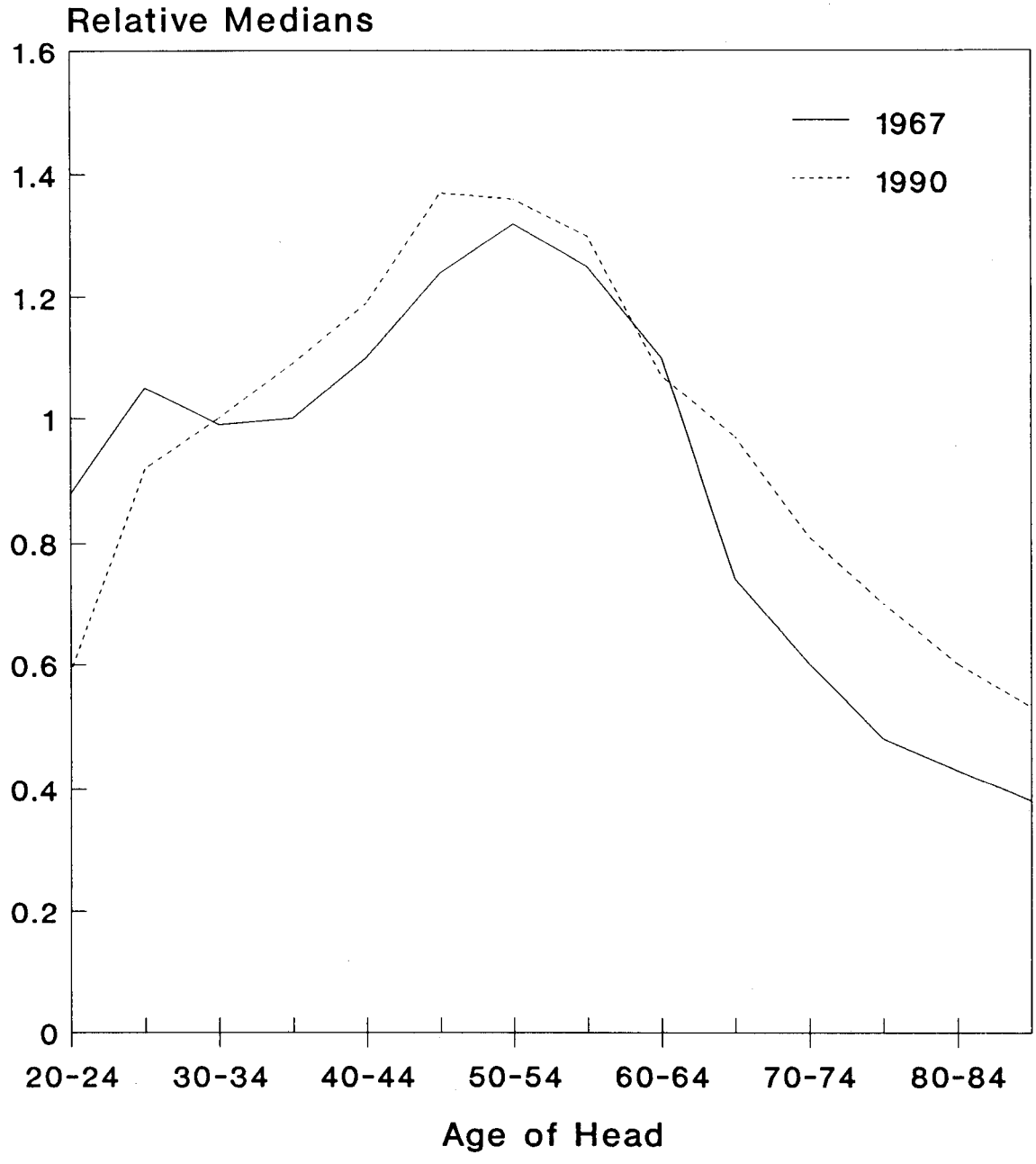


Table 10.--Ratio of aged to nonaged mean incomes, not adjusted for unit size, family units, 1947-1990

Year	Ratio	Year	Ratio
1947	.663	1969	.493
1948	.627	1970	.491
1949	.630	1971	.506
1950	.615	1972	.513
1951	.581	1973	.522
1952	.621	1974	.534
1953	.603	1975	.548
1954	.588	1976	.545
1955	.602	1977	.543
1956	.548	1978	.549
1957	.520	1979	.535
1958	.520	1980	.570
1959	.541	1981	.602
1960	.549	1982	.629
1961	.580	1983	.623
1962	.537	1984	.647
1963	.537	1985	.628
1964	.555	1986	.624
1965	.538	1987	.614
1966	.513	1988	.614
1967	.500	1989	.629
1968	.501	1990	.647

Source: Derived from **Current Population Reports**, Series P-60, various years.

Figure 6
Aged/Nonaged Ratios of Mean Incomes, 1947-1990

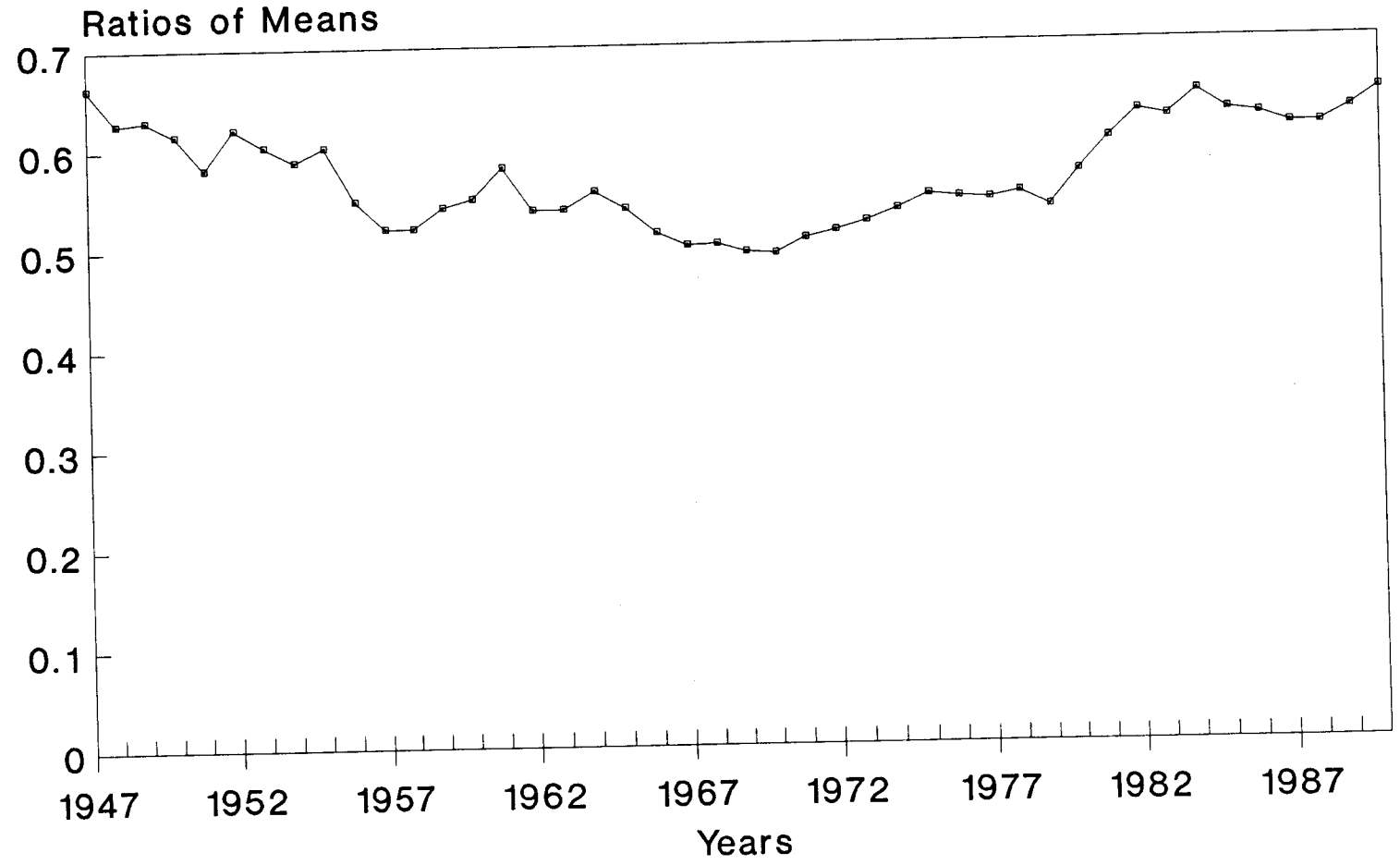


Table 11. Ratio of mean incomes, family units with unit head aged 65 or older relative to family units with unit head of age shown, selected years 1947-90

Age of unit head	1947	1967	1979	1984	1990
Under 25	1.11	.88	1.03	1.45	1.58
25-34	.73	.53	.60	.75	.79
35-44	.61	.45	.46	.56	.57
45-54	.60	.43	.43	.51	.50
55-64	.67	.54	.51	.60	.60
Under 65	.67	.50	.54	.65	.65

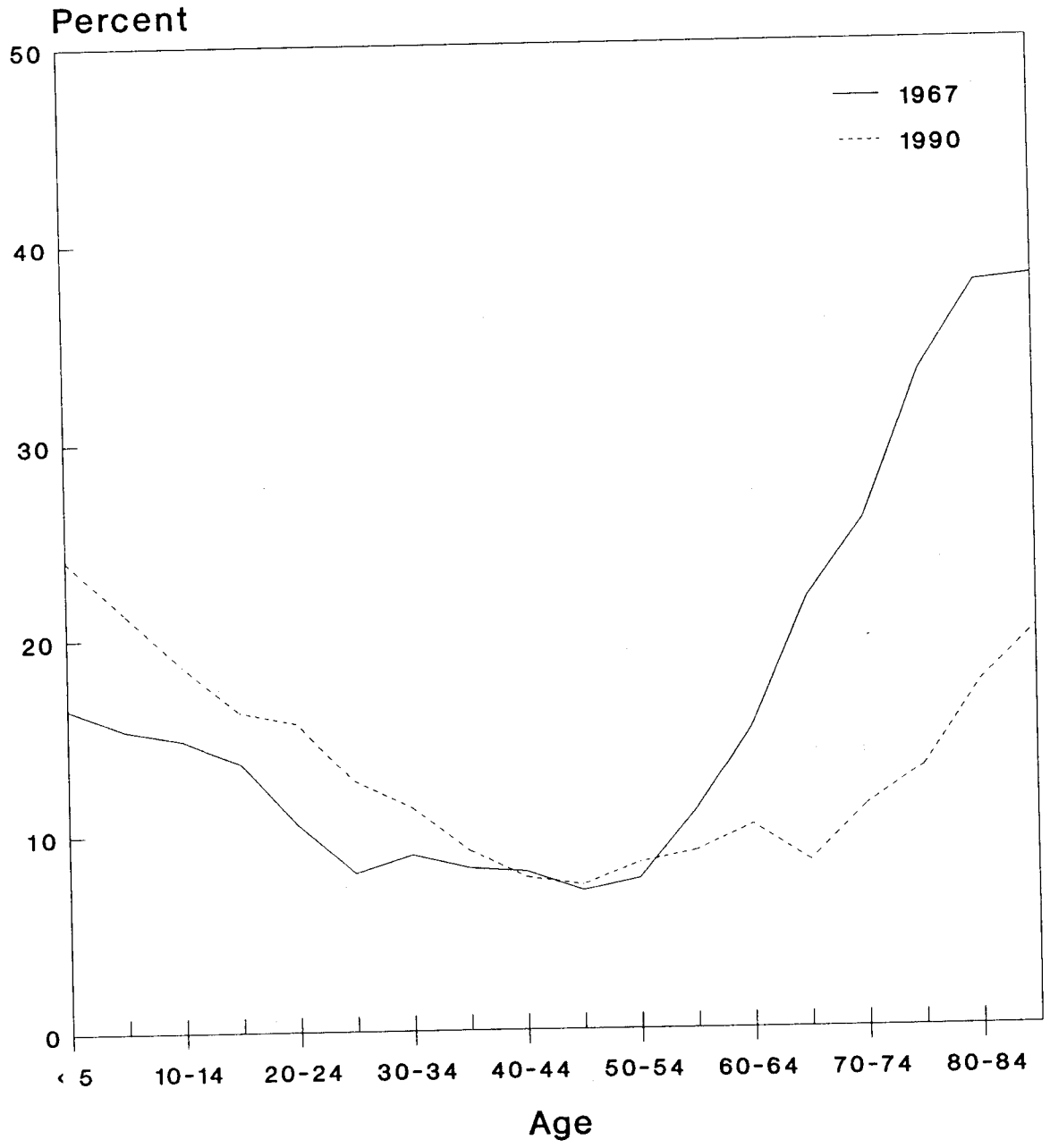
Source: Radner 1991 and calculations from Bureau of the Census 1991a.

Table 12.--Percentage of persons in poverty, by age of person, 1967 and 1990

Age of person	1967	1990
Under 5	16.6	24.0
5-9	15.5	21.3
10-14	15.0	18.7
15-19	13.8	16.4
20-24	10.5	15.8
25-29	8.0	12.8
30-34	8.9	11.4
35-39	8.2	9.1
40-44	8.0	7.7
45-49	7.0	7.3
50-54	7.6	8.4
55-59	11.1	9.0
60-64	15.4	10.3
65-69	21.8	8.4
70-74	25.8	11.3
75-79	33.3	13.3
80-84	37.7	17.5
85 or older	38.0	20.2
Under 65	11.8	13.7
65 or older	27.9	12.2
All ages	13.3	13.5

Source: Tabulations from the March 1968 and March 1991 CPS files.

Figure 7
Percent of Persons in Poverty for Age Groups, 1967 and 1990



NOTES

* The author is greatly indebted to Sharon Johnson, who prepared the new estimates and the charts, and to Benjamin Bridges and Selig Lesnoy, for their many helpful comments.

1. The official estimates of poverty are computed by comparing cash income before tax for family units with the official poverty thresholds. The weighted average poverty threshold for an aged unrelated individual was $6,268 and the threshold for a two-person aged family was $7,905 in 1990 (Bureau of the Census 1991b).

2. For a description of the CPS and definitions of CPS concepts, see Bureau of the Census (1991a).

3. The threshold for one-person units (all ages) was used as the base for the equivalence scale. Weighted average thresholds were used. See Bureau of the Census (1989), table A-2, for the thresholds used.

4. An age-income curve implicitly assigns equal weight to each age group shown. Different age groups typically contain different numbers of units. Values for summary age groups, therefore, cannot be derived from the points on the curve in a simple way.

5. See Danziger and Taussig (1979) for a discussion of person weighting and unit weighting. The use of person weighting emphasizes the importance of the assumption that each person in a family has equal economic well-being. This assumption is used, for example, when poverty rates for persons are computed. Do the family head, an infant, and an aged person living with the family head always have equal economic well-being? This question is discussed relatively little in the literature. This issue goes beyond the question of equal access to the income of the family to the question of whether persons of different ages transform income into economic well-being at the same rate.

6. In the computation that omits the aged differential, the nonaged equivalence scale values were used for all ages.

7. The implied adjustments to mean income for underreporting were 6-7 percent for the age groups under age 55, 10 percent for the 55-64 age group, 16 percent for the 65-74 age group, and 20 percent for the 75 and older age group. For the age groups over age 54, these adjustments were somewhat lower than those found by Radner (1983) for mean income and slightly lower than those found by Radner (1986) for median income.

8. The Crystal-Shea estimate of the aged-nonaged income ratio before adjustment for underreporting (0.939) was substantially

above the Radner estimate (0.71) primarily because Crystal-Shea used means, rather than medians, and person weighting, rather than unit weighting.

9. Some researchers have raised the question of the aged being "overhoused." That is, for many reasons (e.g., transactions costs of various kinds), some aged persons might remain in a larger house than they now "need." In that case, imputed rent on that house might overstate the value of the service flow.

10. The recipient value of noncash income has also been used. The recipient value of cash income, however, is rarely considered. If pre-tax income is used, then tax-free income types are worth more than taxable types. In an after-tax definition, the uncertainty of receipt or the uncertainty of the size of the amount to be received could affect the recipient's valuation. Frequency of receipt could also be important.

11. Total needs of the group is the most relevant variable, since higher medical needs might be offset by lower other needs for the aged.

12. Perhaps actual expenses could be used if those expenses were reflected appropriately on the needs side. If the same large amount were added to both the resource side and the needs side, however, the ratio of resources to needs would move toward 1.0. Also, the inclusion of all medical needs could affect equivalence of units of different sizes if economies of scale in the added medical needs differ substantially from economies of scale in other needs.

13. This appears to be the treatment that is used when the value of Medicare (however estimated) is added to income and the official poverty thresholds (or the equivalence scale implicit in those thresholds) are used to represent needs. The insurance value of Medicare is equal to a substantial fraction of the poverty threshold. For aged unrelated individuals, the insurance value of Medicare is more than 30 percent of the poverty threshold in every state and is more than half the poverty threshold in 12 states (Bureau of the Census 1991c).

If both cash income and Medicare are considered, the introduction of the Medicare program in 1966 produces a measured increase in the economic status of the aged. This is true whether medical needs are underestimated or measured fully, as long as those needs are measured consistently for the periods compared. The level of the measured economic status of the aged, however, will be too high if needs are underestimated.

In some types of comparisons, it is appropriate to include all needs, but only cash income. For example, one might want to perform a sensitivity analysis and compare the economic status of the aged when Medicare is excluded and included, holding (total) needs constant.

14. For the measurement of poverty, using the same threshold when the value of Medicare is included and excluded from income is inappropriate because levels of needs, not just ratios of needs, are involved.

15. These estimates are preliminary because tax data for 1989 were used.

16. Imputed rent was estimated by applying a rate of return to estimated home equity. The rate applied was the average rate of return on high-grade municipal bonds (7.25 percent in 1990). Property taxes were then subtracted to obtain the estimate of imputed rent.

17. Medicare and Medicaid benefits are not counted in income if the unit is unable to meet (or is just able to meet) basic food and housing requirements. For higher income units, Medicare and Medicaid are valued at the mean government outlay for units in a given risk class. Partial value is used for units that are not in either of those two groups (Bureau of the Census 1991c).

18. The estimates shown here were derived from estimates prepared by CBO that appear on pages 1192, 1210, 1212, and 1213 of Committee on Ways and Means (1991).

19. This definition is Smeeding's "Total income 1."

20. When a constant-utility equivalence scale was used, the ratio was 0.84 for cash income before tax.

In the constant utility equivalence scale used, the aged are estimated to need far less than the nonaged (van der Gaag and Smolensky 1982). For example, according to this scale, an aged female one-person unit needs only 48 percent as much income as a female one-person unit age 35-54. The aged-nonaged differentials in this scale appear to be unreasonably large. Use of this scale inflates the income of the aged relative to the nonaged.

21. The adjustment used here was derived from table 9 in Smeeding (1989). The mean of the middle three quintiles is a better measure than the mean, but it is generally not a good approximation of the median. For example, using cash income data for 1989 from the CPS, the mean of the middle three quintiles was an overestimate of the median for each age group; the overestimates ranged from 2.0 percent to 8.5 percent. The aged-nonaged ratio of means of the middle three quintiles was 0.723, which was above the ratio of medians, which was 0.693. The amount of the error in the estimate will vary for different distributions.

22. See Budd, Radner, and Whiteman (1984) for details on the valuation of the types of noncash income.

23. Although Danziger et al. found that the aged-nonaged ratio using the poverty threshold scale was slightly higher than the

ratio using the constant utility scale, as noted earlier, Smeeding found that the ratio using the poverty threshold scale was much lower than the ratio using the constant utility scale. The estimated scales used appear to differ somewhat. If the difference in scales is the cause of the difference in the ratios, then the results are highly sensitive to the estimation of the scale.

24. The mean of the third quintile can be expected to be an acceptable approximation of the median for most distributions. For example, using cash income data from the CPS, in 1989 the mean of the third quintile deviated from the median by less than one-half percent for most age groups and by no more than 1.1 percent for any age group. The aged-nonaged ratio of means of the third quintile was 0.697, while the ratio using medians was 0.693. The amount of the error in the estimate will vary for different distributions.

25. It appears that the person's age (rather than the householder's age) was used in the annuity calculations. Thus, children had their (household) net worth annuitized over a very long expected remaining lifetime, producing a low annuity value and exaggerating the "older is better" effects.

26. Weicher (1987) has argued that the general level of the thresholds is too high because the CPI-U, which is used to adjust the thresholds for price change, rose too rapidly as a result of an inappropriate treatment of housing.

27. See Bureau of the Census (1986) for a discussion of the experimental estimates of poverty produced by the Bureau of the Census.

28. When imputed rent on owner-occupied homes was also included in income, the rate for aged persons fell to 6.2 percent. It should be noted, however, that the Bureau of the Census has raised questions regarding the appropriateness of the inclusion of imputed rent for the measurement of poverty.

29. Differences in age distributions across countries can affect aged to all ages ratios because the all ages median or mean is affected by the age distribution. This does not appear to be an important problem for these estimates.

30. "Equivalent adult" and "standard person" equivalence scales were the more detailed scales used. In the equivalent adult scale, each adult was counted as 1.0 and each child was counted as 0.5. That scale took differences between adults and children into account, but did not adjust for economies of scale. The standard person scale, which was based on a scale used in Israel, took economies of scale into account.

31. Because relative medians (means) using the all ages median (mean) as the base can be affected by the age distribution in a

country, comparisons of the aged with other specific age groups are useful.

32. Interest in this topic, for both the aged and nonaged, has been increasing in recent years. For example, see Institute for Research on Poverty (1991).

33. There has also been some interest in the degree of uncertainty associated with particular types of income. Boskin and Shoven (1987) hypothesized that a dollar of Social Security benefits is worth more than a dollar of other income types to the recipient because the Social Security benefit is more certain than the other types are. It is interesting to note that Smeeding (1986) considered reliance on Social Security benefits to be a source of economic risk.

34. The volatility of income is an aspect of uncertainty that is not discussed in this paper. In a recent report, change in income from 1987 to 1988 for the same persons has been examined using data from SIPP (Bureau of the Census 1991d).

35. The distribution of expenditures faced can be altered by the purchase of insurance. The use of average needs implicitly assumes that everyone is insured against these large expenses. Many persons, however, are not insured. For example, most aged persons do not have long-term care insurance. Also, many younger persons do not have health insurance.

36. This discussion is in terms of an uncertain future. The distribution of needs can also be used in analyzing actual outcomes in the past. For example, instead of comparing a unit's income with average needs for a given year, the unit's income could be compared (at least conceptually) with the unit's actual needs in that year.

37. Three measures of vulnerability were examined. The first two measures reflected vulnerability to a price level shock (interest rates and the rate of inflation unchanged). The third measure reflected vulnerability to an inflation rate shock (long-run expected rate of inflation and nominal interest rates rise). The first two indexes of inflation vulnerability were defined as nominal assets (e.g., bonds, private pension wealth, bank accounts) less nominal liabilities, divided by total net worth. The second measure differed from the first only by a shift in the treatment of common stocks. In the third measure, the immediate fall in real wealth as a fraction of total wealth for a one point increase in inflation was calculated. In that measure, the sensitivity of the asset value to inflation depended on the maturity of the asset.

38. Smeeding mentions Medicaid, Veterans' Administration health coverage, and employer-subsidized health insurance as other sources of subsidy. According to Smeeding, the Medicare-only aged group generally is vulnerable to the risk of high medical

bills because that group is unlikely to have purchased adequate supplementary insurance.

39. Loss of a spouse usually changes measured needs, as well as Social Security benefits.

40. There is a substantial probability that the estimates of the amounts of assets held are underreported in the survey. Generally, a comparison between underreported asset values and cost amounts that were not underreported would bias upward the estimates of the number of units at risk.

41. Declining labor force participation produces increased leisure. The valuation of leisure is not discussed in this paper. Changes in the living arrangements of the aged can also affect estimated changes in income over time. If aged persons move from living with relatives to living alone, their measured economic well-being often falls.

42. The Personal Consumption Expenditure implicit price deflator from the National Income and Product Accounts was used to construct constant dollar estimates.

43. Changes in nominal interest rates can affect dollar amounts of interest income, even if real interest rates remain unchanged (Radner 1987b). Nominal interest rates include an inflation premium to offset the decline in the real value of the asset. Similar measurement problems arise for some other income types (Jump 1980).

44. In these estimates income was not adjusted for unit size or other differential needs.

45. Using the Survey of Consumer Finances, Kennickell and Shack-Marquez (1992) examined changes in net worth from 1983 to 1989. They found an increase in the constant dollar median for the 75 and older age group, but no significant change for the 65-74 age group. Estimates for age groups from the Survey of Consumer Finances also are subject to substantial sampling error.

46. Greenwood and Wolff also included in their analysis estimates for 1973 from a merged data set of income tax returns and census data to which wealth estimates had been imputed. Estimates from that data set would be expected to be less comparable with the survey data and therefore are not discussed here.

47. Although the use of medians is preferable, the ratio of median to mean income for aged households showed very little change.

48. Although a 50 percent increase in the threshold might appear to be extremely large, Ruggles (1990, table 3.2) showed one alternative threshold that was 68 percent above the official

threshold and one that was 54 percent above the official threshold.

49. The same adjustment for price change was used for all age groups. Aged and nonaged units generally have been found to face approximately the same rate of price increase (e.g., Bridges and Packard 1981).

50. Using similar estimates, the Congressional Budget Office (1988) found that from 1970 to 1986 the median real income of aged family units (adjusted using the poverty threshold equivalence scale) rose faster than the median income of any other age group.

51. The estimates shown here were derived from estimates prepared by CBO that appear on pages 1192, 1210, 1212, and 1213 of Committee on Ways and Means (1991).

52. Kennickell and Shack-Marquez (1992), using the Survey of Consumer Finances, found that, from 1983 to 1989, constant dollar median net worth of the 75 and older age group increased more (in percentage terms) than median net worth of all families. Median net worth of the 65-74 age group increased less than median net worth of all families.

53. The 1967 poverty rates shown here differ from the official 1967 rates published currently primarily because the rates shown here were computed using thresholds in effect at that time. The rates for 1967 published currently use revised thresholds. CPS person weights were used in computing the rates shown here for 1967 and 1990.

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