FAMILY INCOME, AGE, AND SIZE OF UNIT: SELECTED INTERNATIONAL COMPARISONS*

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Two aspects of the relationship between family unit income and the age of the head of the family unit are examined in this exploratory paper. First, in connection with the recent discussion in the U.S. about the "fair" level of income of the aged population, the economic well-being of various age of head groups is examined for the U.S., Canada, Norway, and Israel. Problems inherent in comparing income distributions across countries are described briefly, and the sensitivity of the estimates to definitional differences is discussed. Relative incomes of the different age groups are then compared within and between countries. Relative mean incomes, relative median incomes, relative mean incomes adjusted for size of unit in alternative ways, distributions of age groups among income quintiles, and relative income shares within age groups are compared. The focus is on aged units. It is found that, using these crude measures, aged units in the U.S. are roughly as well off relative to the other age groups as aged groups in the other countries examined. In the second section of the paper, a U.S. microdata file is reweighted to be consistent with the distributions by age of head of Norway and Canada. Relative income shares of quintiles are computed before and after reweighting and compared with the shares for Norway and Canada. The reweighting to Norway's age distribution increased differences in relative income shares between the two countries; the reweighting to Canada's age distribution slightly decreased differences.

I. INTRODUCTION

This exploratory paper examines the role of age in the distribution of family income in several countries. Unlike most papers which compare the distribution of income across countries, the primary concern in this paper is not with comparisons of the overall degree of inequality. Instead we are more interested in two aspects of the cross-section relationship between age and income. First, we are interested in the relative economic well-being of income recipient units in different age (of head) groups in several developed countries. In the U.S. in recent years, in connection with modifications to the social security system, there has been considerable discussion of the "fair" level of income of the aged population. That discussion has led us to a particular interest in the relative economic well-being of the aged population in other developed countries. Where the data allow, the aged (age 65 and over) group is split into 65–69 and 70 and over age groups as at least partial recognition that economic well-being can differ markedly among subgroups of the aged population.[1] This paper attempts an

*This paper was presented at the Eighteenth General Conference of the International Association for Research in Income and Wealth, Luxembourg, August 26, 1983. The author is greatly indebted to Sharon Johnson, who prepared the U.S. tabulations, to Gail Oja of Statistics Canada, who provided special tabulations for Canada, and to Benjamin Bridges and Gail Oja, who provided helpful comments. Any misinterpretations of the data or other errors are the sole responsibility of the author. Any views expressed are the author's and do not necessarily represent the position of the Social Security Administration.

[1]Other important characteristics such as labor force participation, sex, and the receipt of government retirement income could not be examined.

initial look at the very complex subject of the relative economic well-being of different age groups in several countries.

One factor in the economic well-being of age groups that is examined in this paper is adjustment for the size of the income recipient unit. Unit size differs considerably by age of head, and some adjustment for that factor is usually considered to be appropriate. Where the data allow, three different adjustments for size of unit are used.

The second aspect the paper will touch on is the effect of age on the size distribution of income for all units. That is, what role does a difference in the distribution by age of head play in overall differences in income inequality among countries? Differences in the age distributions of different countries perhaps can lead to differences in size distributions of income which do not reflect differences in economic well-being (in a lifetime sense). Two examples of standardization for differences in distributions by age of head are shown.

Recent international comparisons of income distributions include Sawyer (1976), Stark (1977), Wiles (1978), and van Ginneken (1982). Most international comparisons of distributions of income for developed countries do not include estimates of the relationship between age of head and income, although age distribution differences frequently are discussed as a source of differences in income inequality (e.g. Stark 1977). One paper (Sawyer 1976) included averages over six countries of the composition of income deciles by age of head, but comparisons among countries were not shown.[2]

Many international comparisons are either detailed examinations of a small number of countries or less detailed discussions of a larger number of countries. Time and resource constraints have limited this paper to a rather superficial examination of only a few countries. Except in the simplest cases we have not been able to manipulate the data to produce definitions and estimates that are more comparable across countries (see below). We also have not been able to identify and understand social and cultural differences among these countries that affect the interpretation of many of the differences among distributions of income. Instead, the data are presented with little or no analysis of underlying reasons for differences. The approach in general is to use the estimates as published, note the differences and problems, and make comparisons that can be made. We do not speculate about the direction of change in estimates if the definitions were made more comparable in specific ways. Thus, the first part of this paper is an early look at an international comparison of age-income patterns. Although we would have preferred to be able to make the data for different countries more comparable through extensive manipulation, the approach we are limited to can produce useful comparisons, as long as the limitations of those comparisons are kept in mind. Indeed, even large amounts of resources and

[2]Sawyer stated that the variation in the distributions among the countries averaged was not substantial. Sawyer also included a table that was restricted to units with heads aged 25–54 in order to eliminate much of the variation in income due to age of head. Another table included by Sawyer contained distributions of income standardized for size of household; because of the relationship between household size and age of head, this standardization served as a partial adjustment for age of head differences. Kuznets (1976) showed and discussed in detail relationships between income and age of head for the U.S., Israel, Taiwan, and the Philippines, including adjustment for size of unit.

extensive manipulation cannot produce fully comparable definitions and estimates in most cases.

In this paper the comparisons are limited to the United States, Canada, Norway, and Israel. The scope was limited to developed countries that presented their income distribution data either in English or with an English summary. In addition, data for a recent year had to be available and the definitions used had to be reasonably close to the definitions available for the U.S.[3] Because time available to search for and understand the data for different countries was limited, we confined our comparisons to four countries whose data proved to be relatively easy to obtain. In this paper we usually compare the U.S. estimates to the estimates for the other three countries.

Problems in the International Comparison of Income Distributions

It is no secret that the international comparison of size distributions of income is beset by many difficulties.[4] Although a full discussion of these problems will not be presented here, several problems that are relevant for this paper will be mentioned. The first type of problem concerns differences in definitions across countries; five definitional differences will be mentioned.

(a) In many cases the definitions of income used differ substantially across countries. Noncash income, tax liabilities, various deductions, and capital gains are important areas in which the treatment differs from country to country. For example, the U.S. income data used here exclude all noncash income and capital gains and are before deductions, while the data for Norway include some noncash income and at least some capital gains, and are after some deductions. Where possible we use cash income before taxes and deductions as the definition. (This choice was made for pragmatic reasons, not because that definition was considered to be the most appropriate for the analysis of economic well-being.) Differences in the definition of income are an important source of lack of comparability in the estimates presented in this paper.

(b) The definition of the income recipient unit is another important source of difference across countries. In this paper we use family units as the income recipient units wherever possible, but households are also used. Of course, units can be defined using many different criteria. For example, Norway uses surname as one element in the definition of households, while the U.S. uses relation by blood, marriage or adoption in its definition of a family. Differences in these definitions do not appear to be of great importance in the estimates presented in this paper. In some cases in this paper the term "family unit" will be used to refer to both family units and households.

(c) In this paper we are interested in classifying recipient units according to the age of some reference person in the unit. The choice of the person in the unit whose age is used for classification varies across countries. For example, in the U.S. data the age of the "householder" is used; in general the householder is the person in whose name the home is owned or rented. In the data for Norway,

[3]United Nations Statistical Office (1981) was used as a guide in the selection process.

[4]For example, see Lydall (1979) for a discussion of these problems.

the age of the person with the most income is used. Differences in these definitions do not appear to be of great importance in the estimates presented in this paper. The term "head" will be used to cover all different definitions.

(d) The coverage of the population is also a frequent and important source of difference. The institutional population usually is excluded from the estimates, but other groups can be omitted also. For example, the estimates for Israel used here exclude rural households and appear to exclude urban households headed by self-employed persons. With the exception of the estimates for Israel, this does not appear to be an important factor here.

(e) The time dimension of the estimates can also be a factor; both the accounting period and the time period are included under this heading. All of these countries use income estimates for a year, so the accounting period was not a problem. However, estimates were not available for the same year, since different countries have different lags in the availability of a given year's estimates, and some countries do not produce annual estimates. Where there are relatively rapid changes in the distribution (e.g. as a result of cyclical factors), differences in time period can be important. Another timing problem concerns inconsistency between the date at which the unit is defined and the income time period; this problem is referred to as the "new household" problem by Wiles (1978). The sensitivity of the estimates to definitional differences (a), (b), and (e) mentioned above will be discussed in the next section.

A second type of problem is that the accuracy of the data can differ substantially among countries. This is a particular problem for income data. Some estimates are based on household responses to surveys which can vary greatly in accuracy. Other estimates use tax return data, which also can be of questionable accuracy. In one case mentioned later, estimates were constructed by combining several sources of data to produce more reliable estimates. These difficulties can produce differential biases of various types which can lead to misleading conclusions about international comparisons. Data on age can also vary in accuracy among countries. Such inaccuracies would be a particular problem for this paper. The sensitivity of the estimates to differences in the accuracy of the income data will also be mentioned in the next section.

Another set of problems involving interpretation of the estimates should be mentioned. Even if we had identical definitions (and comparable accuracy) for all of the countries being compared, if one or more of the definitions diverged from the ideal definition for the specific analysis being performed, then substantial biases could result. For example, we might find that the relative distribution of regularly received cash income of family units is very similar in two countries, but changing the definition to include noncash income and to exclude taxes might produce quite different relative distributions in the two countries. Thus, if a comprehensive definition of income including both cash and noncash income after tax is desired for a specific analysis, as it is for the comparison of economic well-being, in this case the comparison of cash income would be misleading even though the definitions are identical in the two countries.

Of course, this is not to say that efforts toward comparability are inappropriate; in fact, such efforts are very important. In this paper we attempt to make the estimates as comparable as possible across countries, given our severe resource

constraints. We did not attempt any adjustments to increase the accuracy of the estimates.

Plan of the Paper

In section II we discuss the relationship between the age of the reference person in the unit and the income of the unit for the four countries. The sensitivity of this relationship to different definitions and to an adjustment for increased accuracy is discussed briefly. Then several different methods of adjusting for the size of the unit are applied and the changes produced are noted. In section III we examine changes in the relative distribution of income produced by adjusting the distributions by age of head to be the same. Section IV contains a summary and conclusions. Appendix A describes the definitions used in the various countries and Appendix B identifies the sources of data used in the tables.

II. Income of Age of Head Groups

In this section the cross-section patterns of income by age of head are examined for the four countries. Although we might prefer to use the age of the person and income (appropriately defined) on a person basis, data limitations force us to use family unit or household income and the age of the head of the unit.[5] In this paper we use six basic age of head groups and a more detailed

TABLE 1
Percentage Distribution of Units by Age of Head

Age of Head	United States 1980	Canada 1979	Norway 1979	Israel 1981
Under 25	9.7	10.4	7.2	4.7
25-34	23.8	24.4	21.1	27.1
35-44	17.1	18.1	14.8	16.4
45-54	14.9	16.1	14.2	14.5
55-64	14.9	13.9	15.9	14.9
65 and over	19.6	17.1	26.8	22.4
65-69	6.6	6.1	8.0	N.A.
70 and over	13.1	10.9	18.8	N.A.
All Ages	100.0	100.0	100.0	100.0

N.A.: Not Available.
Sources: See Appendix B.

breakdown of the oldest of the six groups (see Table 1). The distribution by age of head varies considerably among these countries. Norway has a significantly higher percentage of units in the 65 and over age group than the other countries; Norway's percentage in the 70 and over age group is about the same as the

[5]Cash income received by the person (e.g. as shown in U.S. Bureau of the Census 1982a) is not an appropriate concept because sharing of income among members of a family is not taken into account. A set of estimates for the U.S. using the age of the person appears in Table 9.

percentage in the 65 and over age group in the U.S. and Canada. Israel has the lowest percentage in the under 25 age group. In general these differences appear to reflect differences in the age distributions of persons, rather than differences in living arrangements or definitions of the head of the unit.[6] We will return to the question of the different age of head distributions across countries in the next section.

While it might be expected that in very broad terms the relationship between age of head and income would be similar across countries because of the usual patterns of labor force entrance and retirement and the importance of earnings, differences might be expected for aged groups. The income of those groups would be expected to be particularly sensitive to such factors as the definition of income used (e.g. all definitions include earnings, but the treatment of various types of retirement income can differ), the generosity of government retirement income programs, and the customary retirement age. Of course, other factors such as the usual pattern of living arrangements for aged persons (e.g. living alone vs. living with their children) can also have a significant impact.

Table 2 shows cross-section relative mean incomes for age of head groups for the four countries. In this paper a variant of the usual relative mean income is used; this variant gives equal weight to each age group and thus avoids problems produced by differing age of head distributions across countries.[7] We can see that the pattern is quite similar across all the countries shown. The peak income is in the 45-54 age group, the 35-44 age group is next highest, followed by either the 25-34 or 55-64 age group. The two extreme age groups are always the two lowest in income. For each country mean income rises from the youngest age group to the peak income age group, then declines with increasing ages (including the more detailed aged groups available for three of the countries). Some differences are present, however. For the U.S. the mean for the age 65 and over group is above the mean for the under 25 age group; for the other three countries, it below. The U.S. peak relative mean (1.39) is the highest of the four countries, while Israel's lowest relative mean (0.48) is the lowest.[8] If the ratio of high to low relative means within a country is taken as a crude measure of income

[6]For example, in Norway 15 percent of persons are age 65 and over (Central Bureau of Statistics 1982b, Table 11), while in the U.S. only 11 percent are in that age group (U.S. Bureau of the Census 1982b, Table 31). The percentage of households in the age 65 and over group in Israel is somewhat higher than would be expected from population estimates; perhaps the incomplete coverage of the population is a factor here.

[7]The usual relative mean income is the mean income of the specific age group divided by the mean for all units. However, this measure is affected by the age of head distribution in the population; that is, the mean for all units is not independent of the age of head distribution. In this paper a standardized age of head distribution is used in the computation of relative means. Instead of the mean for all units we use the unweighted mean of the means for the six basic age of head groups; in effect, each of the six age of head groups is given equal weight. The mean for the age group is divided by that unweighted mean to produce the relative mean income used in this paper. These two relative means can produce somewhat different results in some cases; although the ratios of means of age of head groups within a given country are unaffected by the choice of relative mean, the levels can be affected. Relative means for the age 65 and over group computed using the usual method are: U.S., 0.62; Canada, 0.56; Norway, 0.56; Israel, 0.47.

[8]The relative mean for the 65 and over group in Israel appears to be unstable. For households in which the head was employed, the relative mean income of that age group fell about 10 percent between 1980 and 1981.

TABLE 2

RELATIVE MEAN INCOME BY AGE OF HEAD

Age of Head	United States 1980	Canada 1979	Norway 1979	Israel 1981
Under 25	0.57	0.63	0.75	0.69
25-34	0.97	1.07	0.99	1.14
35-44	1.28	1.29	1.24	1.30
45-54	1.39	1.34	1.31	1.33
55-64	1.17	1.09	1.17	1.05
65 and over	0.63	0.57	0.53	0.48
65-69	0.78	0.69	0.77	N.A.
70 and over	0.56	0.51	0.43	N.A.
All Ages	1.00	1.00	1.00	1.00

N.A.: Not Available.
Sources: See Appendix B.

dispersion among age groups within that country, then Norway, the U.S., and Canada show similar dispersion and Israel shows slightly more dispersion.[9]

The U.S. relative mean for the 65 and over age group is the highest of the relative means for the four countries. The U.S. relative means for the 65-69 and 70 and over age groups are above the corresponding values for Canada; the U.S. 65-69 age group value is about the same as the value for Norway, but the U.S. 70 and over age group value is substantially above the value for Norway, which is particularly low. Thus, Norway shows a different relationship between the relative means of the two aged groups than the U.S. and Canada do.

It is useful to compare the age 65 and over group with the age group nearest in age, the 55-64 age group. The U.S. mean for the 65 and over age group is 54 percent of the mean for the 55-64 age group; the corresponding values for Canada, Norway, and Israel are 52 percent, 45 percent, and 46 percent, respectively.

Sensitivity of Relative Means to Definitions and Accuracy of Data

We have mentioned that definitional differences and differential accuracy of the data can make it very difficult to make meaningful international comparisons. We will now try to give some idea of the sensitivity of the relationship between age of head and income to those differences. Alternative definitions of income were examined for Israel and Norway. The basic definition of income that we are using for Israel is gross money income before tax; the alternative definition available is net money income, which is gross money income after deduction of obligatory payments (income tax and national insurance contributions) (Table

[9]Data for the United Kingdom show roughly the same pattern as the other countries examined here. The relative means for the U.K. are—Under 25: 0.85; 25-34: 1.05; 35-44: 1.21; 45-54: 1.40; 55-64: 1.00; 65 and over: 0.50. These data are based on 1981 total household money income before taxes from the Family Expenditure Survey. Because these estimates could not be adjusted for size of household, data for the U.K. are not shown in the text of the paper.

3, Columns 1 and 2).[10] In moving from gross income to net income, the oldest age group shows an increase in relative mean income of roughly 20 percent, the youngest shows an increase of about 10 percent, and the middle age groups show smaller declines. The basic definition for Norway is net income (i.e. income after several types of deductions); the alternative definition is a crude measure of gross income (Table 3, Columns 3 and 4).[11] The differences are very small, with small increases in the 25-44 age groups and a small decrease in the 55-64 age group. In both cases the general pattern by age of head is not altered.

TABLE 3

SENSITIVITY OF RELATIVE MEAN INCOME TO DEFINITIONS AND ADJUSTMENT OF INCOME DATA

	Israel 1981		Norway 1979	
Age of Head	Gross Income (1)	Net Income (2)	Net of Deductions (3)	Gross of Deductions (4)
Under 25	0.69	0.76	0.75	0.75
25-34	1.14	1.12	0.99	1.03
35-44	1.30	1.24	1.24	1.27
45-54	1.33	1.26	1.31	1.30
55-64	1.05	1.04	1.17	1.13
65 and over	0.48	0.58	0.53	0.52
All ages	1.00	1.00	1.00	1.00

	United States			
Age of Head	1980 Family Units (5)	1980 Households (6)	1981 Family Units (7)	1980 Family Units Income Adjusted (8)
Under 25	0.57	0.68	0.55	0.48
25-34	0.97	0.99	0.96	0.87
35-44	1.28	1.25	1.28	1.23
45-54	1.39	1.35	1.38	1.39
55-64	1.17	1.13	1.18	1.23
65 and over	0.63	0.60	0.66	0.80
All Ages	1.00	1.00	1.00	1.00

Sources: See Appendix B.

Next we will illustrate the impact of differences in the definition of the recipient unit, using U.S. data for 1980. The relative means for family units (the units used in this paper) and for households are shown in Columns 5 and 6 of Table 3. A household consists of all persons who occupy a housing unit. Unrelated persons in a household would be counted as separate family units. This fairly minor difference in the definition of the recipient unit has a substantial impact on the relative mean of the youngest age group; the shift to the household

[10]See Appendix A for definitions of gross income and net income.

[11]See Appendix A for definitions of net income and gross income.

definition produces an increase of almost 20 percent for that age group. Changes for the other age groups are smaller, with the older age groups showing decreases.

Next we turn to the year of the estimate and compare the U.S. estimates (for family units) for 1980 and 1981 (Columns 5 and 7 of Table 3). Differences are slight, although for the oldest group the difference is the same size as the family unit-household difference. This 1980–81 comparison does not compare a cyclical trough and peak, but gives some idea of the magnitude of year-to-year variation (in the U.S. data).

The effects of adjusting the U.S. data for errors in the income estimates are suggested by comparing Columns 5 and 8 of Table 3. The estimates in Column 8 were constructed by applying adjustment factors developed by combining several sources of data to produce "better" estimates (Radner 1982). Those adjustment factors differed substantially by age of head. The differences produced by this adjustment are quite large with the oldest group increasing the most (27 percent) and the youngest group decreasing the most (16 percent). Those differences are the largest of any of the factors examined.

It should be emphasized that the comparisons shown in Table 3 are merely examples of the sensitivity of the estimates to various factors. Using other comparisons (e.g. population coverage) or data for other countries, similar comparisons could produce larger differences. But these comparisons do give some indication of the magnitudes of the differences, and the comparisons among countries shown in this paper should be looked at with these magnitudes in mind.

Distributional Characteristics

Of course, mean incomes (and relative mean incomes) do not tell us very much about the distributions of income for age of head groups. Median incomes for age of head groups are also available for three of the countries. The general pattern of relative medians (computed analogously to the relative means shown in Table 2) is quite similar to the pattern of relative means (Table 4). However, one difference should be mentioned. For every country the relative median for

TABLE 4

RELATIVE MEDIAN INCOME BY AGE OF HEAD

Age of Head	United States 1980	Canada 1979	Norway 1979
Under 25	0.56	0.62	0.69
25-34	1.04	1.15	1.04
35-44	1.34	1.34	1.31
45-54	1.43	1.39	1.37
55-64	1.12	1.04	1.16
65 and over	0.50	0.45	0.43
65-69	0.65	0.56	0.67
70 and over	0.44	0.41	0.37
All Ages	1.00	1.00	1.00

Sources: See Appendix B.

each aged group (65 and over, 65-69, 70 and over) is substantially below the relative mean for that age group. This difference was expected because the ratio of mean to median income is highest for the aged groups in every country shown (Table 5). This ratio is a crude measure of the amount of dispersion in the distribution of income for the age group. This ratio follows a similar pattern for all of the countries shown.

TABLE 5
RATIO OF MEAN TO MEDIAN INCOME BY AGE OF HEAD

Age of Head	United States 1980	Canada 1979	Norway 1979
Under 25	1.16	1.15	1.21
25-34	1.08	1.05	1.07
35-44	1.08	1.08	1.06
45-54	1.10	1.09	1.07
55-64	1.18	1.17	1.13
65 and over	1.45	1.43	1.39
65-69	1.38	1.38	1.30
70 and over	1.45	1.41	1.32
All Ages	1.21	1.14	1.14

Sources: See Appendix B.

Another way of comparing the distribution of income of different age of head groups across countries is to examine the distribution of each age of head group across the quintiles of income for all units. Table 6 shows these distributions for three countries (slightly different age groups are used for Norway). Looking first at the aged groups, differences in the distributions for the 70 and over age group can be seen among the U.S., Canada, and Norway. For the U.S., 73 percent of that age group is in the bottom two quintiles, while the corresponding percentage is 80 for Canada and 87 for Norway. These differences are consistent with both the relative means and the relative medians, which showed the U.S. with the highest value, Canada next, and Norway with the lowest value for the 70 and over age group.

The 65-69 age group shows Canada with the largest percentage in the bottom two quintiles (66 percent), with the U.S. and Norway about even (56 and 57 percent respectively). Norway shows a surprisingly high percentage of the youngest age group in the top quintile; perhaps this was partially due to the crude estimation methods used in this paper to obtain these estimates for Norway.

Another important aspect of the distribution of income by age of head is the relative distribution within each age of head group. These relative shares are independent of the mean incomes of the different age groups, unlike the distributions among quintiles that appear in Table 6. The relative shares are available for the U.S. and Norway, for slightly different age of head groupings (Table 7). The U.S. and Norway show the same general pattern: as we move from the youngest to the oldest age group the relative distribution first becomes more

TABLE 6

PERCENTAGE DISTRIBUTION OF EACH AGE OF HEAD GROUP AMONG INCOME QUINTILES

Age of Head	Quintiles 1	2	3	4	5	Total
			UNITED STATES			
Under 25	34	31	21	11	3	100
25-34	14	19	26	26	15	100
35-44	10	13	19	27	31	100
45-54	11	13	17	23	37	100
55-64	17	17	19	21	26	100
65-69	29	27	20	13	11	100
70 and over	44	29	14	7	5	100
			CANADA			
Under 25	34	31	20	11	4	100
25-34	11	19	25	27	18	100
35-44	8	14	22	27	30	100
45-54	11	13	19	23	35	100
55-64	20	19	20	18	24	100
65-69	37	29	15	10	8	100
70 and over	51	29	10	5	4	100
			NORWAY[a]			
Under 25	27	29	20	13	12	100
25-34	10	17	31	25	17	100
35-39	5	11	24	33	26	100
40-49	6	9	20	30	36	100
50-59	10	12	19	25	35	100
60-64	17	18	22	20	23	100
65-69	26	31	17	14	12	100
70 and over	53	34	7	4	2	100

[a]Estimated.

Sources: See Appendix B.

TABLE 7

RELATIVE INCOME SHARES WITHIN AGE OF HEAD GROUPS

Age of Head	Quintiles 1	2	3	4	5	Total
			UNITED STATES			
Under 25	3.6	10.7	17.2	25.4	43.2	100.0
25-34	5.2	12.6	18.5	25.0	38.7	100.0
35-44	5.1	12.5	18.5	25.0	38.9	100.0
45-54	4.5	11.7	18.2	25.6	40.1	100.0
55-64	3.7	10.1	16.9	25.3	44.0	100.0
65 and over	5.1	8.8	13.9	22.1	50.1	100.0
			NORWAY			
Under 25	3.8	10.6	16.8	23.9	44.9	100.0
25-39	7.4	14.8	18.9	24.1	34.8	100.0
40-59	6.5	13.5	18.7	24.1	37.2	100.0
60-66	5.0	11.0	17.4	24.3	42.3	100.0
67 and over	7.8	10.4	14.6	21.1	46.2	100.0

Sources: See Appendix B.

equal, then less equal until the oldest age group.[12] The Lorenz curve for the oldest age group crosses the Lorenz curve for the next oldest; the oldest age group has larger shares for both the top and bottom quintiles. When we look at the shares of the top quintile, we find that, except for the youngest age group, the U.S. shares exceed the shares for Norway; the difference is substantial in the oldest age group. Looking at the shares of the bottom quintile, the shares for Norway exceed the U.S. shares for every age group; again the difference is substantial for the oldest age group. We can see from this table that the income of the aged is distributed more equally in Norway than in the U.S.

Adjustment of Relative Means for Size of Unit

Since we are interested in the economic well-being of units in different age of head groups, some adjustment for size of unit is needed because typically size of unit varies with age of head. The usual procedure, which will be followed here, is to use income per person.[13] Two alternative adjustments will be shown where the data allow.

Mean persons per unit for age of head groups are shown in Table 8. The typical pattern is for a peak in the 35-44 age group with low values for the extreme age groups; an exception is the youngest age group for Israel, which has a relatively high value. It should be noted that in general the peak for mean persons per unit occurs one age group below the peak for mean income. Overall, units are larger in Israel than in the other three countries.

TABLE 8

PERSONS PER UNIT BY AGE OF HEAD

Age of Head	United States 1980	Canada 1979	Norway 1979	Israel 1981
Under 25	1.8	1.6	2.1	3.3
25-34	2.7	2.8	2.9	3.7
35-44	3.5	3.7	3.6	4.8
45-54	3.2	3.3	3.0	4.2
55-64	2.3	2.4	2.3	2.7
65 and over	1.7	1.7	1.5	1.7
65-69	1.9	1.9	1.7	N.A.
70 and over	1.6	1.6	1.4	N.A.
All Ages	2.6	2.6	2.5	3.3

N.A.: Not Available.
Sources: See Appendix B.

[12]In this paper a distribution is considered to be more (less) equal than a second distribution if the Lorenz curve for the first distribution lies inside (outside) the Lorenz curve for the second distribution, with no intersection. If there is an intersection, the comparison is considered to be ambiguous.

[13]Datta and Meerman (1980) show and discuss the relationship between income and age of head for Malaysia using both household income and household per capita income.

TABLE 9

RELATIVE MEAN INCOME PER PERSON BY AGE OF HEAD

Age of Head	United States 1980	Canada 1979	Norway 1979	Israel 1981	United States 1980 (Person Basis)[a]
Under 25	0.81	1.05	0.91	0.70	0.70
25-34	0.93	0.99	0.87	1.04	1.02
35-44	0.93	0.89	0.88	0.91	0.99
45-54	1.11	1.04	1.10	1.07	1.18
55-64	1.29	1.16	1.31	1.31	1.24
65 and over	0.94	0.87	0.92	0.95	0.88
65-69	1.04	0.95	1.18	N.A.	0.97
70 and over	0.88	0.82	0.79	N.A.	0.83
All Ages	1.00	1.00	1.00	1.00	1.00

[a]Observations were classified according to the age of the person.
N.A.: Not Available.
Sources: See Appendix B.

Relative mean incomes per person are shown in Table 9. Mean income per person is obtained by dividing aggregate income in the age of head group by the number of persons in that group. As would be expected, the patterns differ from those for relative mean incomes per unit. The pattern is generally similar for all four countries. Relative mean income per person peaks in the 55-64 age group, but the pattern is not the smooth inverted "U" exhibited by the relative means per unit. For the U.S. and Norway, the 65 and over age group ranks third in relative mean, for Israel that age group ranks fourth, while for Canada it ranks sixth. The peak relative mean is highest for Norway and Israel (1.31), while Israel's lowest relative mean (0.70) is the lowest. Using our crude measure of dispersion among age groups, Israel shows the most dispersion, the U.S. and Norway show somewhat less, and Canada shows the least dispersion.

The U.S. relative mean for the 65 and over age group is about the same as the relative means for Israel and Norway, with Canada slightly lower. The U.S. relative mean for the 65-69 age group is below Norway's relative mean and above Canada's; for the 70 and over age group the U.S. relative mean is above the relative means of the other two countries. The U.S. mean for the age 65 and over group is 73 percent of the mean for the 55-64 age group; the corresponding values for Canada, Norway, and Israel are 75 percent, 70 percent, and 73 percent, respectively.

Compared to relative means per unit (Table 2), the relative means per person are higher for the aged groups in all the countries, relative to the mean for all units and relative to the values for the next oldest age group.

It will be useful to digress briefly at this point and discuss one more example of sensitivity of the estimates. Table 9 also shows relative mean income per person for the U.S. on a person basis in addition to the estimates on a family unit basis. The person-basis estimates were obtained by assigning each person in each family unit the per capita income of that family unit; persons were then classified by their own age, rather than by the age of the head. The general pattern of the

person-basis estimates is similar to that of the unit-basis estimates, but there are some relatively small differences; the estimates for the aged groups are about six percent below the family unit estimates. This example should give some idea of the magnitudes involved in shifting from a family-unit basis to a person basis, at least using a simple method.[14]

Where the available data allow, two other methods of adjustment for size of unit are used. It will be shown that the method of adjustment chosen does affect the relationship among mean incomes of age of head groups. We have already used the usual per person adjustment. Next, we will use what will be called "equivalent adults." In this adjustment each adult is counted as 1.0 and each child is counted as 0.5. This scaling represents a crude adjustment for the lower "needs" of children compared to adults. Because children are much more numerous in certain age of head groups, this adjustment will have a differential impact on the adjusted incomes of different age of head groups relative to the per person adjustment. Finally, we use what will be called "standard persons"; in this adjustment economies of scale associated with household size are taken into account. The scale used here is derived from the scale used in the presentation of Israel's income statistics (Central Bureau of Statistics 1982, Table I). This scale is just one example of the scales that exist, and we make no claim that this scale is better than any other.[15] Of course, the distribution of households by size varies with age of head so there will be a differential adjustment relative to the per person adjustment. It should be clear that the equivalent adult and standard person adjustments are closely related, although there will be substantial differences for some type of households.

Table 10 shows the three different adjustments used for several examples of types of households. Comparing the one adult and two adult plus three children types of households, we see that the per person adjustment assumes that the five-person household has five times the "need" of the one-person household. The equivalent adult adjustment assumes a ratio of "need" of only 3.5, while the standard person adjustment uses a ratio of "need" of only 3.0. Thus in the standard person adjustment larger households have their income adjusted downward substantially less than in the per person adjustment. This means that, *ceteris paribus*, age of head groups with relatively large numbers of larger households will have their mean incomes adjusted downward relatively less using the standard person adjustment than using the per person adjustment.

Unfortunately, data on equivalent adults and standard persons were available only for the U.S. and Canada among the countries considered here. The mean number of equivalent adults per unit for each age of head group is shown in

[14]Recipient unit problems are discussed in detail in Danziger and Taussig (1979).

[15]This scale apparently was based on earlier consumption data for Israel (Kuznets 1976, p. 31). In this paper the scale was applied to family units. Although it might have been preferable to use scales estimated specifically for each country, such a procedure was not feasible. The scales would need to be estimated using similar techniques and similar data in the different countries. For example, it would not be appropriate to use a scale for one country that was estimated using a method that usually produced "steep" scales, while for another country using a scale estimated using a method that usually produced "flat" scales. Constant utility equivalence scales that varied with age of head were used for the U.S. by van der Gaag and Smolensky (1982); the scale used in this paper does not vary with age of head. See Nicholson (1976) for a discussion of equivalence scales.

TABLE 10

THREE METHODS OF ADJUSTMENT FOR SIZE OF UNIT

Type of Unit	Per Person Scale	Equivalent Adult Scale	Standard Person Scale[a]
1 Adult	1	1.0	1.00
1 Adult & 1 Child	2	1.5	1.60
2 Adults	2	2.0	1.60
2 Adults & 1 Child	3	2.5	2.12
2 Adults & 2 Children	4	3.0	2.56
2 Adults & 3 Children	5	3.5	3.00[b]

[a]The scale that appears in the income statistics for Israel was modified to make one-person households the base with a value of 1.00. The original scale used 2-person households as the base with a value of 2.00. For the U.S., values used for larger units were: 6 persons, 3.40; 7 persons, 3.80; 8 persons or more, 4.56.

[b]For Canada a value of 3.40 was used for units of 5 persons or more.

Table 11 for those two countries. The peak occurs in the 35-54 age groups, and declines relative to the persons per unit distribution are largest for the 25-44 age groups. As would be expected, there is little difference between the persons per unit and equivalent adults per unit estimates for aged units. Standard persons per unit also appear in Table 11. The peak for this distribution is in the 35-44 age group, and the extremes of the age distribution again have the smallest means.

TABLE 11

EQUIVALENT ADULTS AND STANDARD PERSONS PER UNIT BY AGE OF HEAD

	Equivalent Adults		Standard Persons	
Age of Head	United States 1980	Canada 1979	United States 1980	Canada 1979
Under 25	1.6	1.5	1.4	1.3
25-34	2.1	2.3	1.9	2.0
35-44	2.7	3.0	2.3	2.4
45-54	2.8	3.0	2.1	2.2
55-64	2.2	2.3	1.7	1.8
65 and over	1.7	1.7	1.4	1.4
65-69	1.9	1.8	1.5	1.5
70 and over	1.6	1.6	1.3	1.3
All ages	2.2	2.3	1.8	1.9

Sources: See Appendix B.

Relative mean incomes per equivalent adult and relative mean incomes per standard person are shown in Table 12. Both U.S. distributions are smooth inverted (skewed) "U's" with peaks in the 55-64 age group. The equivalent adult distribution for Canada peaks in the 25-34 age group, with the 55-64 age group almost as high. The general pattern for the equivalent adult distribution for

TABLE 12

RELATIVE MEAN INCOME PER EQUIVALENT ADULT AND PER STANDARD PERSON BY AGE OF HEAD

	Per Equivalent Adult		Per Standard Person	
Age of Head	United States 1980	Canada 1979	United States 1980	Canada 1979
Under 25	0.80	1.00	0.73	0.91
25-34	1.02	1.10	0.94	1.02
35-44	1.05	1.00	1.03	1.00
45-54	1.11	1.03	1.21	1.14
55-64	1.19	1.08	1.27	1.16
65 and over	0.84	0.79	0.83	0.78
65-69	0.92	0.86	0.95	0.87
70 and over	0.78	0.74	0.76	0.72
All Ages	1.00	1.00	1.00	1.00

Sources: See Appendix B.

Canada is little different among the youngest five age groups, with the 65 and over age group substantially lower. The standard person distribution for Canada shows a different pattern, with a peak in the 55-64 age group and more dispersion than in the equivalent adult distribution for Canada. In both types of distributions the values for Canada's younger age groups are higher than the corresponding U.S. values.

Of these four distributions, the U.S. standard person peak is the highest (1.27); the U.S. standard person distribution also has the lowest relative mean (0.73). Our crude measure of dispersion among age groups shows the highest dispersion in the U.S. standard person distribution, and the lowest dispersion for Canada's equivalent adult distribution.

For the 65 and over, 65-69, and 70 and over age groups the U.S. relative means are slightly above the relative means for Canada. The U.S. mean for the age 65 and over group is 71 percent of the mean for the 55-64 age group in the equivalent adult distribution and 65 percent in the standard person distribution. For Canada the corresponding values are 73 percent and 67 percent, respectively. Compared to the mean income per person distributions for those countries (Table 9), as expected aged units show somewhat lower relative means in these two distributions, relative to the means for all units and relative to the values for the 55-64 age group.

III. EFFECTS ON THE RELATIVE DISTRIBUTION OF INCOME

In order to examine the effect of different age of head distributions on the relative distributions for all units, a simple "mechanical" exercise was performed. The U.S. microdata file (March 1981 Current Population Survey) was reweighted to produce the age of head distributions of two other countries. Then the U.S. relative income shares of family unit income were compared before and after reweighting with the relative income shares for the other country.

The first comparison was with Norway. The U.S. observations were reweighted using the following 11 age of head groups that appear in the data for Norway: under 20, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60-64, 65-66, 67-69 and 70 and over. The factors applied to the U.S. sample weights ranged from a low of 0.729 for the 20-24 age group to a high of 1.435 for the 70 and over age group (Appendix B). It should be noted that this reweighting did not change the relative income shares within any age group and did not change the ratio of mean incomes of any U.S. age groups. Thus, the relative mean incomes shown earlier would be unchanged. U.S. quintile shares before and after adjustment are shown in Table 13, along with the shares for Norway. The adjustment produced no substantial change in the bottom and fourth quintiles, declines in the second and third quintiles, and a substantial increase in the share of the top quintile. The shifts widened the existing differences between the shares for the U.S. and Norway; the shares for Norway were already higher for the second and third quintiles and lower for the top quintile. The Gini concentration ratio rose slightly after reweighting from 0.402 to 0.411 (there was a Lorenz curve intersection), far above the value of 0.369 for Norway.[16] Thus, standardizing in a crude way for the age of head distribution magnified the differences in relative shares between the U.S. and Norway.

TABLE 13

RELATIVE INCOME SHARES BEFORE AND AFTER ADJUSTMENT OF AGE DISTRIBUTIONS

	United States 1980				
Quintiles	Original	Adjusted to Norway's Age Distribution	Adjusted to Canada's Age Distribution	Norway 1979	Canada 1979
1	3.9	3.8	3.9	4.6	4.2
2	9.9	9.5	10.0	10.7	10.6
3	16.7	16.3	16.8	17.8	17.6
4	25.3	25.3	25.3	25.3	25.3
5	44.3	45.1	44.0	41.6	42.3
TOTAL	100.0	100.0	100.0	100.0	100.0

Sources: See Appendix B.

The U.S. observations were also reweighted to produce the age of head distribution for Canada using the seven age groups that appear in the published data for Canada: under 25, 25-34, 35-44, 45-54, 55-64, 65-69, and 70 and over. The factors applied ranged from a low of 0.837 for the 70 and over group to a high of 1.078 for the under 25 and 45-54 age groups. This adjustment was the "opposite" of the adjustment for Norway; in this case the number of aged units was decreased and the number of young units was increased. As might be expected, the change in relative shares produced by the reweighting in general is opposite

[16]These income shares were actually compared at a decile level; the adjusted U.S. distribution showed a very small increase in the share of the bottom decile compared to the unadjusted distribution, thus producing the Lorenz curve intersection.

in sign and smaller in magnitude than was produced by the adjustment for Norway. The shares of the second and third quintiles rose slightly and the share of the top quintile fell; the Gini concentration ratio fell slightly from 0.402 to 0.399 (again there was a Lorenz curve intersection).[17] The movement brought the U.S. relative shares slightly closer to the shares for Canada. These two examples suggest that adjustments to make age of head distributions the same can make some difference and can affect comparisons of relative distributions.

IV. Summary and Conclusions

Two aspects of the relationship between family unit income and the age of the head of the family unit were examined in this exploratory paper. First, in the U.S. in recent years there has been considerable discussion of the "fair" level of income of the aged population as part of the debate about modifications to the social security system. In connection with that discussion, the economic well-being of various age of head groups was examined in a crude way for the United States, Canada, Norway, and Israel. Problems inherent in comparing income distributions across countries were described briefly, and the sensitivity of the estimates to definitional differences was discussed. Relative incomes of the different age of head groups were compared within and between countries. The focus of this first section of the paper was on the relative income of aged units (age 65 and over). It was found that, using crude measures, aged units in the U.S. were roughly as well off relative to the other age groups as aged groups in the other countries examined.

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 63 percent of the mean for all units; the other countries ranged from 48 percent (Israel) to 57 percent (Canada) (Table 14). When relative median incomes were used, the U.S. value was 50 percent of the median for all units; Canada showed 45 percent and Norway showed 43 percent. Relative mean incomes per person for the U.S. showed the age 65 and over group with 94 percent of the mean for all units, about the same as the 95 percent shown by Israel and the 92 percent for Norway, but slightly above the 87 percent for Canada. More detailed adjustments for size of unit produced slightly lower relative means for the U.S. (84 percent using the equivalent adult adjustment, 83 percent using the standard person adjustment) and Canada (79 percent and 78 percent respectively). Results for the age 70 and over group showed a similar pattern, but in every case the relative income was below the corresponding estimate for the 65 and over age group.

When the 65 and over age group was compared to the 55-64 group, the U.S. and Canada showed very similar values for all income measures (Table 14). For that group, 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 group, the estimates for Norway were below those for the U.S. and Canada. When dispersion of income within age of head groups was examined, for aged units income was distributed less equally in the U.S.

[17]The Lorenz curve intersection appears when decile shares are examined; the share of the bottom quintile fell slightly after adjustment, thus producing the intersection.

TABLE 14

SUMMARY OF RELATIVE INCOMES FOR AGED GROUPS

Income Measure	Head Age 65 and over				Head Age 70 and over		
	United States 1980	Canada 1979	Norway 1979	Israel 1981	United States 1980	Canada 1979	Norway 1979
Aged Group Relative to All Ages							
Mean Income Per Unit	0.63	0.57	0.53	0.48	0.56	0.51	0.43
Median Income Per Unit	0.50	0.45	0.43	N.A.	0.44	0.41	0.37
Mean Income Per Person	0.94	0.87	0.92	0.95	0.88	0.82	0.79
Mean Income Per Equivalent Adult	0.84	0.79	N.A.	N.A.	0.78	0.74	N.A.
Mean Income Per Standard Person	0.83	0.78	N.A.	N.A.	0.76	0.72	N.A.
Aged Group Relative to Age 55-64							
Mean Income Per Unit	0.54	0.52	0.45	0.46	0.48	0.47	0.37
Median Income Per Unit	0.45	0.43	0.37	N.A.	0.39	0.39	0.32
Mean Income Per Person	0.73	0.75	0.70	0.73	0.68	0.71	0.60
Mean Income Per Equivalent Adult	0.71	0.73	N.A.	N.A.	0.66	0.69	N.A.
Mean Income Per Standard Person	0.65	0.67	N.A.	N.A.	0.60	0.62	N.A.

N.A.: Not Available.
Source: Tables 2, 4, 9, and 12.

than in Norway. Thus, taking into account the data problems, the appropriate conclusion is that (based on these data) aged units in the U.S. were roughly as well off relative to the other age groups as aged groups in the other countries examined.

In the second section of the paper, a U.S. microdata file was reweighted to be consistent with the distributions by age of head of Norway and Canada. Relative income shares of quintiles were computed both before and after reweighting and compared with the shares for Norway and Canada. The reweighting to Norway's age distribution increased differences in relative income shares between the two countries and increased the Gini concentration ratio for the U.S. The reweighting to Canada's age distribution slightly decreased differences in relative income shares between the two countries and decreased the Gini concentration ratio for the U.S. slightly.

This paper is a very preliminary look at a very complex subject: the relationship between income and age of head in various countries. The results presented on the relative economic well-being of different age groups obviously are not conclusive, even for the particular countries examined. Serious problems relating to the definitions of income and the recipient unit, along with questions about the accuracy of the income data, mean that small differences in the estimates among countries should be ignored. However, despite these qualifications, these estimates do provide some insight into this very important topic. Much work, however needs to be done to provide better, more complete, and more comparable estimates. More countries should be compared. The composition of income should be examined. A detailed investigation of differences in definitions and of the

roles played by noncash income and taxes is needed, along with an examination of differences in living arrangements and customs that affect these estimates. Finally, where possible, data on wealth should also be incorporated in the examination of the economic well-being of different age groups.

Appendix A—Definitions Used and Characteristics of the Data

A. *United States*

1. Type of data: Survey data primarily from the March 1981 Current Population Survey, which used a sample of about 65,000 households.
2. Income: Regularly received money income before tax; the sum of wages and salaries, net income from self-employment, social security and railroad retirement, supplemental security income, public assistance or welfare, property income, veterans' compensation, private pensions or government employee pensions, and miscellaneous income.
3. Recipient Unit: Families and unrelated individuals. Family: a group of two or more persons related by birth, marriage, or adoption and residing together. Unrelated individual: a person 15 years old or over who is not living with any relatives. Defined as of the time of the survey. The number of children is the number under age 18 in the family who are related to the householder.
4. Population coverage: The civilian noninstitutional population of the U.S. and members of the Armed Forces in the U.S. living off post or with their families on post.
5. Age: Age of the householder at the time of the survey. In general the householder is the person in whose name the home is owned or rented.
6. Timing: Income in calendar 1980.

B. *Canada*

1. Type of data: Survey data from the Survey of Consumer Finances, collected in April 1980 from a sample of roughly 40,000 dwellings.
2. Income: Money income before tax; the sum of wages and salaries, net income from self-employment, investment income, government transfer payments, pensions, and miscellaneous income.
3. Recipient unit: Families and unattached individuals. Family: a group of individuals sharing a common dwelling unit and related by blood, marriage or adoption. Unattached individual: a person living alone or in a household where he/she is not related to other household members. Defined as of the time of the survey. The number of children is the number under age 16 in the family.
4. Population coverage: Excludes Yukon and Northwest Territories, households located on Indian reserves, and inmates of institutions.
5. Age: Age of the head at time of the survey. The head is defined as (1) the husband in a husband-wife couple; (2) the single parent if children are unmarried; (3) the family member responsible for maintenance of

the family if single parent with married children; (4) the eldest in other families.
6. Timing: Income in calendar 1979.

C. *Norway*

1. Type of data: Based on data from the 1979 assessment of income and property taxes paid to the central government and to the municipalities. The sample covered all persons in a random sample of households (about 14,000 income earners) and about 3,300 income earners (and their spouses and dependents) with high income and/or property.
2. Income: The sum of net income by the ordinary central government tax assessment plus special allowances given for age, etc. and net income by the taxation of seamen. Net income below the taxation limit is taken into account. Net income is the sum of wages and salaries in cash and in kind; net entrepreneurial income; net income from percentage-assessed owner-occupied dwelling, cottage, and country house; gains from sale of property; interest receipts; share dividends; contributions subject to tax from the National Pension Fund, service pensions, annuities, and similar payments; other incomes; and special corrections; minus the sum of the following deductions: interest on debt; part of deficit of building society; pension contribution etc.; premiums for private pension insurance; alimonies and other maintenance payments; and other deductions. Gross income (used only in Table 3) is the sum of the income types before subtraction of the deductions.
3. Recipient unit: Household; all persons who lived in the same dwelling and had the same surname are grouped in the same household. However, one household never comprises more than one married couple. Spouses are grouped in the same household and dependents are grouped together with their supporters regardless of their surname.
4. Population coverage: No exclusions are mentioned in the documentation.
5. Age: Age of the person with the largest income.
6. Timing: Income for calendar 1979.

D. *Israel*

1. Type of data: Survey data collected within the framework of the Labor Force Surveys, using a sample of roughly 5,500 households.
2. Income: Gross money income before tax; the sum of income from wages and salaries, self-employment, property, interest and dividends, assistance and allowances from institutions and individuals, pensions, and other current income. Non-recurring receipts and noncash income are excluded. Net money income (used only in Table 3) is defined as gross money income after deduction of obligatory payments (income tax and national insurance contributions).
3. Recipient Unit: Household ("consumer family"); a group of persons residing regularly in one abode and having a joint expenditure budget.

4. Population coverage: All Jewish households in which the head was an employee or did not work, in localities with 2,000 residents or more; non-Jewish households in towns only. Households living in small villages, institutions, etc., are excluded.
5. Age: The oldest earner is the household head.
6. Timing: As a result of quarterly surveys, on average the data of the 1981 survey are 12-month data that relate to the period whose midpoint is the beginning of January 1981. Most of the data appear at the prices of the period whose midpoint is the beginning of 1981.

Appendix B—Sources of Data

A. *United States*

Tables 1, 2, 8, 9, 11, 12: U.S. Bureau of the Census 1982a Tables 21 and 27, and tabulations from the March 1981 Current Population Survey. Estimates for the 65-69 and 70 and over age groups were taken from the tabulations.

Table 3:

Column 5: U.S. Bureau of the Census 1982a Tables 21 and 27.
Column 6: U.S. Bureau of the Census 1982a Table 4.
Column 7: U.S. Bureau of the Census 1983 Tables 23 and 24.
Column 8: U.S. Bureau of the Census 1982a Tables 21 and 27 and adjustment factors from Radner 1982 Table 10. The adjustment factors were applied to the mean incomes derived from Tables 21 and 27.

Tables 4, 6, 7, 13: Tabulations from the March 1981 Current Population Survey.

The sample weight factors applied in the construction of Table 13 were:

Age of Head	Norway's Age Distribution	Age of Head	Canada's Age Distribution
Under 20	0.909	Under 25	1.078
20-24	0.729	25-34	1.027
25-29	0.835	35-44	1.058
30-34	0.940	45-54	1.078
35-39	0.894	55-64	0.935
40-49	0.847	65-69	0.933
50-59	1.006	70 and over	0.837
60-64	1.157		
65-66	1.259		
67-69	1.211		
70 and over	1.435		

Table 5: Derived from estimates underlying Tables 2 and 4 in this paper.

B. *Canada*

Tables 1, 2, 4, 5: Statistics Canada 1982 Table 43. In Table 4 the median for the age 65 and over group was estimated using linear interpolation.

Table 6: Statistics Canada 1982, derived from Table 78.

Tables 8, 11: Derived from tabulations from the 1980 Survey of Consumer Finances.

Tables 9, 12: Statistics Canada 1982 Table 43 and tabulations from the 1980 Survey of Consumer Finances.

Table 13: Statistics Canada 1982 Table 74.

C. *Norway*

Tables 1, 2, 3 (Column 3), 8, 9: Central Bureau of Statistics 1982a, derived from Table 52. The 35-44, 45-54, and 55-64 age groups shown here were estimated from different age groupings. The 40-49 age group in the source was split equally between the 35-44 and 45-54 age groups; the 50-59 age group was split equally between the 45-54 and 55-64 age groups.

Table 3, Column 4: Central Bureau of Statistics 1982a, derived from Table 96. See Appendix A for the definition of gross income used. The estimation of age groups mentioned above was also used here.

Tables 4, 6: Central Bureau of Statistics 1982a, estimated from Table 61 using linear interpolation within income size classes. In Table 4 the estimation of age groups mentioned above was used.

Table 5: Derived from estimates underlying Tables 2 and 4 in this paper.

Table 7: Central Bureau of Statistics 1982a, Table 91.

Table 13: Central Bureau of Statistics 1982a, Table 89.

D. *Israel*

Tables 1, 2, 3, 8, 9: Central Bureau of Statistics 1982 Tables 19 and 32. Based on information in other tables, it was inferred that Table 32 contained an error: the number of households with head age 65 and over and not employed should have been 146.6 thousand, rather than the 14.6 thousand that was shown. The corrected figure was used in deriving the estimates in this paper.

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