Abstract 1,2

This note shows that based on headcount poverty rates, at the household level, households with elderly members are roughly equally poor to non-elderly households, though with variation when using more detailed compositions, and the elderly are less poor than children in 98 percent of the countries sampled when comparing different age groups. Further, as a share of the poor, elderly average only 10 percent, children 36 percent, and adults 54 percent. Moderate equivalence adjustments result in a four percentage point change in the number of countries with children better off than elderly. (A separate note provides detailed sensitivity analysis.) 3 These results can be seen as a starting point for further analysis that would look at the reasons behind differences between countries as well as age sub-groups within countries. The findings provide preliminary evidence that households with elderly, and especially elderly individuals are often not the most poor. The analysis is relevant to countries considering new policies or reforms of existing programs targeting particular age groups, such as the elderly or children.

I. Background

Whether the elderly are poor relative to children and adults in society has important implications for social and economic policy. Large components of social protection systems can be traced to society’s concern about poverty among the elderly and children, often viewed as the most at-risk groups. Both contributory and non-contributory pension programs emerged in the wake of urbanization and industrialization as traditional patterns of old-age income support became less relevant for workers that depended

2 The note was written by Brooks Evans (bevans2@worldbank.org) and Robert Palacios (rpalacios@worldbank.org). Peer review comments provided by Margaret Grosh, Phillippe Leite, and Kinnon Scott. Additional comments were provided during a May 5, 2015 Social Protection & Labor and Poverty co-sponsored discussion on "Who is Poorer? Age-based Poverty Patterns and Measurement: Findings & Implications for Bank Operations & Clients".
on wages. In the high income countries, this has resulted in large transfer systems and generally low poverty rates for the elderly relative to the population. This has led some OECD countries to question transfers from relatively poor households with adults often with children, to relatively well-off elderly households via payroll taxes.

In most low and middle income countries, pension systems have failed to achieve high coverage, and the majority of the elderly continue to depend on traditional income support sources, especially family. Along with children and the disabled, the elderly are often considered to be vulnerable to poverty. The ILO recommends that its “Minimum Floor” be applied specifically to the elderly as well as these other vulnerable groups.

Previous evidence as to whether the elderly are poorer than other age groups generally shows this is often not the case, with children most frequently the poorest. In his review of studies available at the time, Whitehouse (2000), found that “most studies show that the old are represented proportionally or under-represented among the poor.” His analysis focused mainly on middle and higher income countries, but similar findings have been presented for low income countries such as India and many countries in Sub-Saharan Africa.

This note provides comparative poverty rankings, mainly using per capita welfare, of elderly and non-elderly households and individuals in 62 developing countries. Recognizing the shortcomings of per capita welfare, a companion note investigates how the two most common parametric equivalence scale adjustments – economies of scale and composition, affect the distribution and measures of poverty by age.

II. Methodology

The data are from the World Bank’s ASPIRE, ECAPOV, and SEDLAC databases, which are based on household survey data. While over 70 surveys were available, only 62 are used since only these contained basic demographic individual information needed for age-based poverty analysis. The surveys have been harmonized in terms of coding and to the extent possible, variable definitions. There are some differences between the instruments. These are discussed in a separate methodological note. Age groupings are also harmonized to allow for comparability across countries. ‘Child’ is defined as age 0-14, ‘Adult’ 15-59, and ‘Elderly’ 60+.

Welfare aggregate: While recognizing the tradeoffs inherent to welfare measurement, monetary based welfare per capita is used as a baseline, as this is among the most commonly used approaches. All regions in the sample use expenditure except for Latin America and the Caribbean, where only income data is available. Welfare per capita is calculated by taking a household’s consumption expenditure or income and dividing by the number of household members.

The formula, if consumption is used is:

\[
\text{Per capita expenditure} = \frac{\text{household consumption expenditure}}{\text{household size}}
\]

This calculation implicitly assumes 1) that there is no benefit from living in larger households, such as sharing housing, cooking supplies or transportation costs (i.e. economies of scale do not exist); and 2) all household members have equal income or consumption needs and access, and so a five-year-old consumes the same as an adult in labor intensive employment (i.e. no economies of composition exist.)

Although these assumptions can and have been contested, there is no agreement on the best approach. This note cross-references a detailed analysis of the sensitivity to different assumptions about composition and scale economies and presents a feasible adjustment derived from that analysis (0.75 economies of scale and composition).

Poverty lines: Relative poverty rates are used here as this note focuses on comparing poverty rates of different age groups and household compositions in the sample countries. An absolute poverty line is not used, as poverty rates would be close to zero percent in higher income countries, such as in ECA and some in LAC, while there would be higher poverty rates in low income countries. The choice of any poverty line will affect the percentage of people that are poor.

Two measures of relative poverty are used: the share of households and individuals that (i) fall within the poorest two quintiles of the distribution and (ii) those that fall below half of median per capita expenditure/income. The latter poverty line will tend to capture more of the distributional dynamics in a country. Poverty lines are generated both at the individual and household level.

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4 The developing country regions included are Sub-Saharan Africa (AFR), East Asia and the Pacific (EAP), Eastern Europe and Central Asia (ECA), Latin America and the Caribbean (LAC), Middle East and Northern Africa (MENA), and South Asia (SAR).


7 The use of per capita welfare with its inherent assumptions, has clear limitations as discussed in Deaton and Paxson (1997) and many others.


10 Sen (1985) and others define poverty based on concepts of capabilities and functioning.

11 Consumption expenditure is generally seen as a more robust measure of welfare (see for example Deaton 1997). Here, the term per capita welfare refers to consumption unless only income is available.

12 These surveys do not provide data that would allow us to look at intra-household distribution of resources.

13 Adult equivalent adjustment are often used, for example, children and/or elderly can be assumed to consume a fraction of adults, such as 50 percent, and would each be 0.5 adult equivalents, which decreases the effective household size.

14 Commonly used absolute poverty lines are $1.25 and $2.50 USD a day.
Poverty measure: Foster-Greer-Thorbecke (FGT) measures are used for calculating the poverty headcount (FGT0), gap (FGT1), and severity (FGT2). This measurement approach is commonly used, and allows for sub-group decomposition, such as analysis by differing household types or age groups. The note focuses primarily on poverty headcount.

III. Results

The following section presents the findings of the population shares of different household types, and poverty rankings of households. This is followed by individual-level analysis.

Household types

Table 1 shows the composition of households in the sample of countries used for this analysis. The data are presented by region using simple averages with the important caveat that the regional samples vary in size and are therefore not fully representative.

Table 1: Household types by region (%)

<table>
<thead>
<tr>
<th></th>
<th>AFR</th>
<th>EAP</th>
<th>ECA</th>
<th>LAC</th>
<th>MNA</th>
<th>SAR</th>
<th>Avg</th>
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<tr>
<td>Elderly only - lone</td>
<td></td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>2</td>
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<tr>
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<td>1</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Elderly &amp; Adult</td>
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<td>7</td>
<td>14</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Elderly &amp; Children</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<tr>
<td>3-Generation</td>
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<td>18</td>
<td>16</td>
<td>14</td>
<td>19</td>
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<td>Adult only</td>
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<td>Adult &amp; Children</td>
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</tbody>
</table>

Source: Authors’ calculations. ‘Avg’ in final column refers to simple average for all sample countries.

The share of households in our sample with any elderly members averages 32 percent. The difference between regions is not as high as might be expected given the shares of elderly people in the total population: Notably ECA and SAR have the highest share of households with elderly (40 percent and 34 percent), while AFR is lowest (23 percent). Only five percent of households have only elderly members. These figures are highest in ECA at 10 percent, while averaging one to three percent in the other regions. Households with adult members and children are the largest group in all regions (averaging 53 percent of households in sample countries).

Household-level poverty

Poverty rates among elderly households. Figure 1a and 1b show per capita poverty rates for households with elderly based on the two poverty lines. Each bar represents a country. Figure 1a refers to the share of households with elderly with less than half the median welfare per capita. Figure 1b refers to the share of households with elderly that can be found in the bottom two quintiles of the distribution. There is significant cross-country variation: the range for the 50 percent of median per capita measure is between 4 percent and 26 percent. Between 29 percent and just over one half of households with elderly are in the bottom 40 percent of the distribution. On average, 13 percent of households with any elderly are poor based on the 50 percent median measure, while an average of 41 percent of households with elderly are found in the bottom 40 percent of the distribution.15

Figure 1a: Households with elderly, poverty rates using 50% of median

Source: Authors’ calculations, poverty line set at 50% median.

Figure 1b: Households with elderly, poverty rates using 40th percentile

Source: Authors’ calculations, poverty line set at 40th percentile.

15 Since 50 percent median poverty lines capture national distribution shapes, high variation in poverty lines and rates is expected.
**Poverty rates of elderly compared to other households.** Figures 2a and 2b show the difference in poverty rates of households with and without elderly. These figures hide significant differences in poverty rates among differing household arrangements. In most countries, for example, households with only elderly members are not as poor as households with both elderly and non-elderly members. The results show that the share of countries with elderly and non-elderly households poorest is roughly equal, though with some variation. In Figure 2b, in over a third of the countries, the poverty rates differ by two and a half percentage points or less. Poverty rates differ substantially in only about one in eight countries, depending on the cutoff applied.

Elderly-only households are the least poor household type in the majority of the countries, and so most of the poor households with elderly contain non-elderly members. The combination of the financial ability to live alone, and the more mechanical explanation that household welfare is only divided by fewer people in elderly only households explains much of this result.

**Not surprisingly, households with only elderly and children are poorer than other households as these are not prime working ages.** This is followed by three-generation households, while adult-only households are the least poor.

When considering population shares, adult with children households are the largest population group and represent the highest share of poor households (55%), followed by elderly with children (19.6%), while the smallest shares are elderly with adult (0.2%) and elderly-lone households (0.8%).

**Individual-level poverty**

Ranking individuals rather than households allows for more a direct comparison of poverty rates among age groups. Figures 3a and 3b compares poverty rates for children, adults and elderly individuals in each country. The orange line shows the poverty rates of adult individuals, and the x-axis moves from left to right starting with the lowest overall poverty rate. The higher line refers to children poverty rates while the bottom line refers to elderly poverty rates.

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16 Economies of scale also have an effect, as larger households are generally poorer when using per capita, which assumes not resources are shared.

17 Though still subject to measurement issues since data is collected at the household and extrapolated to the individual level, and per capita fails to capture scale or composition economies.
The figures show that with only two exceptions (Iraq for 50 percent median, and Bhutan for the 40th percentile), per capita, the poverty rates of children are always higher than for either adults or elderly. While not in the figure, older elderly, defined as age 75 and above, are poorer than younger elderly in three-quarters of the countries sampled. It is interesting to note that the countries where the disparity between poverty rates of children and the elderly are highest are all located in Eastern Europe and Central Asia, East Asia and the Pacific, and Latin America (in particular in the Southern Cone countries). In Brazil, for example, the relative poverty rate of children is more than three and a half times the rate of the elderly (61 percent and 17 percent respectively). The lowest differentials are found in South Asia and Sub-Saharan Africa.

Looking beyond the headcount poverty rates, the poverty gap is on average the lowest for elderly and highest for children. This means that on average, of the elderly that are poor, they are less poor, as they lie closer to the poverty line than children. As measured by the poverty gap, in all regions, poor children are the poorer than poor elderly.

As has been shown, the poverty headcount of children is higher than adults and elderly in nearly all sample countries, and this result is accentuated when accounting for population shares. Elderly average just over 12 percent of the population, while children over two and a half times at 29 percent, and adults five times at 59 percent. The poverty headcount of children averages 16 percentage points above elderly and 14 percentage points above adults. When looking the distribution among the poor, the highest headcount and second highest population share results in children representing 36 percent of the poor. Elderly by contrast have the smallest share of the poor at 10 percent due to both the lowest incidence and population size. Adults represent 54 percent of the poor, which is mainly driven by their population share that average just under 60 percent.

On a per capita basis, the findings show that elderly are the least poor and smallest share of the poor, while children have the highest poverty measures (headcount and gap) and are the second largest group among the poor.

Comparative poverty rates at the household and individual level

Another approach of analysis is to focus on poverty rates of individuals compared to households. Figure 4, based on the poverty line set at half of the median, shows that as expected, while the correlation between individual elderly and elderly household poverty rates is high, the latter are generally higher. (The outlier is Iraq.)

Sensitivity of the results

As mentioned earlier, the results presented here will be affected by assumptions about the effects of household economies of scale and composition on welfare. Economies of scale, through the shared use of resources such as stoves or bulk purchases, could justify adjustments to the welfare used to compare households and individuals. Larger household sizes appear better-off as greater scale economies are assumed. Lower consumption needs of children and the elderly may also justify using equivalence scales in these comparisons. A companion note "Equivalence Sensitivity of Age-Based Poverty Measures" reviews the relevant literature and tests the results to a wide range of possible adjustments. A general finding regarding the comparison of children and the elderly is that the most important impact appears to come from scale economy adjustments.

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**Figure 4: Individual versus household poverty rates**

Source: Authors’ calculations with poverty line 50% median.

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18 Countries where child poverty is greater than 40 percentage points above elderly include Brazil (44 percent) and Uruguay (43 percent).
With this in mind, Figure 5 highlights the differential between poverty rates of elderly and children based on the 40th percentile cutoff line with and without an equivalence adjustments for scale and composition. Clearly, the effect favors children and reduces the difference between poverty among children and elderly (as shown by the fact that all but one point lies below the 45 degree line). Of note is that even with the moderate 0.75 equivalence adjustment, children remain poorest in all but four countries, a slight decrease from children being poorest in all by one country using per capita.\textsuperscript{19}

In a small number of countries, the poverty rate differential becomes negative. In other words, poverty rates are higher for elderly than for children. This group is made up of ECA countries (Bosnia and Herzegovina, Croatia and Moldova), and elderly in Bhutan remain poorer than children. In a second group of countries, there is a large change in the differential, but elderly still have lower poverty rates. A third group has elderly poverty fall relative to children, which only includes India. The last and largest group of countries show only a small effect as they remain close to the 45 degree line. As economies of scale have been observed at 0.5 and assuming children and elderly consume 50 percent of adults may be realistic, future research examines more extreme equivalence adjustments to demonstrate the age poverty ranking effect.

\textsuperscript{19} As shown in the companion note, with a more substantial economies of scale value of 0.5, elderly become poorer than children in most countries.
IV. Conclusions and Future Research

The key results presented in this note can be summarized as follows:

1. Poverty rates of elderly individuals and households with elderly members vary widely across countries.

2. There is no strong pattern for if households with or without elderly are poorer, though there is for certain household compositions. Adult with child households represent the largest share of poor households, while the smallest shares are elderly with adult and elderly-lone households.

3. Per capita children are poorer than the elderly in nearly all countries both by headcount and share of the poor. In some cases, particularly in the demographically older countries of Latin America, the difference is very high. Elderly individuals average the smallest share of the poor averaging 10 percent, children 36 percent, and adults with the largest share of 54 percent.

4. Old elderly are poorer than younger elderly in most countries.

5. The relative position of children versus the elderly changes in a few countries, especially in ECA, if moderate equivalence adjustments are applied.

6. Even with these adjustments, the difference between the poverty rates of children and the elderly persists, with children poorer than elderly in over 90 percent of the sample countries.

These results raise a number of important policy questions and suggest areas for further research.

1. Should countries with high levels of spending on programs for the elderly and high poverty rate differentials with children poorer reconsider their overall social protection policies?

2. Given high co-residence rates among the poor (see note on co-residence)20, is there a case for targeting social pensions to poor households in many countries?21

3. To what extent does dependence on payroll tax based contributory pensions as the main source of income for the elderly lead to the observed welfare disparities between the elderly and children?

4. How does the provision of health services and insurance affect this analysis given its importance for the elderly and children?

5. How will falling pension coverage in Eastern Europe and Central Asia change the relative poverty position of the elderly?

6. How will aging populations affect the share of poor and policies in different regions and countries?

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21 A related issue is the potential impact of transfers to the elderly on intra-household allocation of resources as shown by the evidence on transfers to women in other programs.
References


Gasparini et al. 2007. "Poverty Among the elderly in Latin America and the Caribbean". CEDLAS. Universidad Nacional de La Plata. La Plata, Argentina.


