Introduction of a Universal Pension Scheme in Zambia

Section 5. Impact of the universal old age pension on poverty reduction

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F. Bonnet Draft – Not for Citation
1. **Introduction**

The current old-age pension system in Zambia only covers formal sector workers and their families, but only 88% of employment (i.e. self-employment or paid employment) is actually formal. As a result, most Zambians have only inadequate social security entitlements.\(^1\)

The Ministry of Labour and Social Security has proposed to introduce a Universal Pension Scheme which would provide minimum income security in old age and thus improve livelihoods of the elderly. DFID, UNICEF, Irish Aid and ILO are supporting the MLSS in carrying out conceptual and advocacy work on the scheme.

The starting point for the conceptual design is a pilot pension scheme in Katete District. The scheme is operational since 2007 and provides a benefit of ZMK 50,000 per month to approx. 4,000 individuals aged 60 years or older. The benefit is not increased and new beneficiaries (who have reached eligibility age in the meantime) have not been enrolled in the scheme. The district welfare offices in cooperation with community volunteers operate the scheme.

The MLSS has requested ILO to conduct an economic assessment of the options for the universal pension scheme. The assessment was funded by DFID Zambia and carried out jointly by the ILO Office in Lusaka and the Social Security Department at ILO headquarters.

The Terms of Reference for the assessment specify the scope of the assessment as:

a) to determine the projected budget implications of the proposed Universal Pension Scheme  
b) to determine the projected impact on poverty at the individual and household level

The MLSS defined a first set of parameters of the scheme designs on the basis of the current draft of the "Zero Draft Social Pension Design Concept" (Version of April 2011). This first set of parameters was discussed between MLSS and ILO and the following final parameters of the assessment were agreed:

*Eligibility options*

Three simple eligibility options were chosen: A pension would be paid to all residents aged at least 60 years, 65 years or 70 years.

In addition, an option of gradually decreasing eligibility age was chosen: Benefits would be paid to all residents aged at least 75 years in 2012. The eligibility age would reduce by one year for every following year, eventually reaching 60 years in 2027.

\(^1\) ILO (2008), p.65
Benefit options

Three options were chosen for the analysis:

- ZMK 60,000 per month
- ZMK 96,366 per month
- ZMK 146,009 per month

The first benefit option is equivalent to the benefit provided by the current pilot scheme in Katete district and is almost equivalent to the minimum pension provided to beneficiaries of the LASF in 2011. It amounts to approx. 10% of GDP per capita per month in 2012.

The second benefit option is equivalent to the 2010 extreme poverty line. This benefit amounts to approx. 16% of GDP per capita per month in 2012.

The third benefit option (2c) is equivalent to the 2010 moderate poverty line. It amounts to approx. 24% of GDP per capita per month in 2012.

Period of analysis

The starting date of the analysis is 2012, i.e. it is assumed that the scheme would start paying benefits in 2012. The analysis projects the development of the scheme over 20 years, i.e. until 2032.

2. Impact of the universal old age pension on poverty reduction

The results presented hereafter are based on an ex-ante assessment of the impact of the different options tested for the universal old age pension in Zambia. This is a static micro-simulation of the (direct) impact of transfers on individual/household expenditure and poverty status and not a full dynamic assessment of the impact which would take behavioural changes into account and notably changes over time in the household size and structure. By poverty status, it is meant to cover impact on extreme and total poverty reduction and impact on the poverty gap ratio, squared poverty gap and extreme and total aggregate gap.

Two major assumptions are made and should be kept in mind when interpreting the results: i) it is assumed that the individuals/households consume the benefit in full, ii) it is also assumed that the

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2 For the purpose of easier reading and discussion, this report refers to this benefit option as “ZMK 100,000”. However, the calculations and related graphs for this report have been made using the exact amount of ZMK 96,366.

3 This report refers to this benefit option as “ZMK 150,000”.

4 Source?

5 Source?
individual elderly benefits is shared among all household members according to equivalent scale used in Zambia\textsuperscript{6}.

The micro simulation uses the data from the latest available Zambian Living Conditions and Monitoring Survey 2010 (LCMS 2010) using, as a reference, the expenditure per equivalent adult and the corresponding poverty lines (96366 Kwacha per month for extreme poverty line and 146009 Kwacha per month for moderate poverty line). For practical reasons we will later on refer to approximately 100 000 kwacha per month for the extreme poverty line and approximately 150 000 kwacha per month for the moderate poverty line (even though the exact figures are used for the calculations)

Two basis of reference have been used for the calculation of the various indicators: households and individuals with however an emphasis given to statistics related to individuals which are presented in the core of the report while household based statistics are mostly presented for information regarding the initial poverty status situation.

This section counts two main parts: i) an overview of the initial situation with respect to household and individual poverty rates and poverty gaps, and ii) a summary of main results regarding impacts depending on the option retained for the universal old age pension. The comprehensive set of results (individual and household based) are available in excel.

2.1. Overview of the initial situation

2.1.1. Who are and where do elderly live?

According to the LCMS 2010, the population aged 60 and over represents 3.7 percent of the total population. In 2010, 15.5 percent of the households count at least one elderly and 16.3 percent of the population lives in households with at least one elderly. The elderly population is slightly overrepresented by women (53 percent of the 60 and over are women and 47 percent men). Most of them live in rural areas (73 percent against a national average of 65 percent of the population living in rural areas). As a minority of elderly receive an old age pension (those who were previously working in the formal sector which represent about 10 percent of the working population), it is not surprising to observe that nearly three out of four elderly is still in employment (72 percent). When employed, more than 80 percent are self-employed either in farming/ fishing activities (75 percent of the employed elderly) or running a private non farm business (8 percent).

\textsuperscript{6}The equivalent scale in Zambia seems to have changed since the previous 2006 survey. This should be confirmed and clarified with the CSO.
The majority of the elderly are living within their extended family either with the younger generation of working age (61 percent) or within a three generations household (22 percent). Only 6 percent of the elderly live in household composed only of people aged 60 and over (7 percent in rural areas and 3 percent in urban areas). If households without any member of working age may be considered as “more vulnerable” then 17 percent of the elderly are living in such vulnerable households (20 percent in rural areas). Households of multiple generations (with at least one elderly) as well are “larger households” tend to be overrepresented in urban areas. This is confirmed by an average size of household for elderly of 5.6 (6.1 in urban area and 5.4 in rural area); an average which is not so far from the average household size at the national level (6.5 members by household). As a result, it is expected that an elderly pension will be redistributed among generation in most pensioners’ households. It is estimated that 13.1 percent of the population aged less than 60 will benefit from the redistribution of the elderly pension.

2.1.2. Consumption expenditure level and distribution

The distribution of consumption expenditure in Zambia reveals a high concentration of the population below the 2010 poverty lines (see figure 2). More than 40 percent of the total population has an equivalent adult monthly expenditure inferior to the extreme poverty line and more than 60 percent of the population a value of expenditure inferior to the moderate poverty line.

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7 Source: Living conditions and monitoring survey 2010 (LCMS 2010)
Another way to look at expenditure (or income) distribution is to consider the share of the poorest quintile which expresses the total consumption of the poorest quintile (20%) as a share of total consumption of the population as well as the share of the richest quintile (see main results in table 1 below).

Table 1: Distribution of consumption expenditure (28 days) by quintiles and areas

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 – poorest</td>
<td>6.0</td>
<td>4.4</td>
<td>4.0</td>
</tr>
<tr>
<td>Q2</td>
<td>10.1</td>
<td>8.2</td>
<td>7.1</td>
</tr>
<tr>
<td>Q3</td>
<td>14.0</td>
<td>13.0</td>
<td>10.9</td>
</tr>
<tr>
<td>Q4</td>
<td>20.3</td>
<td>20.3</td>
<td>18.3</td>
</tr>
<tr>
<td>Q5 – richest</td>
<td>49.9</td>
<td>54.4</td>
<td>59.6</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio Q5:Q1</td>
<td>8.3</td>
<td>12.4</td>
<td>10.5</td>
</tr>
<tr>
<td>Median (Kwacha per month)</td>
<td>84,871</td>
<td>244,636</td>
<td>114,566</td>
</tr>
<tr>
<td>Mean (Kwacha per month)</td>
<td>122,205</td>
<td>380,840</td>
<td>211,876</td>
</tr>
</tbody>
</table>

Figure 2: Distribution of total consumption expenditure in Zambia

Source: Living conditions and monitoring survey 2010 (LCMS 2010)
2.1.3. Poverty status ex-ante

On a household basis (see figure 4 and right side of table 2), in 2010, 36% of the households are in extreme poverty and 54% are considered as poor (combining extreme and moderate poverty). Among the most critical situations are the households headed by elderly people in rural areas or households composed only of elderly people. In both cases more than 50 percent are in extreme poverty and around three quarters are poor (considering both extreme and moderate poor).

In 2010, on an individual basis and due to the fact that household size is usually higher among poor households (7.2 among extreme poor households; 6.4 among moderate poor households and 5.9 in non poor households), the poverty rate considering individuals is significantly higher. More than 42% of the population lives in extreme poverty and 18% in moderate poverty resulting in a total poverty rate of 60% (See figure 4). This proportion is slightly higher among elderly, especially when elderly live alone or with other elderly people. More than two thirds (67%) of the elderly aged 60 and over are poor with 46 percent being in extreme poverty. This proportion of poor reaches 78% among elderly in rural areas (with 55% of them living in extreme poverty).

Figure 3: Distribution of consumption in Zambia (red line = fully equal distribution)
Table 2 below summarized some of the main indicators of poverty in 2010 (poverty rate, poverty gap, squared poverty gap and aggregate poverty gap expressed as a percentage of GDP.

9 Source: Living conditions and monitoring survey 2010 (LCMS 2010)

10 Source: Living conditions and monitoring survey 2010 (LCMS 2010)
## Table 2: Summary table of the initial situation

<table>
<thead>
<tr>
<th>Ref. numbers</th>
<th>Poverty rates</th>
<th>Poverty gap ratio</th>
<th>Squared poverty gap</th>
<th>Aggregate poverty gap (% of GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute figure</td>
<td>% of the population</td>
<td>Extreme poverty</td>
<td>Total poverty</td>
<td>Extreme pov. gap</td>
</tr>
<tr>
<td><strong>Total population</strong></td>
<td>13063204</td>
<td>100.0%</td>
<td>42.2%</td>
<td>60.4%</td>
</tr>
<tr>
<td><strong>Urban 60+</strong></td>
<td>130392</td>
<td>1.0%</td>
<td>20.6%</td>
<td>36.5%</td>
</tr>
<tr>
<td><strong>Rural 60+</strong></td>
<td>355810</td>
<td>2.7%</td>
<td>55.3%</td>
<td>77.9%</td>
</tr>
<tr>
<td><strong>Age 60+</strong></td>
<td>486203</td>
<td>3.7%</td>
<td>46.0%</td>
<td>66.8%</td>
</tr>
<tr>
<td><strong>Age 65+</strong></td>
<td>315460</td>
<td>2.4%</td>
<td>46.4%</td>
<td>67.4%</td>
</tr>
<tr>
<td><strong>Age 70+</strong></td>
<td>201812</td>
<td>1.5%</td>
<td>46.9%</td>
<td>69.0%</td>
</tr>
<tr>
<td><strong>Age &lt; 15</strong></td>
<td>5704255</td>
<td>43.7%</td>
<td>46.8%</td>
<td>65.5%</td>
</tr>
<tr>
<td><strong>Male 60+</strong></td>
<td>227484</td>
<td>1.7%</td>
<td>45.0%</td>
<td>66.1%</td>
</tr>
<tr>
<td><strong>Female 60+</strong></td>
<td>258719</td>
<td>2.0%</td>
<td>46.9%</td>
<td>67.5%</td>
</tr>
<tr>
<td><strong>Disabled</strong></td>
<td>129395</td>
<td>1.0%</td>
<td>46.0%</td>
<td>66.1%</td>
</tr>
<tr>
<td><strong>Living in household with no wage worker</strong></td>
<td>9393633</td>
<td>71.9%</td>
<td>53.5%</td>
<td>73.6%</td>
</tr>
<tr>
<td><strong>Living in elderly headed household</strong></td>
<td>1701089</td>
<td>13.0%</td>
<td>50.1%</td>
<td>71.1%</td>
</tr>
<tr>
<td><strong>Living in Elderly women headed household</strong></td>
<td>494057</td>
<td>3.8%</td>
<td>52.1%</td>
<td>73.5%</td>
</tr>
<tr>
<td><strong>Elderly living alone or with other elderly (single generation household)</strong></td>
<td>28867</td>
<td>0.2%</td>
<td>48.5%</td>
<td>72.0%</td>
</tr>
</tbody>
</table>

**Notes:**
- Total poverty is the sum of extreme and moderate poor. The aggregate poverty gap shows the cost of eliminating poverty by making perfectly targeted transfers to the poor. This total cost can be related to GDP and analyzed for specific groups of the population.

**Source:** Living conditions and monitoring survey 2010 (LCMS 2010)
2.2. Impacts of universal old age pension on poverty reduction

The LCMS data 2010 are used as a starting point to simulate the impact on poverty reduction of an universal old age pension proposing different options. The two parameters used to define the options are the eligible age and the level of benefit provided.

Table 3 below provides a comparison of poverty rates before and after the provision of the universal old age pension for the different levels of benefits and for the two extreme eligible age\(^\text{11}\) (60+ and 70+). Among the elderly aged 60 and over the impact varies naturally according to the level of benefit but also depending on the type of household in which the elderly is living. The relative reduction in the number of extreme poor reaches more than 77 percent in households composed only of elderly people (as shown on figure 6) which is an unusual situation in Zambia as it concerns less than 1 percent of household and less than 0.2 percent of the total population.

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\(^{11}\) Additional results are available in excel both at the individual and household level.

\(^{12}\) Source: Living conditions and monitoring survey 2010 (LCMS 2010)
Table 3: Results on poverty rate reduction of the universal pension provided to all elderly aged 60 and above\(^\text{14}\)

<table>
<thead>
<tr>
<th>Population and subgroups</th>
<th>Population of reference in numbers</th>
<th>Initial extreme poverty rate</th>
<th>Extreme poverty rate post benefit</th>
<th>Total poverty rate post benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>60000 (Katete programme level) all 60+</td>
<td>100 000 (approx.) kwacha per month - all 60+</td>
</tr>
<tr>
<td>Total population</td>
<td>13063204</td>
<td>42,23%</td>
<td>40,77%</td>
<td>39,83%</td>
</tr>
<tr>
<td>Urban 60+</td>
<td>130392</td>
<td>20,57%</td>
<td>13,87%</td>
<td>10,94%</td>
</tr>
<tr>
<td>Rural 60+</td>
<td>355810</td>
<td>55,33%</td>
<td>40,41%</td>
<td>32,03%</td>
</tr>
<tr>
<td>Age 60+</td>
<td>486203</td>
<td>46,01%</td>
<td>33,30%</td>
<td>26,37%</td>
</tr>
<tr>
<td>Age 65+</td>
<td>315460</td>
<td>46,38%</td>
<td>32,81%</td>
<td>25,86%</td>
</tr>
<tr>
<td>Age 70+</td>
<td>201812</td>
<td>46,86%</td>
<td>33,01%</td>
<td>26,35%</td>
</tr>
<tr>
<td>Male 60+</td>
<td>227484</td>
<td>45,00%</td>
<td>33,39%</td>
<td>27,02%</td>
</tr>
<tr>
<td>Female 60+</td>
<td>258719</td>
<td>46,89%</td>
<td>33,21%</td>
<td>25,80%</td>
</tr>
<tr>
<td>Disabled</td>
<td>129395</td>
<td>46,04%</td>
<td>41,32%</td>
<td>38,39%</td>
</tr>
<tr>
<td>Living in household with no wage worker</td>
<td>9393633</td>
<td>53,53%</td>
<td>51,66%</td>
<td>50,40%</td>
</tr>
<tr>
<td>Living in elderly headed household</td>
<td>1701089</td>
<td>50,12%</td>
<td>40,91%</td>
<td>34,71%</td>
</tr>
<tr>
<td>Living in Elderly women headed HH</td>
<td>494057</td>
<td>52,09%</td>
<td>42,74%</td>
<td>36,12%</td>
</tr>
<tr>
<td>Elderly (60+) living alone or with other elderly (single generation household)</td>
<td>28867</td>
<td>48,54%</td>
<td>26,44%</td>
<td>18,43%</td>
</tr>
</tbody>
</table>

\(^{14}\) Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure.
Table 4: Results on poverty rate reduction of the universal pension provided to all elderly aged 70 and over\textsuperscript{15}

<table>
<thead>
<tr>
<th>Population and subgroups</th>
<th>Population of reference in numbers</th>
<th>Initial extreme poverty rate</th>
<th>Extreme poverty rate post benefit</th>
<th>Total poverty rate post benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>60000 (Katete programme level) all 60+</td>
<td>100 000 (approx.) kwacha per month - all 60+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Initial total poverty rate</td>
<td>60000 (Katete programme level) all 60+</td>
</tr>
<tr>
<td>Total population</td>
<td>13063204</td>
<td>42,23%</td>
<td>41,66%</td>
<td>41,32%</td>
</tr>
<tr>
<td>Urban 60+</td>
<td>130392</td>
<td>20,57%</td>
<td>17,58%</td>
<td>16,95%</td>
</tr>
<tr>
<td>Rural 60+</td>
<td>355810</td>
<td>55,33%</td>
<td>48,79%</td>
<td>45,01%</td>
</tr>
<tr>
<td>Age 60+</td>
<td>486203</td>
<td>46,01%</td>
<td>40,42%</td>
<td>37,49%</td>
</tr>
<tr>
<td>Age 65+</td>
<td>315460</td>
<td>46,38%</td>
<td>38,47%</td>
<td>34,45%</td>
</tr>
<tr>
<td>Age 70+</td>
<td>201812</td>
<td>46,86%</td>
<td>35,07%</td>
<td>29,07%</td>
</tr>
<tr>
<td>Male 60+</td>
<td>227484</td>
<td>45,00%</td>
<td>40,92%</td>
<td>38,31%</td>
</tr>
<tr>
<td>Female 60+</td>
<td>258719</td>
<td>46,89%</td>
<td>39,97%</td>
<td>36,76%</td>
</tr>
<tr>
<td>Disabled</td>
<td>129395</td>
<td>46,04%</td>
<td>43,39%</td>
<td>42,60%</td>
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<tr>
<td>Living in household with no wage worker</td>
<td>9393633</td>
<td>53,53%</td>
<td>52,80%</td>
<td>52,37%</td>
</tr>
<tr>
<td>Living in elderly headed household</td>
<td>1701089</td>
<td>50,12%</td>
<td>47,03%</td>
<td>44,91%</td>
</tr>
<tr>
<td>Living in Elderly women headed HH</td>
<td>494057</td>
<td>52,09%</td>
<td>49,16%</td>
<td>47,12%</td>
</tr>
<tr>
<td>Elderly (60+) living alone or with other elderly (single generation household)</td>
<td>28867</td>
<td>48,54%</td>
<td>37,47%</td>
<td>37,47%</td>
</tr>
</tbody>
</table>

\textsuperscript{15} Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure.
The reduction of poverty is a multi-steps process with a progressive decrease in the poverty gap. The elderly pension benefit allows the extreme poor to go into the moderate poverty status, while some of the moderate poor get out of poverty. In Zambia the depth of poverty is rather important and major impact of the levels of benefits simulated here can be seen on extreme poverty rates and on the reduction in the relative number of extreme poor (among 60 and over). Figure 5 displays the corresponding relative reduction in the total number of poor, i.e. looking at those getting out of poverty, showing significantly lower impacts due to the significant number of “new moderate poor” who were initially in extreme poverty.

Another way to demonstrate poverty effects is through a “spider (radar) graph” where the original poverty rates is noted in red and smaller circles represent the various post-benefit poverty rates (figures 8 and 9) and poverty gaps (figures 10 and 11). The centre of the graph represents a poverty rate (or a poverty gap) of zero.

The first two figures below show the impacts on extreme and total poverty rates before and after the benefit provision for all 60 and over. As expected the highest level of benefit (corresponding to the 2010 moderate poverty line and represented in violet) results in the highest impact on poverty reduction among the elderly, especially among living either alone or with other elderly.

Given the relatively small proportion in the population of the population aged 60 and over (3.7 percent of total population), the overall impact on the population is limited but still exist due to the redistribution effect among household members.

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Figure 8: Impact of pension (eligibility: 60+) on extreme poverty rate

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16 Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure.
Figure 9: Impact of pension (eligibility: 60+) on total poverty rate\(^{17}\)

Figure 10: Impact of pension (eligibility 60+) on extreme poverty gap\(^{18}\)

\(^{17}\) Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure.

\(^{18}\) Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure
A set of additional indicators relate to the aggregate poverty gap which shows the cost of eliminating poverty by making perfectly targeted transfers to the poor. This total cost can be related to GDP and analyzed for specific groups of the population.

According to LCMS 2010 the aggregate total poverty gap represents 6408 billions Kwacha with 264 billions kwacha among the elderly aged 60 and over. Related to GDP this aggregate total poverty gap represents 8.6 % of GDP and 0.35% of GDP if considering only the population aged 60 and over.

The corresponding figures for the aggregate extreme poverty gap are 2347 billions Kwacha (96 billions kwacha among 60+) and 3.1 % of GDP if referring to extreme poverty poverty line (0.13 % of GDP if considering elderly).

The provision of an universal old age pension to the elderly results in an considerable reduction of the extreme gap, even though the benefit provided is shared among household members. The figure 10 presents the initial aggregate extreme poverty gap for elderly, the amount post benefit and the corresponding percentage reduction compared to the initial gap. According to the level of benefits provided to all elderly (60+) the percentage reduction in the aggregate extreme poverty gap ranges from 42% to 73%.

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19 Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure
Figure 12: Aggregate extreme poverty gap among elderly (ZMK millions) and percentage reduction through pension\textsuperscript{20}

\textsuperscript{20} Source: Calculations based on LCMS 2010. Poverty measures based on consumption expenditure