Inequality in Mortality and Life Expectancy in Sub-Saharan Africa

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Living a long life is certainly at the core of human wellbeing (Sen, 1999), which is also reflected in international measures of wellbeing such as the Millennium Development Goals (MDGs) or the Human Development Index (HDI), incorporating life expectancy as an important wellbeing indicator. However, these policy targets or measures only analyse levels and trends in population averages, ignoring the distribution of mortality within countries. Hence, in recent years a considerable research on inequality in mortality has emerged.

I argue that this strand of research has ignored two important aspects of inequality in mortality: First, in developing countries research has very much focused on child mortality (e.g. Pardhan et al., 2003; Wagstaff A., 2002). Although adults' mortality might be closely related to child mortality, ignoring adults misses improving or deteriorating health during adulthood. Second, studies that have incorporated the mortality of adults, analysing inequalities in life expectancy, have only been undertaken for industrialized countries (e.g. Singh and Siahpush, 2006) or only across countries (Becker et al., 2005; Moser et al., 2005).

The aim of this paper is thus to give the most comprehensive assessment possible of inequality in mortality for sub-Saharan Africa (SSA), analysing socioeconomic inequalities in life expectancy in these countries. SSA does not only show the lowest rates of life expectancy, but even experienced decreasing life expectancy within the last decade. Hence, knowledge of the life expectancy of the poorest within these countries, which might be even much lower than the averages in life expectancy, is of utmost importance.

The data I use are the Demographic and Health Surveys (DHS) from 25 SSA countries. These data sets provide detailed information on households' assets, birth histories and sibling histories, which will be used for the analysis of life expectancy. For most of these countries a survey in the 1990s as well as a survey after 2000 was conducted which allows for a robustness check.

For each country I calculate child (0-5 years) and adult (15-45) mortality rates as well as life expectancy for the whole population as well as disaggregated for the poor and the wealthy to get some measure of inequality in life expectancy. To split households into poor and wealthy households, I define the 20% wealthiest and the 20% poorest households within countries. Since DHS surveys do not provide any information on households' income I construct an asset index based on principle component analysis for each household. This method is often applied to approximate the living standard of households in DHS surveys (Filmer and Pritchett, 2001; Sahn and Stifel, 2003). If we assume that the possession of assets is a good indicator of the well-being of households this asset index can be used to identify the poorest and richest households along the asset-index distribution.

Child mortality is calculated using the reported birth histories of each mother in the survey, which is the standard methodology to calculate child mortality in developing countries. To calculate adult mortality I use the recently proposed approach by Gakidou et al. (2004) and Timæus and Jasseh (2004) for countries with neither vital registration systems nor

good census data. Adult mortality is calculated using the sibling histories of the interviewed women in the DHS. Each woman is asked about how many births were given by her mother and how many of these siblings are alive as today. Combining this information with the age of the respondent can give an estimate of the survival probability from 15 to 45 years of age. Combining calculated child mortality rates with adult mortality rates I can calculate the life expectancy applying the most recent method for inferring life tables with two input variables by Murray et al. (2003), which is based on 1.802 historical life tables.

Some preliminary results indicate, first, that there is a low correlation between child and adult mortality in SSA. Unsurprisingly child mortality is much higher in West-African countries whereas adult mortality is higher in East-South-African countries. This justifies that inequality in child mortality is not a sufficient indicator of inequalities in life expectancy. Second, inequalities in child mortality are significantly higher than inequalities in adult mortality. Third, the difference in life-expectancy between the rich and the poor within African countries is on average 7 years, which is substantial given an average life expectancy of only about 50 years. Last, this inequality in life expectancy doesn't seem to be correlated with levels of life expectancy.

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