VARIATION IN THE STRENGTH OF THE RELATIONSHIP OF INCOME WITH ADULT MORTALITY AND MORBIDITY IN SELECTED COUNTRIES

Jeroen van Ginneken and George Groenewold,
Netherlands Interdisciplinary Demographic Institute (NIDI), The Hague,
25 Oct 2007

Proposal for presentation at EAPS Conference to be held in Barcelona in June 2008 (Extended Abstract)

Introduction

In nearly all studies conducted in developed countries negative relationships were found between income and adult mortality and positive relationships with morbidity. There is much less information on this topic in developing countries and the relevance of our project is that it helps to fill this gap. We hypothesize the existence of roughly similar relationships in developing as in developed countries: the higher the level of income, the lower is adult mortality. Another, more refined hypothesis is that the strength of the income - mortality/morbidity relationship varies in developing countries and that it varies according to income inequality (Gini index): the higher the income inequality in a country, the higher is the gradient in the income -mortality/morbidity relationship. This can also be formulated differently: the higher the income inequality in a country, the stronger is the relationship of income with adult mortality.

Objectives

The first objective is to summarize the available evidence on the income – mortality relationship in developing countries and to compare these figures with those of developed countries. The second objective is to test the more refined hypotheses, but this cannot be done for mortality due to lack of data. It can, however, be done for self-reported morbidity due to data collected in countries that participated in the World Health Survey (WHS) conducted in the early 2000s.

Data and Methods

With respect to the first objective, we have collected data on income-adult mortality from a number of countries available from existing publications.

In order to achieve the second objective, we selected twenty countries from the WHS database in four regions (Sub-Saharan Africa, East Europe, Latin America, East Asia) with roughly similar mortality levels (within the four regions), but varying in income inequality. We added six countries in Western Europe and South Asia as comparison groups. The Self-Rated General Health (SRGH) measure and the Self-Rated Disability (SRD) index (from the WHO Disability Assessment Schedule) were used as the outcome variables and we determined

how income was related to these two variables in the twenty selected countries (and also after controlling for other variables). We limited our study to persons interviewed in the age group 18-59 years old (men and women).

The countries that were selected are shown below. We also added the values of the Gini index (GI) that were obtained from the United Nations Development Report 2006. A low value (in brackets) indicates a relatively low level of income inequality, a high value a relatively high income inequality. Countries in the four regions were chosen in such a way that the rank order of the countries in terms of their Human Development Rank (HDR) were rather similar. The HDR rank (shown in numbers) is a good proxy of levels of development and of mortality in general.

Africa

Low GI: Cote d'Ivoire (36.7), Ghana (39.6) Senegal (41.3) HDR rank: 161, 129, 156.

High GI: Namibia (70.7), Zambia (52.6), Zimbabwe (56.8). HDR rank: 124, 163, 145

East Europe

Low GI: Kazakhstan (31.2), Ukraine (29.0). HDR rank: 76, 75

High GI: Russian Fed (45.6) HDR rank: 63

Latin America

Low GI: Dominican Rep (47.4) HDR rank: 94

High GI: Brazil (60.7), Paraguay (57.7) HDR rank: 65, 84

East Asia:

Low GI: Vietnam (36.1), HDR rank: 109

High GI: Philippines (46.1), HDR rank: 85

It is further relevant to add several countries that can be considered as "outliers". The countries listed below have roughly similar values in terms of GI, but the countries In South Asia have much higher mortality (and a much higher HDR value) than the countries in West Europe.

South Asia

Low GI: India (37.8), Bangladesh (31.8), Sri Lanka (34.4) HDR rank: 127, 139, 99

West Europe:

Low GI: France (32.7), Germany (38.2), Netherlands (32.6) HDR rank: 17, 18, 5.

Results

With respect to the first objective, we did not find the expected variation in the strength of the income-adult mortality relationship between developing and developed countries. This is undoubtedly due to the limited number of studies available from developing countries.

With respect to the second objective, we found that there was a positive association of income with SRGH and SRD in all countries. Tentative results indicate considerable variation in the strength of income with SRGH and SRD, but it is not yet clear if this variation is in accordance with the income inequalities observed. We also still have to control for the impact of possibly confounding variables (e.g., education).

Plans for the future

The preliminary results show promise. We plan to do further research on this topic by expanding to more countries and by using more measures of morbidity and disability.