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SOCIOECONOMIC INEQUITY IN ZAMBIAN CHILDREN'S HEALTH STATUS – DIFFERENCES BETWEEN RURAL AND URBAN AREAS.

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Abstract

This essay explores whether there is a connection between geographical location and degree of socioeconomic inequity in children's health status in Zambia. It looks at, to what extent a difference can be seen in the socioeconomic health gap between rural and urban areas and between primarily rural administrative provinces and primarily urban ones. The questions examined here are: 1) Does geographical location have an effect on socioeconomically caused differences in children's health status? And 2) given that there is a pattern to be found, what does it look like?

The above questions will be examined using data from the Zambian government's 2004 Living Conditions Monitoring Survey; the data is analysed with the help of concentration curves and concentration indices. The chosen health indicator for this study is presence of stunting among children and socioeconomic status is measured by household consumption.

The results indicate that there is a greater degree of pro-rich inequity in urban, compared to in rural, areas. The results are stronger when each child is divided individually, according to rural or urban domicile, than when the division is made by identifying whether the child lives in a predominantly urban or a predominately rural administrative province. However, while the results are less clear when the data is divided into administrative provinces, the difference still exists. Policymakers in the urban areas of Zambia need to be aware that socioeconomic inequity in children's health status is a particularly large problem there. The results found in this essay suggest that specific urban policy measures might be needed.

Contents

1. Introduction

Closing … intracountry [health] *gaps between the poor and better-off, by securing greater proportional improvements among poorer groups, is not simply a poverty issue—it is also a question of social justice and equity.* (Wagstaff 2002 p. 2)

At the 2000 UN Millennium Summit eight, by now very well known, goals were adopted with the aim to reduce poverty. The Millennium Development Goals are the holy script of many, both governmental and non-governmental, development agencies. Several of the goals deal with health issues. Goal number 1c, for example, reads: to "Halve the proportion of people who suffer from hunger" and goal number four reads: to "Reduce by two thirds, between 1990 and 2015, the under-five mortality rate". These are admirable and necessary health goals, but they only speak of an average improvement of the world's health status. They do *not* address the issue of health inequity. Empirical evidence show that health inequity does not necessarily decrease as the average health status of a population improves; on the contrary, there are many examples of health inequity actually *increasing* as average health status is improved. (Wagstaff 2002 p. 3) Socioeconomic differences in a populations health status is an issue that used to be, and still often is, forgotten in the struggle to improve the *average* health status of the population. In particular, this is often the case in economic studies that tend to focus on economic growth as the mean to develop. However, economic growth is quite often directly related to an *increased* health gap (Wagstaff 2002 p. 23). Health inequity is not only a matter of injustice it is also problematic for several, purely economic, reasons, inequity has for example, time and again, been found to cause economic inefficiency.

This essay is a case study of Zambia. Inequity in health is a large problem in Zambia; the country has a larger degree of socioeconomic inequity, in terms of infant-mortality-rates, stunting and underweight, than Sub-Saharan Africa has on average (Wagstaff 2002 p. 8). The Zambian government, does, however, have equity in for example health care access as a stated goal in the country's national health strategy (Hjortsberg and Mwikisa 2002 p. 73). Inequity studies, using Zambian data, are, hence, not only of academic interest but should also be relevant for national policy.

While socioeconomic inequity in health status is unquestionably a problem in Zambia – the degree of inequity might very well vary between different areas and different groups. In neighbouring country South Africa, for example, Zere and McIntyre, found differences in health inequity between different ethnic groups and between different geographical locations (2003). If the Zambian government wants to eradicate socioeconomic health inequity they might to well to start by focusing on those geographical areas that suffer the most from inequity. The aim of this essay is to investigate whether geographical location has an effect on the degree of socioeconomic inequity in children's health status. In other words: is socioeconomic inequity in children's health status more prevalent in urban or in rural areas. It will not be within the scope of this essay to analyse the reason(s) behind such possible geographical differences in child-health-equity in Zambia. Neither will policy recommendations, for dealing with the problem, be made. The goal of this essay is only to establish whether geographical differences *do* exists in Zambia, and if that is the case, what *patterns* can be seen – first when this has been established can there be a meaningful discussion around the underlying reasons behind differences in socioeconomic inequity in health.

2. Background

In this part of the essay some background themes and concepts, that it is necessary for the reader to be aware of or grasp in order to understand the rest of this essay, will be presented.

2.1. Health Inequity

Inequalities are, in general, considered a problem as they hinder economic development by, for example, causing economic inefficiencies and by undermining the political stability of a country (Todaro and Smith 2006 p. 208). There are, however, many who would consider *health* inequality particularly troublesome because health is such a basic right, necessary for us to be able to function at all (O'Donnell et al. 2008 p. 1). Because of this, it could be argued that its importance overshadows most other possible socioeconomic inequalities. Furthermore, it is likely that there, in most cases, is diminishing marginal utility from health. A health improvement for someone with ill health normally has a larger utility than an equally large health improvement for someone who already has good health. This would than imply that, given that there is a certain "amount" of health improvements or increased health care available, a country or region which distributes these equitably would also have a higher total sum of utility from these health improvements or this health care than a country that has the same "amount" of health improvements/care but that distributes these in an unequal manner. The reason being that with an unequal distribution these "health improvements" are likely to befall primarily those that already have fairly good health.

Many researchers use the terms "health inequality" and "health inequity" interchangeably and put little importance on the difference in meaning. However, while using the term health *inequality* simply implies that there are differences in health status, using the term health *inequity* implies that not only are there differences, but that these differences are unjust. Using the term health inequity, hence, means using a normative term, which is, normally, something one would shy away from in an academic essay. In this case, however, the use of this normative term is an important statement. Most people would agree that health inequality almost always is a result of socioeconomic factors rather than preferences (O'Donnell et al. 2008 p. 1). In particular when looking, as is the case in this essay, at children in an extremely poor country, implying that differences in health status are caused by anything other than

socioeconomic factors, for all but a negligibly small number of children, seems absurd. For this reason the term health inequity rather than the term health inequality will be used in this essay.

2.2. Measuring Children's Health Status – Stunting

Stunting does not come easy. It happens over time,
and means that a child has endured painful and debilitating cycles of illness,
depressed appetite, insufficient food and inadequate care. (UNICEF 2000)

In this essay, differences, and degree of difference, in inequity in children's health status will be investigated. There are several reasons why investigating specifically *child* health is of interest: firstly, it is a good indicator of the general socioeconomic situation in the developing country/region in question. Secondly, children's health status has long-term economic effects on the country/region as it affects these future adults productivity and earnings (Wolfe and Behrman 1982 p. 163-164). Furthermore, a child's health status does not only affect that child's own future socioeconomic prospects, in turn it also affect the prospects of his or her future children. In other words: because health affects socioeconomic status and socioeconomic status affects health, poor child health can become a vicious circle within a family. (Currie 2009 p. 116) Lastly, and more specifically why looking at *adult* health in Zambia might be a problem, is the prevalence of HIV/AIDS among the adult population. HIV/AIDS has a smaller direct effect on child health compared to on adult one. As the aim of this essay is finding a more general pattern, in regards to health equity in rural vs. urban settings, it is important that the, often overwhelming, effects of HIV/AIDS, that can be very concentrated in certain geographical areas, do not affect the data in a too large an extent.

Child health outcome will be examined here by the study of individual level data for the anthropometrical indicator *stunting*. There are three common anthropometrical indicators used to measure child health: height-for-age (H/A), weight-for-age (W/A) and weight-for-height (W/H) (Wagstaff and Watanabe 2000 p. 6) Weight-for-age (and to a lesser extent W/H) mainly shows the effect of short-term malnutrition. W/A is for this reason a good anthropometrical indicator when looking at effects of temporary or recent changes in nutritional status as a result of, for example, natural disasters such as draught or political upheaval leading to a large refugee situation. These short-term effects are, however, effects

that need to be *avoided* as part of this analysis. The aim of this essay is to determine effects of rural/urban location on differences in inequity – it is therefore necessary that temporary differences between the regions in Zambia, that could be the result of, for example, a bad harvest, do not disrupt the analysis. Because the aim here is to look at urban/rural differences in the long-term, the more appropriate measurement of height-for-age is going to be used. Height-for-age and its effects: shortness, and in extreme cases stunting, shows the effects of malnutrition in the long run (O'Donnell et al. 2008 p. 40)

A low height-for-age measure of a child is described as shortness, while an extremely low height-for-age is called stunting. A stunted child has, as the UNICEF quote above indicates, been suffering from an overall level of ill health for a long period of time; stunting can, for example, be the result of long-term lack of food and/or health care. The effect of this long term neglect of a child's health is not only that the child will be short for its age (this is primarily an indicator) – a child suffering from such long-term ill health, that she or he has become stunted, will also often suffer from cognitive damage. (UNICEF 2000) Stunting is, hence, very serious not only on the individual level, but also in regards to the country's future economic development.

2.3. Zambia

Zambia is a former British colony situated in Sub-Saharan Africa. The country gained independence in 1964 and while it is today a democratic republic, the country has, for most of its independence, been under one-party rule. Administratively Zambia is divided into nine provinces with Copperbelt, Lusaka and Eastern being the most populous; the total population of the country is estimated to be approximately 11.9 million (CIA 2009) of which 61 percent is rural (Central Statistical Office 2005 p. xviii).

		Population distribution (%)	
Province	Percentage of population	Rural	Urban
Central	10	72	28
Copperbelt	15	21	79
Eastern	14	76	24
Luapula	8	83	17
Lusaka	14	18	82
Northern	13	79	21
North-Western	6	74	26
Southern	12	77	23
Western	8	85	15
Total	100	61	39

Table 1. (Central Statistical Office 2005 p. 10)

Zambia is a poor country with a GDP per capita of USD 1,150 - this ranks Zambia number 133 out of IMF's 179 member states in terms of this welfare measure (IMF 2009). Like most other Sub-Saharan countries the World Bank also classifies Zambia as a "low income economy" (World Bank 2009). A large percentage of the population live in extreme poverty: in 1998 72.9 percent of the population were below the national poverty line, 63.7 percent of the population lived on less than USD 1 a day and 87.4 percent lived on less than USD 2 a day. Furthermore, inequality is widespread in the country, the Gini index for consumption inequality was in 1998 0.53 – one of the highest in the world. (World Bank 2006 p. 278-281) Moreover, in the UN Human Development Index Zambia is ranked as number 163 out of the 179 countries on the list (UNDP 2007).

The health status of the Zambian population is one of the worst in the world. Life expectancy at birth is 38.63 years, only in Angola and in Swaziland is this number lower. (CIA 2009) Life expectancy at birth has also drastically decreased in recent decades – the UN estimates that there has been a decrease in the life expectancy of approximately 11 years between 1990 and 2000 (IRIN 2003). Furthermore, the infant mortality rate is 101.2 deaths per 1000 live births, which places Zambia among the top ten countries with the highest infant mortality rate in the world. The adult HIV/AIDS prevalence rate is the 7th highest in the world. (CIA 2009) Other large health problems include: Malaria, Tuberculosis, Meningitis, Measles and Cholera. Chronic food shortage and lack of safe water supplies are the underlying causes of much of the population's health issues.

The largest health care provider in the country is the Government; NGOs and Missions also often act as health care providers, particularly in rural areas. In addition, there are a number of private medical practitioners in the country - including a large non-formal sector consisting of traditional healers and birth attendants. (Hjortsberg 2003 p. 756) While Zambian health care *is* suffering from a very strained financial situation, striving towards equity is a clear policy aim of the governments (Hjortsberg and Mwikisa 2002 p. 73).

3. Theoretical Framework

In this essay the 2004 Zambian Living Conditions Monitoring Survey (LCMS) data is going to be analysed in order to establish whether there are urban/rural differences in socioeconomic inequity in children's health status in Zambia. There are a number of ways in which inequity can be measured, all with its own strengths and weaknesses. Menon et al. (2000), for example, use a rural-urban odds ratio and a logistic regression model in their cross-country study on differences in urban vs. rural health inequity. In this essay the LCMS data will be analysed using concentration curves and indices – a method favoured by, for example, Wagstaff and Watanabe (2000). The use of concentration curves makes it possible to visually recognise geographical differences in inequity in children's health, while the concentration indices make it possible to measure the magnitude or degree of inequity.

3.1. Concentration curves

Concentration curves and concentration indices are graphical and numerical representations of inequity, respectively. As can be seen in figure 1 below, a concentration curve is created by making a cumulative ranking of the population (in this case the children in the LCMS) according to socioeconomic status (in this case household consumption) on the horizontal axis while on the vertical axis the population is ranked cumulatively according to malnutrition status (in this case stunting). What the concentration curves, hence, will show us is the distribution of stunted children in the population according to household socioeconomic consumption. (Wagstaff and Watanabe 2000 p. 2-3) Line (a) in figure 1 is called the line of equity and is the 45-degree diagonal. At the diagonal, household consumption does not affect the rate of stunting, for example: at the line of equity the poorest 50 percent of the population also has 50 percent of the stunted children. In other words, at the line of equity there is no health inequity in the population. Curve (b) in figure 1 is, on the other hand, an example of a concentration curve in a society where there is pro-rich inequity in the population's health status. In a situation such as the one presented in curve (b) the 30 poorest percent of the population host 50 percent of the stunted children, in other words: stunting is more common among the households with a low level of consumption. Curve (c) is the unusual situation that

there is pro-poor health inequity in a society, meaning, in this case, that stunting is more common among the rich than among the poor.

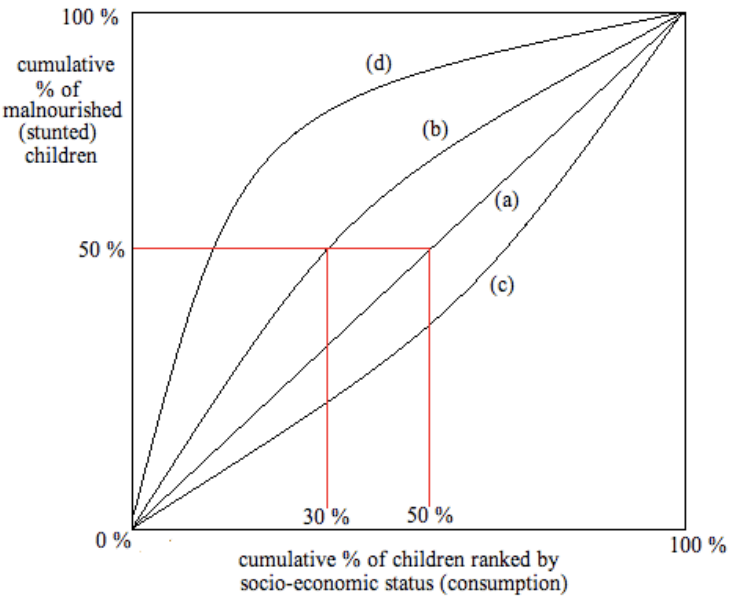

Figure 1.

Now imagine that curve (b) in figure 1 is the rural population of Zambia while curve (d) represents the urban population. Such a situation would mean that the degree of health inequity is larger in urban than in rural areas.

In this essay, concentration curves will be constructed out of grouped data. The Zambian population will be divided into ten wealth groups ranked from poorest to richest according to consumption; the benefit of doing this, compared to using micro data (i.e. rank and graph all the children according to their individual statistics), is primarily that, by using wealth groups, the data results can be presented to the reader in a clear way, which would be almost impossible to do if micro data were used.

3.2. Dominance curves

In a situation such as the one above where concentration curve (b) and concentration curve (d) do not cross at any point it can be said that curve (b) dominates curve (d). This means that there is a lesser degree of inequity in stunting in population (b) than in population (d). It is, however, not uncommon that concentration curves cross each other at one or several points

and the results from a survey might, hence, look something like figure 2 below. In this case neither concentration curve (b) nor concentration curve (c) dominates the other. It is not obvious, by just looking at the concentration curves, whether there is a larger degree of inequity in stunting in society (b) or in society (c), as a whole.

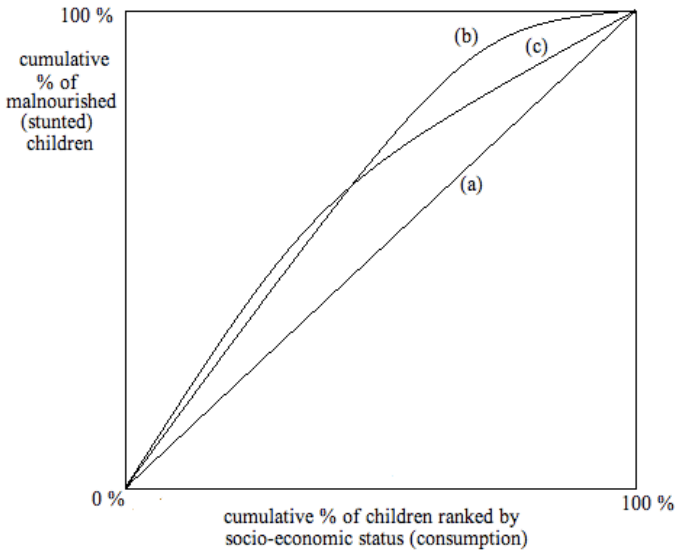

Figure 2.

To determine differences in degree of inequity in stunting, in particular when two concentration curves cross, it is necessary to use a concentration index.

3.3. Concentration indices

Constructing a concentration index, instead of just relaying on a concentration curve, is important for a number of reasons. As mentioned above, when two concentration curves cross a concentration index is necessary to determine dominance. Furthermore, a concentration index gives a numerical instead of graphical representation of the possible inequities. The numerical representation makes vast amounts of data more easily comparable, it makes it possible to determine degree of difference between two populations, as well as to test for statistical significance.

A concentration index is defined as twice the area between the line of equity and the respective concentration curve (Wagstaff and Watanabe 2000 p. 3) (twice the blue area in figure 3).

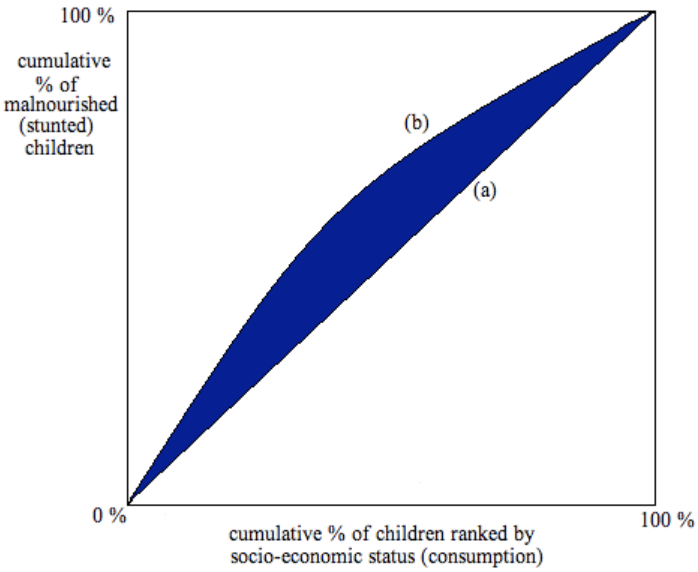

Figure 3.

A concentration index for grouped data can be calculated using the following formula:

$$C = (p_1 * L_2 - p_2 * L_1) + (p_2 * L_3 - p_3 * L_2) + \ldots + (p_{T-1} * L_T - p_T * L_{T-1})$$

Where:

T = the number of groups in the sample - in this case 10 as the data has been divided into deciles.

p = the cumulative percentage in the sample group, ranked by socioeconomic status, for each respective group; and

L = the corresponding concentration curve ordinate; that is the cumulative percentage of stunted children. (O'Donnell et al. 2008 p. 98)

The concentration index (C) will equal zero if the concentration curve coincides with the line of equity. In cases where there exists pro-poor inequity C will take on a positive value while the (more likely) situation of pro-rich inequity will result in C taking on a negative value (Wagstaff and Watanabe 2000, p. 3). For this essay the question will be whether C will be a smaller (i.e. a more negative) value in rural or in urban areas.

3.4. Statistical significance

Once the concentration index has been calculated it is necessary to determine whether the inequity results found by the concentration index are actually larger in one geographical domicile / province than in another – or if the differences found are due to chance. In this essay statistical significance will be calculated using the independent two-sample t-test.

Firstly, the variance of the estimator C will be calculated using the following technique (O'Donnell et al. 2008 p. 98-99):

$$Var(\hat{C}) = \frac{1}{T}\left[\sum_{t=1}^{T} f_t a_t^2 - (1+C)^2\right]$$

Where:

T = the number of groups in the sample (in this case 10)

F_t = the proportion of the sample in the t^{th} group

C = the observed concentration index of the sample

$$a_t = \frac{\mu_t}{\mu}(2R_t - 1 - C) + 2 - q_{t-1} - q_t$$

Where:

μ = the mean of the sample

μ_t = the mean of the group t in the sample

$R_t = \sum_{k=1}^{t-1} f_k + \frac{1}{2} f_t$ i.e. the fractional rank of the group t

$q_t = \frac{1}{\mu}\sum_{k=1}^{t} \mu_k f_k$ i.e. the concentration curve ordinate of the group t

Once the variance of C has been calculated, the standard error can be found by simply taking the square root of the variance.

The independent two-sample t-test will then be computed using the following formula:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\frac{SD_1^2}{n_1} + \frac{SD_2^2}{n_2}}}$$

Where:

$\overline{x}$ = the observed concentration index in sample 1 and 2, respectively (for example in urban and rural areas)

SD = the standard error of sample 1 and 2.

n = the number of groups in each of the two samples (in this essay n is always 10)

H_0 being that there is no difference between the two samples being tested.

3.5. Measuring stunting

The normal reporting system for measuring stunting in children is by calculating a Z-score (Wagstaff and Watanabe 2000 p. 6). The height-for-age Z-score (HAZ) is calculated as follows:

$$HAZ = \frac{(observed\ value) - (median\ value\ of\ the\ reference\ population)}{(St.deviation\ of\ the\ reference\ population)}$$

The Z-score is, hence, a statistical measure that shows distance from median/mean as a proportion of the standard deviation of the reference population. The World Health Organisation's recommended cut-off-points, which are the most commonly used cut-off points internationally and also the cut-off-points in this essay, are Z = +/- 2. A child with HAZ < -2 is, in other words, considered stunted. (Wagstaff and Watanabe 2000 p. 6)

3.6. Measuring socioeconomic status

While socioeconomic status can, of course, be measured in a multitude of ways, there are three indicators of socioeconomic status / living standard that are commonly used in inequity studies: 1) income; 2) asset indices; and 3) consumption. There is no consensus on which indicator is the most appropriate one to use. All three of them have their respective strengths and weaknesses. As the Zambian LCMS include data that would, theoretically, make it possible for me to use any of the three indicators a discussion on the best choice of socioeconomic indicator is appropriate.

Income and consumption are *direct* measures of living standard while creating an asset index gives you an *indirect* measure. The direct measures may at times be very difficult and expensive to collect and is for that reason often not included in many surveys – collecting the necessary information for creating an asset index, on the other hand, has the advantage of being comparatively easy and inexpensive to do. (O'Donnell et al. 2008 p. 69-81) The World Bank's recommended asset index has a list of 40 household indicators including: type of floor, roofing and wall material; type and availability of water and sanitation facilities; type of stove and the possession of a refrigerator; possession of different types of means of transportation; availability of electricity and possession of radio and television (Houweling et al., 2003 p. 6). However, several of these household indicators are likely to have a direct effect on child health (stunting) independently of the household's socioeconomic status as a whole. For example, whether the household has a private toilet, a shared toilet facility or some other sort of latrine, very directly affects a child's health status through risk of infections, and is, hence, not merely an indicator of the household's general living standard. Furthermore, the direct effect that several of these indicators have on a child's health status may differ between rural and urban areas. Owning a car in an urban area might have no, or very little, direct effect on a child's health status as it is likely that there are other public means of transportation in urban areas that makes visiting a hospital or health clinic possible even without owning a car - in some rural areas this might be almost impossible. Houweling et al. also acknowledges, in their study of asset indices, that what indicators are included in the index has an effect on the magnitude of health inequity found (2003). As the aim of this essay is not to measure the direct effect (or differences in effect between rural and urban areas) of these individual indicators on stunting, a direct living standards measure (consumption or income) rather than an indirect one (asset index) is a better choice.

The choice of socioeconomic indicator for this study thus stands between using income or consumption; the choice, for this essay, has fallen on consumption. There are two primary reasons why this can be argued to be the more appropriate choice when looking at a developing country. First of all, income is often not evenly distributed over time, the consumption level is, however, often (through saving and borrowing) to a larger degree smoothed out over time and consumption can therefore be said to better represent the actual living standard of the household. (O'Donnell et al. 2008 p. 70-71) Secondly, developing countries, such as Zambia, normally have a large informal sector, a large degree of self-employment and much household production. Combined with the fact that many households have continuously changing sources of income, correct income data is often very difficult to collect (O'Donnell et al. 2008 p. 71).

3.6.1. Family level economies of scale

Another important matter, in relation to measuring socioeconomic status (in this case consumption), is whether we assume that there are economies of scale or not at family level. It is reasonable to assume at least some degree of economies of scale. That is: for a family of, for example, five the cost of living is unlikely to be five times that of the cost of living for a household with only a single individual. The following equation describes the economies of scale at household level (Wagstaff and Watanabe 2000 p. 6):

$$E = A/H^{e}$$

Where:

E = equivalent consumption

A = actual consumption

H = household size

e = equivalence elasticity

If e is equal to 1 there are no economies of scale, if e is equal to 0 there are perfect economies of scale.

Economies of scale at household level are usually more pronounced in countries where a large degree of the income is spent on non-food products. For OECD countries Buhmann et al. have found that, on average, *e* is quite close to 0.4 (Wagstaff and Watanabe 2000 p. 6). For simplicities sake many studies of OECD countries therefore use the, so-called, "square root equivalence elasticity"; this method puts $e = 0.5$ i.e. the square root of the household size is calculated. (Wagstaff and Watanabe 2000 p. 6) The *e* for Zambia can reasonably be assumed to be larger than that. Indeed, several studies looking at developing countries have pointed out that economies of scale can not be assumed to be very high in poorer countries: Evans Jadotte, for example, puts $e = 0.75$ in a study of characterisation of poverty and inequality on Haiti (2007 p. 34-37). Similarly, Matthias Schmidt, in a study of poverty trends in Namibia, finds that an equivalence elasticity equal to 0.75 or even 0.9 is a moderate assumption (2009 p. 17-20). A more in depth discussion of equivalence scales and equivalence elasticity is, unfortunately, outside the scope of this essay; for this data analysis *e* has therefore simply, based on earlier developing country research, been assumed to be 0.75.

3.7. The Zambian Living Conditions Monitoring Survey

The data used in this essay are from the 2004 Zambian Living Conditions Monitoring Survey (LCMS) conducted by the Central Statistical Office of Zambia. The survey is the fourth one conducted in the country since the first LCMS in 1996. The aim of the LCMS is to monitor poverty and development in Zambia and to provide the necessary statistics for poverty comparisons in the country. Approximately 20,000 households, with a nationwide coverage, were drawn to be a part of the LCMS. Data collection was done by personal interviews using a set questionnaire covering the following topics: demography and migration; orphan hood; health; education; economic activities; income; household assets; household amenities and housing conditions; household access to facilities; self-assessed poverty and household coping strategies; and agricultural production. (Central Statistical Office 2005 p. 3-9)

4. Earlier Research on the Effects of Geographical Location on Health Inequity

A fair amount of research has been done on health inequity between rural and urban areas; a large amount of material can also be found on health inequity between groups with different socioeconomic status. Research, which looks at differences in intra-urban, compared to intra-rural health inequity, between different socioeconomic status groups, is, however, not as common.

In general, it could be said, that there is an urban advantage in regards to health status among the total population (Fotso, 2006). The wealthier parts of the population will generally be in urban areas and these areas normally also have the most advanced treatment possibilities and modern hospitals. It could, therefore, easily be assumed that health inequity is also likely to be lower in urban settings as everyone who lives there can, theoretically, benefit from more and more advanced health care. However, this general superiority in health *can be*, and in most cases *is*, masking large differences between the urban rich and the urban poor. The fact that there exists advanced medical care in many urban locations does not necessarily mean that it is accessible to all inhabitants of the city. Furthermore, the crammed living conditions, without many important sanitary functions, under which the urban poor live in the large slums of many cities in developing countries, often promotes disease. Kjellstrom and Mercado point out, in an article for the WHO Knowledge Network on Urban Settings (KNUS), that while urbanisation can, in theory, be health promoting, there are a number of socioeconomic determinants that decide the health status of the worlds urban poor. Such determinants include, for example, availability of services, housing quality and working conditions. First and foremost the health situation in urban slums are a matter of governance. (2008 p. 555) Figure 4 below, which compiles determinants for urban health, is adopted from the KNUS paper.

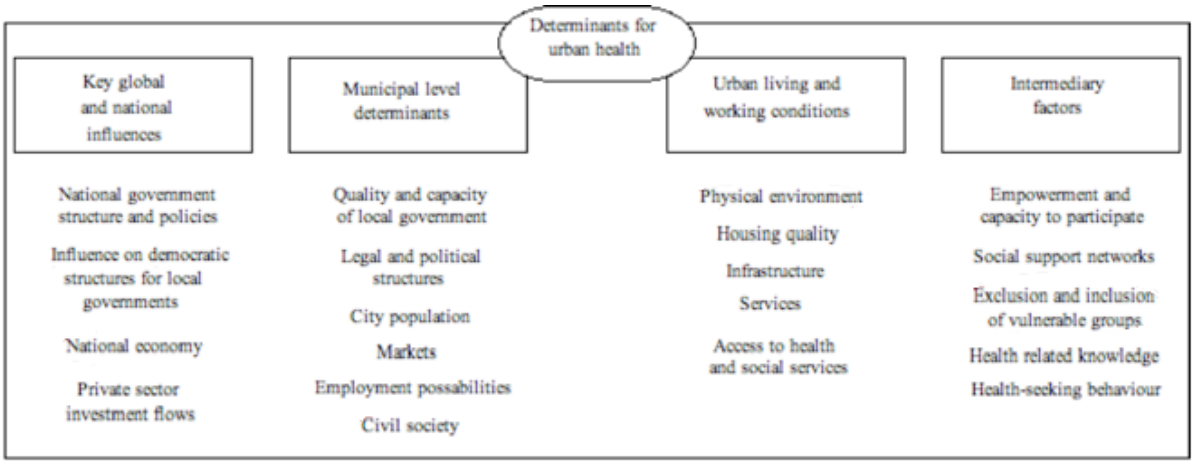

Figure 4. (adapted from Kjellstrom and Mercado 2008 p. 555)

Naturally, the determinants listed in figure 4 affect each other and it is therefore not always clear what actually causes bad health in urban areas. The same could be said for the socioeconomic inequity in children's health status in urban areas. But, even though the division of the determinants might not be as clear cut as figure 4 suggests – separating the determinants into four groups still has its points. Much of the literature that tries to explain urban health inequity, tend to focus on the determinants listed in the group "urban living and working conditions". While these are surely important factors they are not the only factors that affects urban socioeconomic inequity in health.

That being said, rural areas are not necessarily suffering less from large inequities in health. Long distances to health clinics often result in only those able to afford taking days off, or who has access to the necessary means of transportation, can afford the luxury of medical care. Hjortsberg and Mwikisa found, in a study of inequities in access to health care in Zambia, that the average travel time to a hospital in rural Zambia is over six hours and the average travel time to a health centre is almost two hours (2002 p. 72). Furthermore, in many parts of the developing world it has been found that the rural poor are more likely to seek out traditional "medicine men" or "healers" instead of modern (presumably more effective) care, compared to their counterparts in the urban areas (see for example: Kumar et al. 2007 and Leonard 2003). It is, hence, given earlier research not directly obvious whether health inequity is greater in rural or in urban areas.

In a study of inequity in under-five malnutrition in South Africa, Zere and McIntyre found that there was a greater degree of pro-rich health inequity among children in metropolitan

areas compared to in the rest of the country (2003 p. 7). Fotso also found, in a Sub-Saharan Africa cross-country study of socioeconomic inequities in stunting, that the inequities, generally speaking, were larger in urban compared to in rural areas (2006 p. 6). However, out of the 15 countries in Fotso's study only 6 of the countries had statistically significant results ($p < 0.1$) showing that inequities in stunting were greater in urban than in rural areas. In Zambia and in Chad, Fotso actually found that there was a greater degree of inequity in stunting in rural areas (though these results were not statistically significant at $p < 0.1$) (2006 p. 6). Menon et al. (2000) also, similarly, preformed a cross-country study on differences in socioeconomic inequity in child stunting between rural and urban areas (though their study included 11 countries spread out over Asia, Africa and Latin America). Also they found that socioeconomic differences in health were consistently larger in urban compared to in rural areas (2000 p. 286). Menon et al. however, found, in contrast to the results in Fotso's study, that there was a higher degree of inequity in urban compared to in rural areas in Zambia (the odds ratio of stunting according to socioeconomic status in rural areas was found to be 2.3 while in urban areas it was found to be 2.4). However, just as for Fotso's results, the results for Zambia in Menon et al.'s study were not statistically significant. (2000 p. 286)

In conclusion it can be said that the limited earlier research that exists on differences in socioeconomic inequity in children's health status between rural and urban locations has, in general, found a larger degree of inequity in the urban areas. There are, however, two primary reasons why this might not be the result found in this essay. Firstly, many of the studies on the subject have suffered from a low degree of statistical significance for their results – actually, no study, with statistically significant results, have been found for Zambia. Secondly, the two studies that I have found, that include Zambia, have conflicting results in regards to whether there is a larger degree of pro-rich inequity in rural compared to in urban Zambia. On top of this, the two articles, by Menon et al. and by Fotso, that include Zambia, are both cross-country studies where the country is one of 11 and 15 others, respectively. As this essay is not a cross-country study but, rather a cross-provincial study of only Zambia the hope is that it will help shed some light on the actual situation in Zambia in regards to urban/rural differences in socioeconomic health inequity.

5. Empirical Analysis

This part of the essay deals with the actual empirical analysis of the Zambian LCMS data. The health inequity data will be presented and analysed according to two geographical divisions: administrative province and rural/urban domicile.

5.1. Health Inequity Data

Table 2 below shows the cumulative percentage of stunted children, by wealth group, in the nine administrative provinces of Zambia. The table shows, for example, that the 50 poorest percent of the population in the North Western province (a primarily rural area) has approximately 59 percent of the stunted children in the area. In the urban (capital city) province of Lusaka we can see that the poorest 50 percent of the population has around 52 percent of the children suffering from stunting. The health inequity data of the Western province stands out – the 50 poorest percent of the population only has about 48 percent of the stunted children of the province. In fact, for almost all wealth groups the data shows pro-poor health inequity in Western.

At a glance, the results in table 2 might seem surprising as the inequities are not that great - the poorest 50 percent of the population is only housing about 55 percent of the stunted children. There are two reasons for this. Firstly, most of the Zambian population is *very* poor and so only the top few percent of the population can, in any way, be considered "well-off". It is, hence, not at all strange that there is a large percent of stunted children in, say, wealth group eight. Secondly, this essay only looks at whether a child is stunted or not, it does not include degree of stunting in the analysis. In other words, while there are stunted children both among the extremely poor and among the moderately poor, the children might be "more stunted" (i.e. have a more negative haz-value) among the extremely poor. The pro-poor inequity results in Western province are, with this kept in mind, not *as* strange. While the data for Western indicates pro-poor inequity in most wealth groups, there is actually pro-rich inequity, also in this province, when looking at the top wealth groups.

Wealth group	Cumulative percent of population in each respective province, according to socio-economic status	Cumulative percent of stunted children in each province								
		Central [R]	Copperbelt [U]	Eastern [R]	Luapula [R]	Lusaka [U]	Northern [R]	North Western [R]	Southern [R]	Western [R]
	0	0	0	0	0	0	0	0	0	0
Poorest	10	10.729	14.082	10.264	11.532	9.739	12.595	10.766	12.527	8.743
2nd	20	20.85	24.777	22.239	21.746	18.528	22.458	22.01	22.637	19.126
3rd	30	33.603	34.759	32.814	32.125	30.642	33.232	33.732	33.846	27.869
4th	40	43.32	45.276	45.1	42.669	41.568	44.309	46.411	42.417	37.159
5th	50	52.632	54.723	55.676	51.895	52.257	53.717	58.851	53.406	47.815
6th	60	61.943	65.418	65.629	61.615	62.708	64.187	68.66	63.955	59.29
7th	70	71.053	75.578	74.494	72.818	71.972	73.595	78.947	76.702	69.399
8th	80	83.198	85.917	83.359	82.867	81.711	82.7	86.124	85.493	80.601
9th	90	92.51	93.404	92.224	91.928	90.975	90.591	93.301	93.845	91.257
Richest	100	100	100	100	100	100	100	100	100	100

[R] = Province with a primarily rural population. **Table 2.**
[U] = Province with a primarily urban population

It is, just from looking at the health inequity data over the provinces, hard to draw any immediate conclusions about differences in socioeconomic inequality in children's health status between primarily rural vs. primarily urban areas. For example, Lusaka and Copperbelt both have a population consisting of approximately 80 percent urban individuals. However, while Lusaka can be considered quite equitable there is a fairly high degree of inequity in the Copperbelt province.

In table 3 the Zambian population has instead been divided according to rural or urban geographical domicile, irrespective of administrative province. From this data we can see that the 50 poorest percent of the population living in rural areas has about 52 percent of the stunted children of these areas. Comparably, the poorest 50 percent of the population in urban areas house approximately 55 percent of the stunted urban children.

Wealth Group	Cumulative % of population in each respective province, according to socio-economic status	Cumulative percent of stunted children in each geographical domicile	
		Rural	Urban
	0	0	0
Poorest	10	10.332	11.708
2nd	20	21.186	22.393
3rd	30	31.095	33.014
4th	40	41.982	44.21
5th	50	52.347	54.703
6th	60	61.995	66.091
7th	70	72.23	74.984
8th	80	82.302	84.517
9th	90	91.07	92.962
Richest	100	100	100

Table 3.

Looking more closely at the cumulative percentages of stunted children in urban vs. rural areas, it can actually be concluded that for each wealth group there is a larger cumulative percent of stunted children in the urban areas compared to in the rural ones. Hence, from this data it is possible to come to the conclusion that the concentration curve for the rural population is going to dominate the curve for the urban population.

5.2. Concentration Curves

As predicted in section 5.1. the concentration curve for rural Zambia completely dominates the one for urban Zambia. In figure 5 below we can also see that both concentration curves are, at all times, above the line of equity and so there is clearly pro-rich inequity in the health status of children, for both rural and urban Zambia, in all socioeconomic segments of the population.

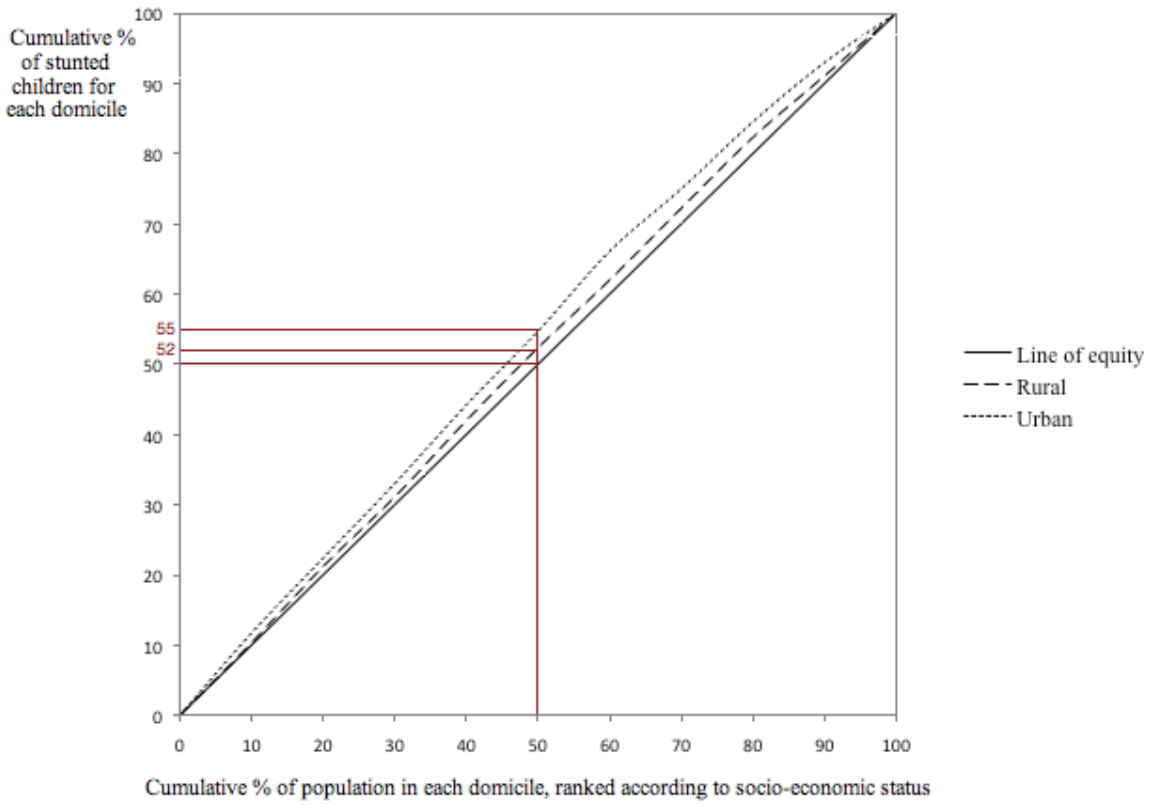

Figure 5.

However, when comparing Zambia's most urbanised province Lusaka (with 82 percent urban population) with the country's least urbanised province Western (with 15 percent urban population) the picture is not as clear cut. In figure 6 below we can see that neither one of the two regions are above the line of equity for all wealth groups. Also, while Lusaka's concentration curve is above Western's for the most part, Western does not dominate it; and, as mentioned earlier, dominance is necessary to be able to graphically determine which province is the most equitable.

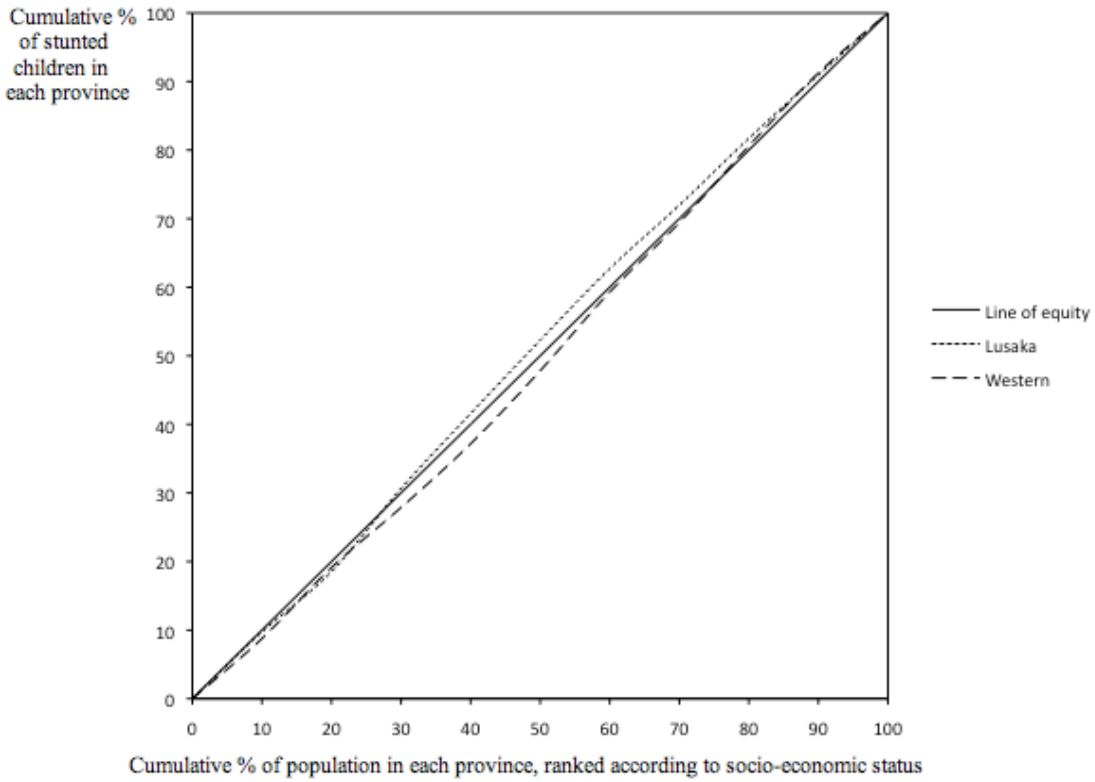

Figure 6.

Furthermore, when comparing the two most urbanised provinces, which also have a similar urban/rural population composition, Lusaka (82 percent urban population) and Copperbelt (79 percent urban population) in figure 7 the concentration curves displayed are very different from each other. Actually Copperbelt (which is the least urbanised of the two) is clearly dominated by Lusaka at all wealth groups.

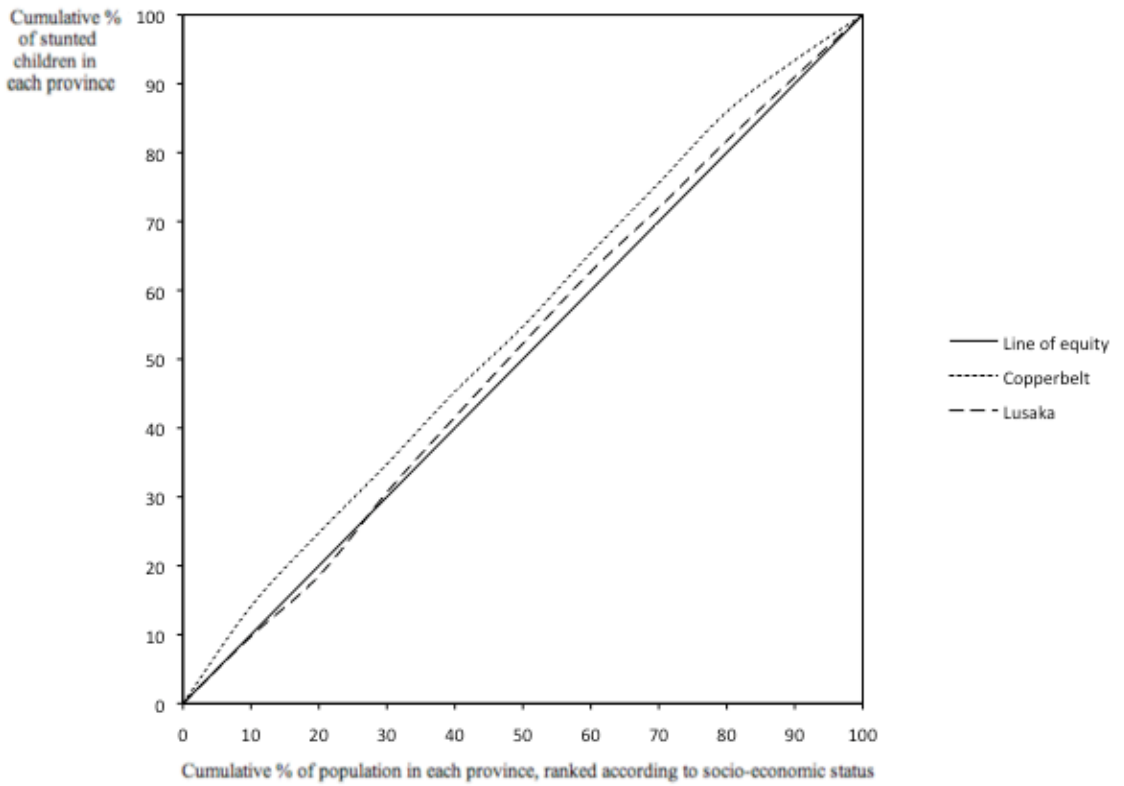

Figure 7.

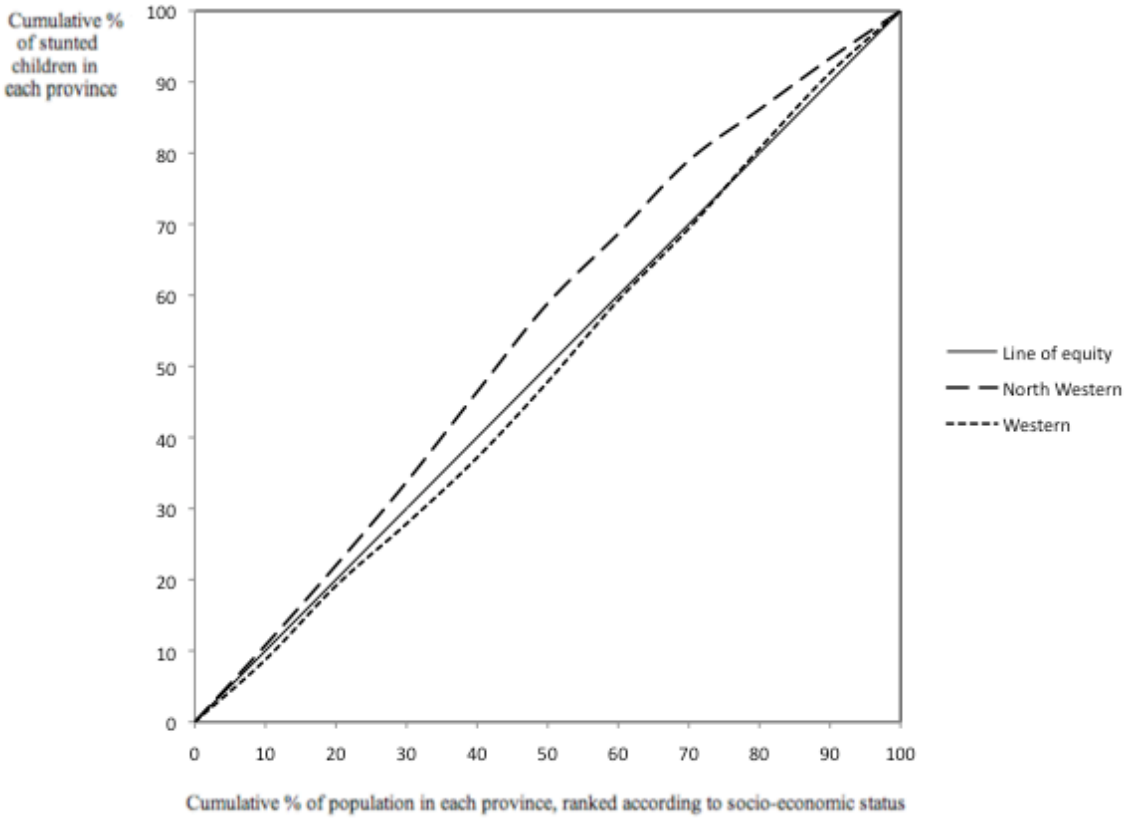

Figure 8.

Lastly, figure 8 shows the concentration curve for the province that has the highest cumulative percent of stunted children in the largest number of wealth groups (North Western) and the concentration curve for the Western province (the province with the lowest cumulative percent of stunted children in all but one of the wealth groups). Obviously North Western has high socioeconomic inequity in children's health status while Western does not. Both provinces, however, has a primarily rural population.

5.3. Concentration Indices

As was displayed graphically in figure 4, where the concentration curve for rural Zambia dominated the concentration curve for urban Zambia, the concentration indices in table 4 demonstrates numerically how socioeconomic inequity in children's health status differs between rural and urban areas. The calculations have given us a concentration index of about -0.07 for the urban areas of Zambia and a concentration index of about -0.03 for the rural areas. From these numbers, hence, confirm the conclusion drawn from figure 5, that socioeconomic inequity in children's health status is larger in urban compared to in rural Zambia.

	Concentration index
Urban areas	-0.069164
Rural areas	-0.029078

Table 4.

In table 5 the concentration indices for each of Zambia's nine administrative provinces have been calculated. The provinces are ranked with the province with the most inequity at the top and with the least inequitable province at the bottom. Western province is both the least inequitable province and the most rural one. Lusaka, the most urbanised of the provinces is the second most equitable. Similarly, the two least equitable provinces include one primarily rural province (North Western) and one primarily urban one (Copperbelt). It seems that, while there is indeed more socioeconomic inequity in children's health status in the urban areas compared to in the rural areas of Zambia as a whole, these differences cannot be directly seen when looking at the individual provinces of the country. It cannot be accurately predicted whether a province suffers from inequity based simply on whether the province is primarily urban or primarily rural in constitution.

Province	Concentration index	Percent of population considered to be rural
North Western	-0.097604	74
Copperbelt	-0.087868	21
Southern	-0.069656	77
Eastern	-0.063598	76
Northern	-0.054768	79
Central	-0.039676	72
Luapula	-0.03839	83
Lusaka	-0.0202	18
Western	0.017482	85

Table 5.

In table 6 the average concentration index for the primarily urban provinces (Lusaka and Copperbelt) as well as the average for the primarily rural provinces have been calculated. The average points to a small rural dominance, which could be said to support the pattern found when comparing rural and urban areas in all of Zambia, irrespective of the administrative provinces. However, the dominance is very slight.

	Average concentration index
Among primarily urban provinces	-0.054034
Among primarily rural provinces	-0.049459

Table 6.

5.4. Statistical Significance

The statistical significance of the results found in section 5.3. will now be tested using the independent two-sample t-test. The value of *t,* for the difference between the concentration index of rural Zambia and the concentration index of urban Zambia, is found to be 4.247. As *n,* for both the rural and the urban areas of Zambia, is 10 this means that we have 18 degrees of freedom. H_0 can, hence, be rejected as $p < 0.1$ percent – urban Zambia does indeed have more socioeconomic inequity in stunting than rural Zambia does.

Table 7 below, shows the t-value and the statistical significance found when using the independent two-sample t-test on the concentration indices for all of Zambia's nine administrative provinces.

	North Western	Copper-belt	Southern	Eastern	Northern	Central	Luapala	Lusaka
Copper-belt	0.569 n.s.							
Southern	1.548 n.s.	0.984 n.s.						
Eastern	2.083 n.s.	1.731 n.s.	0.400 n.s.					
Northern	2.975 **	2.212 *	0.928 n.s.	0.834 n.s.				
Central	4.053 ***	3.243 **	1.881 n.s.	2.302 *	1.298 n.s.			
Luapula	4.335 ***	3.471 **	2.033 n.s.	2.652 *	1.510 n.s.	0.0184 n.s.		
Lusaka	5.662 ***	4.743 ***	3.214 **	4.559 ***	3.184 **	1.818 n.s.	1.845 n.s.	
Western	7.582 ***	6.703 ***	5.205 ***	7.012 ***	5.687 ***	4.543 ***	4.711 ***	3.174 **

* = p < 5 percent
** = p < 1 percent
*** = p < 0.1 percent
n.s. = results are not statistically significant at 5 percent.

Table 7.

The cells that are shaded green in table 7 have statistically significant results. The t-tests confirm that Western is indeed the most equitable province. The t-values for North Western, on the other hand, indicate that the province might actually not be the most inequitable in the country when it comes to child health. Neither of the tests comparing North Western with Copperbelt, Southern and Eastern, respectively, are statistically significant. In other words, either these provinces might in reality suffer from more inequity than North Western does. Southern's position in the equity ranking is the least sure one. While Lusaka and Western are both more equitable than Southern, its relation to the other provinces in Zambia cannot be established in a statistically significant manner.

6. Discussion

This part of the essay will include two different discussions. Firstly, it includes a closer look at the study design. The pros and cons of the design will be discussed; comments are also going to be made regarding possible design alternatives. In section 6.2., the discussion will turn to possible explanations to the results that have been found in this essay.

6.1. Study Design

This study was designed to measure differences in socioeconomic inequity in Zambian children's health status between rural and urban areas and between administrative provinces. The study design is largely based on suggestions and recommendations made for this type of study and presented in 1) the paper "Socioeconomic Inequalities in Child Malnutrition in the Developing World" written by Wagstaff and Watanabe (2000) and 2) the book "Analyzing Health Equity using Household Survey Data" by O'Donnell et al. (2008). The techniques used here are also the ones most commonly used in other studies concerned with inequity in children's health status. That being said there are, naturally, several parts of this study that could have been done in a different way, which would also, perhaps, have had an effect on the results.

In this essay, differences between geographical areas have been studied with the help of concentration curves and concentration indices. An alternative to this could have been to calculate an odds-ratio. Such a ratio may, for example, look like (Menon et al. 2000 p. 283):

$$[\, p / (1 - p) \,] / [\, q / (1 - q) \,]$$

Where:

p is the proportion of stunted children in a specific wealth group in rural areas

q is the proportion of stunted children in a specific wealth group in urban areas

Menon et al. uses odds ratios to numerically show differences, between rural and urban areas, in regards to socioeconomic inequity in stunting – and to make cross-country comparisons. The magnitudes of the differentials, between different geographical areas, were then

calculated using a logistic regression model. Their result for Zambia (just as in this concentration index analysis) is that the urban areas are slightly more inequitable than the rural ones (the survey data is, however, not from the same year so a different result to mine would not necessarily have meant that the results would have been contradictive).

Country	Rural low vs. high socio-economic status odds ratio	Urban low vs. high socio-economic status odds ratio
Zambia	2.3	2.4

Table 8. (Menon et al. 2000 p. 286)

There is nothing that would suggest that the final results of this analysis would have been any different, had an "odds ratio"-study been chosen. The main problem with using the odds ratio, and the reason why it has not been chosen for this analysis, is that there is no way of displaying the odds ratio as intuitively graphically as there is with the concentration index.

Within the framework of the concentration index/curve analysis there are also a number of design choices, which may affect final results. The measuring of children's health status could, for example, have been done by looking at, and comparing, infant - or under five mortality rates for the different areas and socioeconomic groups. Figure 9 is a conceptual diagram showing the interrelatedness between anthropometrical indicators (like stunting), mortality rates and socioeconomic status. The diagram, which was originally constructed by W. Henry Mosley and Lincoln C. Chen in the beginning of the 1980's, shows that anthropometrical indicators can be used to predict mortality. In this essay, arrows (a) and (b) in figure 9 have been investigated. Had this essay used mortality as an indicator of child health it would instead have been arrows (c) and (d) that would have been investigated.

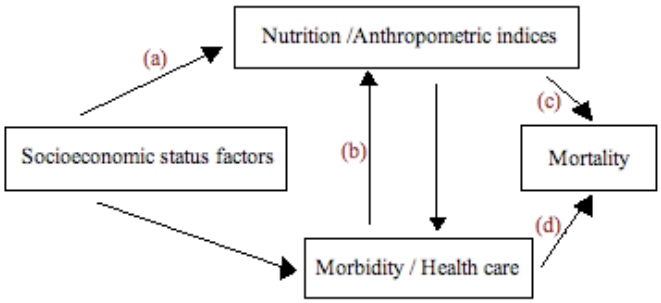

Figure 9. (Bairagi and Chowdhury 1994 p. 1179)

Stunting and mortality are closely related and both are, no doubt, good indicators of children's health status in developing countries. The main difference between looking at mortality and

looking at stunting is that anthropometric indicators are directly affected by socioeconomic status while mortality is indirectly affected by it. Furthermore, stunting and other anthropometrical indicators are comparably easy to measure accurately. Mortality rates are, on the other hand, more difficult to measure. Developing countries rarely have correct official birth and death records. Mortality data can, of course be collected through household interviews, however, answers can be subjective in a way that anthropometrical measurements are not.

The choice of economic indicator may also have an effect on the results. How choice of socioeconomic indicator might affect equity studies is, for example, discussed in the article "Measuring health inequality among children in developing countries: does the choice of the indicator of economic status matter?" by Houweling et al. (2003). Looking at four different wealth/asset indices, the authors find that the choice of socioeconomic indicator does indeed matter. The relative position of a household in the national wealth hierarchy, and poor-rich inequities in under-5 mortality, were both found to vary depending on the index used. It is only reasonable to assume that such factors may vary also between studies using either income, expenditure or a wealth/asset index. In section 3.2. it was determined that expenditure was the best socioeconomic status measure for this study and while this is indeed likely to be the case it is, as Houweling et. al. points out, important to be aware that "…the choice of the measure of economic status influences the observed magnitude of health inequalities, and that differences in health inequalities between countries or time periods, may be an artefact of different wealth measures used." (2003 p. 1)

Another choice made in the study design was to use grouped data instead of micro-data. Micro-data would have made the results more exact but the analysing process would have been more complicated and it would also have been harder to present the health inequity data, in a comprehendible way, to the reader. However, as the data was divide into deciles, instead of for example quintiles (which *is* a surprisingly common choice, see for example O'Donnell et al. 2008 p. 98), it is unlikely that the grouping of the data has made the results unreliable.

There are other technical choices that have been made, when it comes to study design, which may have affected the results of this essay. An "equivalence elasticity" of 0.75 for family level economies of scale was for example chosen, as noted earlier this choice is not founded in the Zambian LCMS data specifically, but rather on earlier research on the effects of family

level economies of scale in developing countries in general. To assure a completely correct result the appropriate equivalence elasticity would have had to be calculated from Zambian data. A brief look at the LCMS data shows that family size is slightly larger in rural than in urban areas and that large family and low socioeconomic status is positively related. Effects of a (possibly) incorrect equivalence elasticity may, hence, be noticeable on the results – though probably only just.

Lastly, in this study the statistical significance of the differences between the concentration indices have been tested using independent two-sample t-tests. When calculating the variance for the concentration indices it was, for simplicities sake, assumed that the within-group variances were equal to zero. This is an acceptable technique, common to use, for example, in cases where it is not possible to calculate the within-group variances (for example when the data that is used come from published tabulations) (O'Donnell et al. 2008 p.99). However, calculating the within-group variances and including these into the calculation of the overall concentration-index-variance, would, of course, have made the results more exact.

6.2. The Urban Socioeconomic Health Gap

In this section possible explanations to the trend found in Zambia (that is, that socioeconomic inequity in children's health status generally is more prevalent in urban compared to in rural areas) will be shortly discussed. The ambition here is to compile some possible explanations found in the existing literature on urban health. It is not within the scope of this essay to analyse specifically how and/or to what extent these factors might have influenced differences in socioeconomic inequity in children's health status in *Zambia*, more specifically. More research is needed before any real conclusions, concerning what has caused the situation, can be drawn.

To illustrate the width of the possible explanations, to the results found in this essay, the Kjellstrom and Mercado diagram, presented in section 4 of this essay, is revisited. Four of the determinants for urban health, one in each of the four groups in the diagram, will be discussed (the determinants are circled in red in figure 10). The aim is to present the reader with a few possible explanations to what could be causing/affecting socioeconomic inequity in children's health status in urban Zambia.

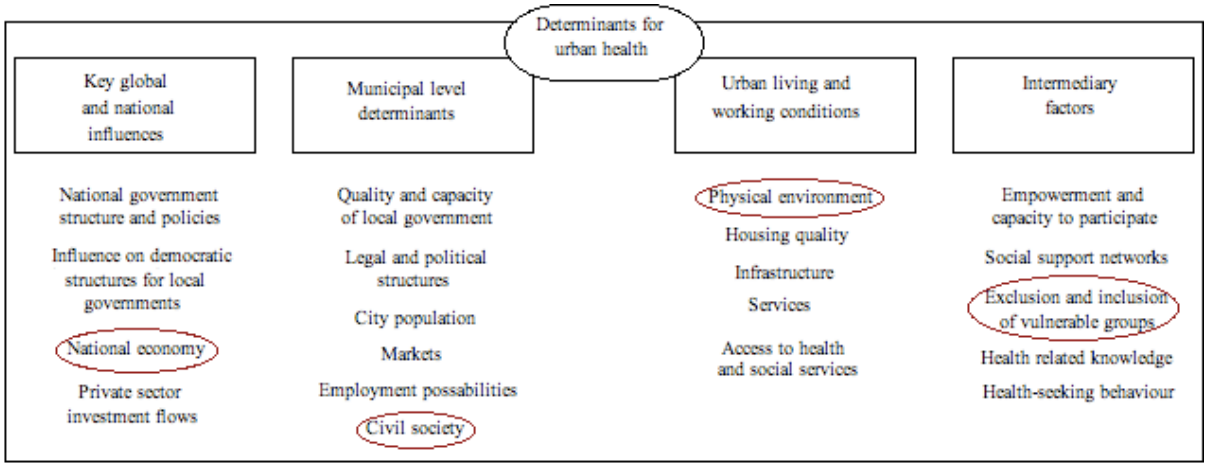

Figure 10. (adapted from Kjellstrom and Mercado 2008 p. 555)

As a direct result of a strained *national economy,* combined with an increased demand for health care and a growing population, Zambia introduced user fees in the health sector in the early 1990's (Hjortsberg and Mwikisa 2002 p. 71). Obviously, user fees often have the effect of increased inequity in access to health care, as the poorer segments of the population might not be able to spare money to be used for health care fees. Furthermore, it is possible that the urban poor were more affected by the introduction of user fees than the rural poor. Recommended amounts for user fees do exist, but these are only recommendations (Hjortsberg and Mwikisa 2002 p. 73). The price of most basic goods, such as food and shelter, tend to be higher in urban compared to in rural areas, which of course reduces the purchasing power of the income of the people living in urban areas (Kjellstrom and Mercado 2008 p. 554). The same has been found to be true when it comes to health care user fees. Fees are generally higher in urban compared to in rural areas (Hjortsberg 2003 p. 756).

Mission clinics and other health care facilities provided by *civil society* organisations are more prevalent in rural compared to in the urban areas of Zambia. In rural areas missions are indeed a very important health care provider (Hjortsberg 2003 p. 756). Hence, while the poor in many parts of rural Zambia have access to free health care through civil society organisations this is often not the case in urban areas. Larger socioeconomic inequity in children's health status in urban compared to in rural areas is a possible result.

Communicable diseases tend to thrive in the *physical environment*s in which the urban poor live. Crammed conditions, lack of safe water and substandard or no sanitary facilities are

common features in slum areas, both in Zambia and elsewhere (Kjellstrom and Mercado 2008 p. 558). Poor people in rural areas tend to be able to affect their own health status, by making improvements at household level, more easily than the urban poor. For urban households the environmental conditions of different neighbourhoods tend to affect health more than differences in household-level facilities. (Timaeus and Lush 1995 p. 164-165)

Exclusion and inclusion of vulnerable groups in a society might depend on social, cultural and economic factors. Orphaned children are, for example, more frequently absorbed into the extended family, or taken care of by the community, in rural compared to in urban areas in southern Africa. Two reasons for this might be that migration to urban areas, 1) often results in lost contact between the family members that move and those who stay behind; and 2) migrants tend to be considered outsiders in the areas that they have moved to. (Foster 2000 and van Blerk and Ansell 2007) Furthermore, HIV/AIDS is considerably more common in urban Zambia than in rural (Kjellstrom and Mercado 2008 p. 557). Uncared for orphaned children (whose health status will probably be poor) are, hence, likely to be more common among the urban poor than among the rural poor.

7. Conclusion

Health inequities are injustices that should not be accepted. Improving the average health status in a country or in a society is an important task, but it is necessary that we do not let this goal overshadow the need to improve, more specifically, the health status among the poorer groups of a society, in order to narrow the socio-economic health gap. It has even been found that an improvement of the average health status of a population often leads to an increased degree of socioeconomic inequity. Hence, it is necessary that policy aimed at improving a population's health status is well thought through. Not least because decreasing health inequities is not only a matter of justice – inequities are inefficient and have been found to hinder the economic growth and development of a country.

Inequities in health status exist in all societies – that is not a *maybe*. The question is, with a limited amount of recourses at our disposal, how do we tackle them? The answer suggested by this essay is: by looking at, learning from and prioritise according to differences in degree of health inequity between different groups, areas and societies. In this essay differences in health equity between rural and urban areas has been investigated, but one could, just as well, look at differences between, for example, ethnic groups or gender.

Looking at differences in health inequity between different groups is important, primarily, for two reasons. Firstly, when differences in health inequity have been found to exist between two groups we can ask ourselves *why* do these differences exist? The two Zambian provinces Copperbelt and Lusaka, for example, have a similar population composition in regards to urbanisation/ruralisation – yet, Lusaka is considerably less inequitable than Copperbelt. When this difference has now been acknowledged we can ask ourselves why does it exists. Is it a matter of differences in local governance? Or maybe differences in civil society presence and action? Secondly, looking at differences in degree of inequity between different groups makes it possible to direct our limited resources towards those areas and/or groups that are most badly affected by health inequities. This study has found that the socioeconomic health gap, in regards to children's health status, is larger in urban compared to in rural areas. This suggests that, in Zambia, it might be particularly important to emphasise health equity matters in policy decisions affecting urban health.

This essay had two goals. 1) To establish whether geographical differences *do* exists in Zambia; and 2) to discern what such a pattern, of differences in socioeconomic inequity, could look like. From the results in this essay it can be conclude that socioeconomic inequities in children's health status do differ between rural and urban areas and between the different administrative provinces in the country. Secondly, there is a clear pattern found in the data, pointing towards a greater degree of pro-rich inequity in urban Zambian compared to in the rural parts of the country.

8. References

Bairagi, Radheshyam - Chowdhury, Mridul K., 1994. "Socioeconomic and Anthropometric Status, and Mortality of Young Children in Rural Bangladesh", *International Journal of Epidemiology,* Vol. 23, No. 6, p. 1179-1184.

van Blerk, Lorraine – Ansell, Nicola, 2007. "Alternative care giving in the context of Aids in southern Africa: complex strategies for care" *Journal of International Development,* Vol. 19, No. 7, p. 865-884.

Central Statistical Office, 2005. *Living Conditions Monitoring Survey Report 2004.* Lusaka, Zambia.

CIA, 2009. *The World Factbook – Zambia.* https://www.cia.gov/library/publications/the-world-factbook/geos/za.html (2009-10-10).

Currie, Janet, 2009. "Healthy, Wealthy, and Wise: Socioeconomic Status, Poor Health in Childhood, and Human Capital Development", *Journal of Economic Literature,* Vol 47, No. 1, p. 87-122.

Foster, G, 2000. "The capacity of the extended family safety net for orphans in Africa", *Psychology, Health and Medicine,* Vol. 5, No. 1, p. 55-62.

Fotso, Jean-Christophe, 2006. "Child health inequities in developing countries: differences across urban and rural areas", *International Journal for Equity in Health*, Vol. 5, No. 9, p. 9-19.

Hjortsberg, Catharina, 2003. "Why do the sick not utilise health care? The case of Zambia." *Health Economics,* Vol. 12, No. 9, p. 755-770.

Hjortsberg, C. A. – Mwikisa, C. N., 2002. "Cost of Access to Health Services in Zambia", *Health Policy and Planning,* Vol. 17, No. 1, p. 71-77.

Houweling, Tanja AJ – Kunst, Anton E – Mackenbach, Johan P, 2003. "Measuring health inequality among children in developing countries: does the choice of the indicator of economic status matter?", *International Journal for Equity in Health,* Vol. 2, No. 1, p. 8-20.

IMF, 2009. *World Economic Outlook Database.* http://imf.org/external/pubs/ft/weo/2009/02/weodata/index.aspx (2009-10-10).

IRIN (humanitarian news and analysis -a project of the UN Office for the Coordination of Humanitarian Affairs), 2003. *Zambia: Falling life expectancy.* http://www.irinnews.org/Report.aspx?ReportId=31678 (2009-10-10)

Jadotte, Evans, 2007. "Characterization of inequality and poverty in the Republic of Haiti", *Estudios Sociales,* Vol. XV, No. 29, p. 8-56.

Kjellstrom, Tord – Mercado, Susan, 2008. "Towards action on social determinants for health equity in urban settings", *Environment and urbanization,* Vol. 20, No. 2, p. 551-574.

Kumar, Rashmi – Jaiswal, Vijay – Tripathi, Sandeep – Kumar. Akshay – Idris, M. Z., 2007. "Inequity in Health Care Delivery in India: The Problem of Rural Medical Practitioners", *Health Care Analysis,* Vol. 15, No. 3, p. 223-233.

Leonard, Kenneth L., 2003. "African traditional healers and outcome-contingent contracts in health care", *Journal of Development Economics,* Vol. 71, No. 1, p. 1-22.

Menon, Purnima - Ruel, Marie T., - Morris, Saul S., 2000. "Socio-economic differentials in child stunting are consistently larger in urban than in rural areas", *Food and Nutrition Bulletin*, Vol. 21, No. 3, p. 282-289.

O'Donnell, Owen – van Doorslaer, Eddy – Wagstaff, Adam – Lindelow, Magnus, 2008. *Analyzing Health Equity Using Household Survey Data: A Guide to Techniques and Their Implementation.* Washington: The World Bank.

Schmidt, Matthias, 2009. *The Estimation of Poverty Trends in Post-Independence Namibia.* Briefing Paper No. 45. Windhoek: Institute for Public Policy Research.

Timaeus, Ian M., - Lush, Louisiana, 1995. "Intra-urban differentials in child health", *Health Transition Review,* No. 5, p. 163-190.

Todaro, Michael P. – Smith, Stephen C., 2006. *Economic Development.* Ninth Edition. Harlow: Pearson/Addison Wesley.

UNDP, 2007. *Human Development Report 2007/2008 Fighting Climate Change: Solidarity in a Divided World.* New York: Palgrave Macmillan.

UNICEF, 2000. *The Progress of Nations 2000.* http://www.unicef.org/pon00/contents.htm (2009-10-10).

Wagstaff, Adam, 2002. *Inequalities in Health in Developing Countries: Swimming Against the Tide?* The World Bank: http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.17.4348 (2009-10-10).

Wagstaff, Adam – Watanabe, Naoko, 2000. *Socioeconomic Inequalities in Child Malnutrition in the Developing World.* The World Bank: http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.17.6308 (2009-10-10).

Wolfe, Barbara L., - Behrman, Jere R., 1982. "Determinants of child mortality, health, and nutrition in a developing country", *Journal of Development Economics,* Vol. 11, No. 2, p. 163-193.

World Bank, 2006. *World Development Report 2006: Equity and Development.* New York: Oxford University Press.

World Bank, 2009. *Country Classification.* http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20420458~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html (2009-10-10)

Zere, Eyob – McIntyre, Diane, 2003. "Inequities in under-five child malnutrition in South Africa", *International Journal for Equity in Health,* Vol. 2, No. 1, p. 7-17