

Infant Malnutrition: Geography and Economic Inequality in Sub Saharan Africa

Research Question: To what extent does Geography in Economic Inequality play a role in infant malnutrition?

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Introduction

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Global hunger is a world problem that causes malnutrition. What is interesting about world hunger is that the world does in fact produce enough food for everyone but it is the distribution of resources, having enough land or an income to purchase a sufficient amount of food that can cause hunger and ultimately lead to malnutrition (*Hunger, 2013*). Malnutrition, specifically under nutrition, is when a person has insufficient food absorbed and therefore does not have the appropriate amount/type of nutrients to maintain a healthy diet. As a result this can cause a person to become more susceptible to disease and have an increased risk of mortality (*Opposing Viewpoints, 2009*). There are various forms of malnutrition as well as diseases/deficiencies it can lead to, such as protein-energy malnutrition and vitamin A, iron, iodine or folate deficiency (*Programme U. W., 2013*). In Sub Saharan Africa malnutrition has risen by 2% each year since 2007 (*Hunger, 2013*) and under nutrition is indirectly and directly responsible for 3.5 million child deaths in Africa every year (*Opposing Viewpoints, 2009*). There are over 165 million children under the age of five who are stunted and more than 100 million children have low weight for height (*Organization, 2013*)¹. In lesser economically developed countries (LEDC's) children are the largest victims to malnutrition. For many children malnutrition can occur even before birth as a result of a malnourished mother. Because of this, SSA has a young growing population, but a low life expectancy and high child/maternal mortality rate.

As global citizens it is our duty to be consciously aware of global issues that are present all around us, and understanding that it is the multidimensional complexity of these issues that make them so difficult to overcome as a global community. After partaking in a global outreach trip to Kenya, it became clear that one of the major global issues that I felt very strongly towards was that of infant malnutrition. A part of being a global citizen is being able to make connections between your own community and one that may be thousands of kilometers away, and it is this connection that helps break cultural boundaries and create a more harmonious world. It can sometimes be forgotten that issues such as infant malnutrition are not only present in lesser economically developed countries (LEDC), as they are even present here in Canada just on a much smaller scale. This investigation focuses on the geographical aspect of food security in Sub Saharan Africa (SSA) and the relationship between education and economics. In both cases the same underlying outcome was found-that of undernourished children. In the end, an overall better understanding of infant malnutrition was formed, opposed to a conclusion or solution to this problem. Various connections within and beyond geography and economics were formed again showing the layers that this global issue has.

Infant malnutrition is a topic of high importance on a global, local and personal scale. Combating poverty is a global goal; to not only aid those in lesser developed countries but to put in the best interest the world as a whole in the hopes of becoming more peaceful and united. While urban poverty may go unnoticed it is still prevalent in local communities and an example of this can be taken from Aboriginal communities in Vancouver. Child poverty and malnutrition has been greatly affected by lack of education, ultimately affecting the income of families and their ability to support and provide their families with adequate resources, such as food. As someone who has had the opportunity to travel and work with people in Africa, specifically Kenya, this paper is a promise to all of the people, educators, and most importantly children and is an attempt to meet this promise and to use this travel experience wisely. In order to fully understand and appreciate this topic focused around infant malnutrition, this paper looks at it through the lenses of geography and economics and more specifically *To what extent does the geography and economic inequality play a role in infant malnutrition?* With this being such a broad global issue, it is important to delve into specific aspects of it to further understand the issue for what it is and in doing so helps put things in perspective. Through economics and analyzing statistical data the relationship between income and education will be determined. In geography how the distribution of urban vs rural communities affects agricultural practices in SSA will be looked at and specifically how the food security or lack thereof, contributes to infant malnutrition.

Malnutrition is quantified by the three following classifications: wasting (low body weight relative to height-insufficient nutrient intake-), stunting (low height relative to age-slowng skeletal growth, poor dietary intake-) and underweight (low weight for age) (*Programme, 2013*).

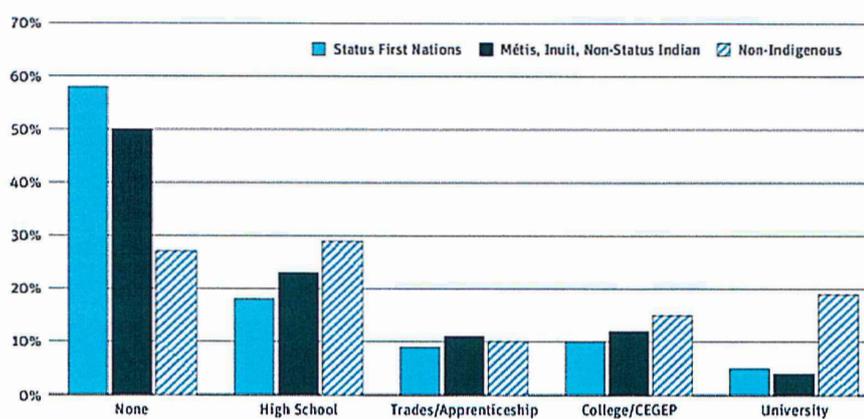
Global Scope

The issue of infant malnutrition extends beyond the SSA, but also on much larger global scale. In an effort to aid those in lesser developed countries, the United Nations (UN) created the eight Millennium Development Goal's (MDGs). One of the main MDG's (#1) is to eradicate extreme poverty and hunger (*Nations, 2013*), which clearly connects to the issue surrounding infant malnutrition. Access to the right food is a part of human's basic needs for survival, which is why the relevance and importance for infant malnutrition to be addressed is so high (*Unicef, 2013*). Though there are eight separate MDG's, it can be said that they are interrelated as combating one goal can lead to the success of another goal. For example by starting with eradicating extreme poverty and hunger this can lead to solving other issues such as health care or education and one can see this connection between global issues further develop over the course of this essay.

Local Scope

Infant malnutrition is commonly seen as an issue correlated with poverty, and as someone living in a more economically developed country (MEDC) we often automatically and instinctively connect that to LEDCs, such as countries in Sub Saharan Africa. But what people fail to realize is that this issue was and is prevalent locally, even within the urbanized and developed city of Vancouver, although the severity of the issue may not be to the same extent. Pockets of poverty are scattered throughout Vancouver, and one such example is within the Aboriginal communities. Within Vancouver, Canada, the average child poverty rate is 17%, while the average child poverty rate for Aboriginal children is 40%. Historically, half of all First Nations children have lived below the poverty line (*Wilson, 2013*). The exploration of the cause of this high poverty rate can be linked to many different factors, which would be a whole new investigation and research paper in itself.

Most recently it was discovered that starting in 1942 malnourished Aboriginal children were used by the Canadian government in a nutritional experiment. Children were suffering from malnutrition caused by lack of government support, as well as the unsuitable conditions that children were put through in residential schools (*Weber, 2013*). Currently the problem of malnutrition is still common as the resources and infrastructure available are lower to that of the rest of Canada, and thus this affects the income of families and lives of children. The income



of a family is a large reflection of the educational status of one's family.

Figure 1 Highest Education Level of Adults with Low-Income Children (*Wilson, 2013*)

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Looking at the figure above there is a clear distinction between Indigenous higher education vs Non-Indigenous higher education, with First Nations at just 5% for those who went to university vs 19% for non-indigenous. The importance of education is clearly evident, and linking towards this we can see the consequence of lack of education in a family's future income status as well as the lack of resources to aid such issues as malnutrition playing a role in the cause of being unable to attend school (Wilson, 2013). From this local example of infant malnutrition, the importance of education arises as without a strong foundation for education it poses more of a challenge in the future to finding job opportunities. This can lead to lack of income to support oneself and one's family, which exhibits the economic standpoint towards malnutrition-not having the income to support nutritional demands. The exploration of the relationship between education leading to jobs and income through an economic lens will be looked at on a much larger global scale, with infant malnutrition in Sub Saharan Africa.

Economic Scope

The economic stability of a country, on a microeconomic and macroeconomic scale is of great importance as it helps aid individuals in development and providing them with basic needs, such as the necessity of food. The availability and production of food will be further discussed in the geography portion of this paper, but it is one thing to have food available and another to be able to afford this food. During a recent trip to Kenya, an activity was done in which we were given a budget that we could spend in a month and we had to choose from the various costs of food, schooling, health care, clothing etc to support one's family for that month. To add an even larger element of realism to the simulation each group was given a family situation so the choices for what to spend money on was based off of these situations, such as a pregnant mother or children wanting to go to school. In going through this simulation not only was the realization of the constraints in what you can/cannot afford evident but also the sacrifices that had to be made in order to help with one's family survival.

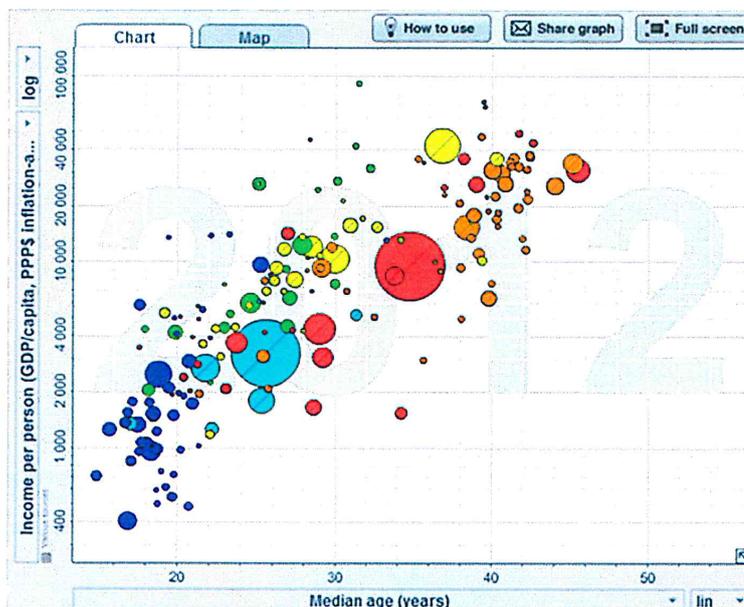


Figure 2 Income per Person (represented by each country) (Rosling, 2008)

In this graph the income per person was looked at as one can see from the cluster of dark blue dots (representing countries in Sub Saharan Africa), the average income per person is just below \$3,000 for almost all countries excluding a few outliers. Looking at the progression of the income per person starting back in 1950 there has been a steady upwards increase for the income per person, despite it being

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the lowest globally when comparing it to other points on the graph that are much higher. As a whole, SSA's economy is improving as quoted by the International Monetary Fund (IMF) "It is the fastest growing region with the growth rate expected to be 5.5% in the coming year" (*Oketch, 2013*). So what has put Sub Saharan Africa on the low end of the scale in terms of income per person on a Gross Domestic Product (GDP) scale? Poor infrastructure as well as lack thereof, has put a greater focus on farming in rural areas and thus there is little diversification in job opportunities. Income per family can differ depending on whether one lives in a rural or urban community, as industrialization plays a large role in development and income of a household. Income can be improved through industrialization which changes the economic structure from a subsistence economy to an industrial society². Currently SSA is hoping to promote economic transformation as it would be a step towards improving countries development in sections across the country, including infrastructure, job opportunities and education (*Oketch, 2013*). Urban communities in comparison to rural communities also often offer better opportunities especially in terms of those available for women. In urban communities women have more freedom and greater access to services that better not only themselves but also their children and families.

In the broad scope of infant malnutrition women play a very important role, as they are the ones who care for the children and provide them with the proper nutrients in the first few years of the child's life. The first few years for the child are crucial in terms of their development, and so if mothers don't have the educational practices of knowing what is and isn't right for their child as well as the income to help support the child (paying for such things as food and healthcare) the child's health is ultimately at risk. Education allows women to further better job opportunities and gives them basic knowledge to better their families. In a recent article released by the World Bank, they interviewed a mother, Zenitu Sheperaw, from Ethiopia, whose story helps reinforce the importance of education to benefiting families and communities. With her first child Zenitu fed her boiled sugar/water/butter and this often caused her child to get very sick and thus she had to be taken to the doctor's quite often which also meant Zenitu losing money from these constant visits. But now after having been educated on the proper nutrients for her child, she is able to feed her second child with adequate nutrients preventing him from sickness (*Ababa, 2012*). Educating people can not only lead them to greater opportunities job wise but also a better knowledge and understanding of even basic things such as nutrition for their child is beneficial, as seen from the story of Zenitu.

{Geography Scope}

SSA is mainly a country known for its agriculture, from the local farming of crops and vegetables to global farming for the floral industry. Food production is the main source of income and food for people in SSA, but with high temperatures and droughts leading to changes in vegetation and the possible risk of species extinction all pose a risk on the local food security. Food security, defined by the United Nations, exists when all people at all times have both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life. This includes food availability, access, utilization and stability (*UN Nutrition Challenge*) (*Organization, Food Security, 2013*). Malnutrition is a direct result of lack of food security and as a result this leads to the health of children and their poor nutrition intake. The implications towards food security are that as the climate increases, crop production will

² Subsistence economy: an economy in which wealth is measured by natural resources, such as agricultural production (*WebFinance, 2013*)

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consequently decrease and along with this the population will be increasing. It is projected that by 2050 SSA's population will be triple what it is today. Additionally food trade will decrease food availability per capita by 15% (Bank, 2013). Despite the vast amount of land available for agriculture, SSA is classified as an arid and semi-arid region, and with such conditions, agriculture production is more limited. Arid climate regions are characterized by severe lack of water, preventing the growth and development of plant and animal life causing for a lack of vegetation. Semi-arid climate regions have low annual rainfall, and little vegetation (Development, 2013). Because of SSA's arid/semi-arid climate classification it is more prone to the natural disaster of droughts. A specific example of a devastating drought can be taken from the 2011 drought that hit the Horn of Africa, including countries such as Ethiopia, Kenya and Uganda. Two poor rainy seasons caused one of the worst droughts in over half a century (Nebehay, 2011). Food production fell while the price of food increased, leaving those who lived in a poorer household being unable to buy the adequate food needed to support their family. This led to large child malnutrition rates, ranging between 15%-45% (Unicef, Facts on Children in the Horn of Africa, 2011), and still increasing. During and after this period of drought the lack of basic resources (food, clean water, sanitation) could not meet the demands of all the people in need of these resources.

Droughts are an example of one of the many causes of internal and external human migration in SSA from rural-urban communities. Droughts have a greater effect on rural communities because of the lack of infrastructure to protect it, opposed to the urbanization of emerging urban communities that have drainage systems and building to protect both people and the land from this natural disaster (Statsana, 2011). This movement of people impacts the development of a country, which is why comparing rural vs urban settlements and their different agricultural practices, is important towards exploring the progress or stagnation of infant malnutrition. Often people migrate from rural areas to more urban areas because of the greater abundance of opportunities that these more developed urban communities can provide. In the data below we can see that the population in Africa is rapidly increasing, and that includes both urban and rural populations. Urban populations are increasing at a faster rate though due to, again, the attraction people have to areas where greater opportunities present themselves.

Major area	Population (millions)					Average annual rate of change (percentage)			
	1950	1970	2011	2030	2050	1950- 1970	1970- 2011	2011- 2030	2030- 2050
Total population									
Africa.....	230	368	1,046	1,562	2,192	2.35	2.55	2.11	1.69
Urban population									
Africa.....	33	87	414	744	1,265	4.82	3.82	3.09	2.65
Rural population									
Africa.....	197	282	632	818	927	1.79	1.97	1.35	0.63

Figure 3 Population Change in Africa, including Urban and Rural populations (Nations, World Urbanization Prospects, 2011)

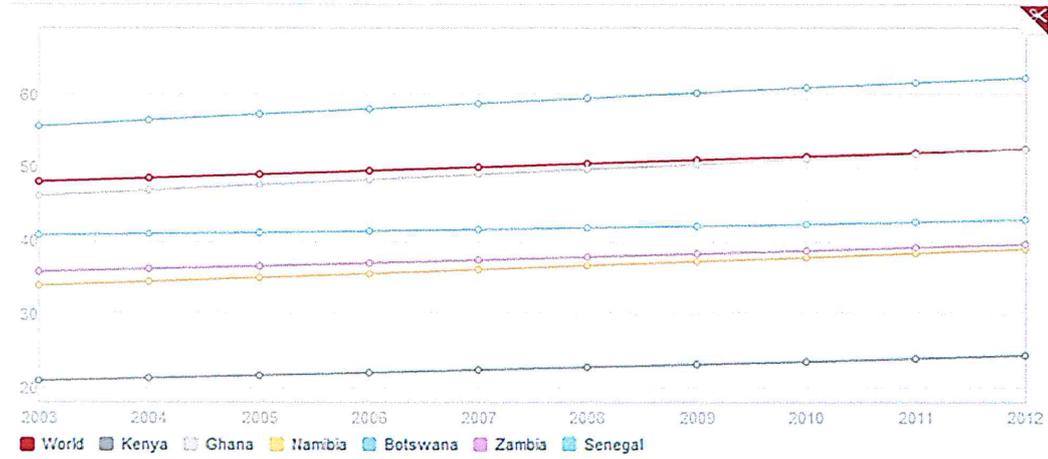


Figure 4 Urban Migration (Bank, Data: Malnutrition Prevalance, 2011)

In the above graph we can see that the world trend for urbanization (in terms of urban population) is increasing and the example countries in SSA also follow this trend. While rural-urban migration in MEDC's usually follow industrialization, rural-urban migration in LEDC's such as SSA commonly follows the ideal that moving to an urban community will provide for a better life filled with greater opportunities and in the case of SSA more available resources. When comparing the two graphs it is evident that the rate of change is much greater in urban areas than that of rural areas. Because of this urban populations are increasing, but so are the poverty rates in these communities, which can be seen when looking at the two graphs below one can see an upward trend in child mortality rates in both urban and rural communities.

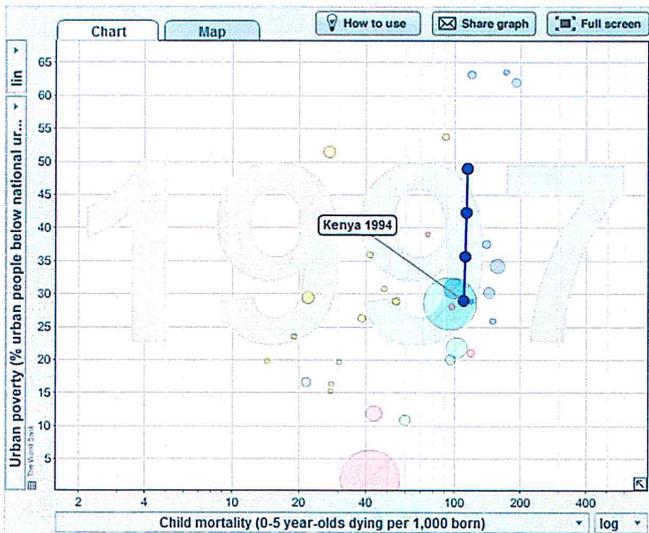


Figure 6 Gapminder: Child Mortality and Urban Poverty (Rosling, 2008)

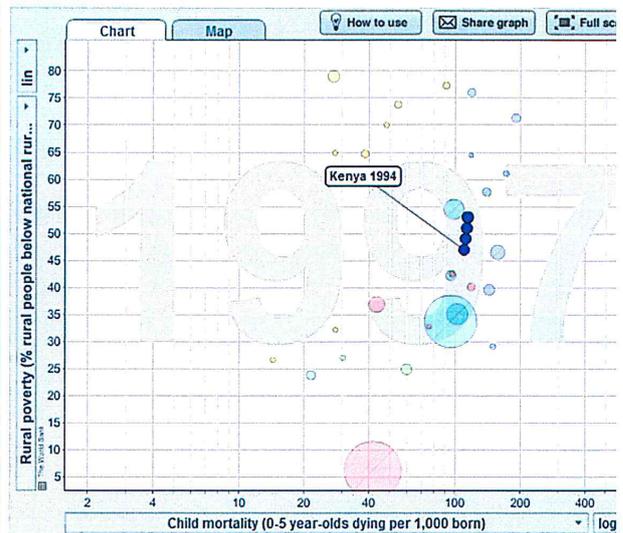


Figure 5 Gapminder: Child Mortality and Rural Poverty (Rosling, 2008)

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The reason for this lies behind the fact that although people migrate to urban communities, it does not guarantee them a better lifestyle, which is why within urban communities, there are also urban slums. Urban slums lack natural resources and basic services and are typically overcrowded providing for an overall poor living condition, which is the main factor separating urban slums from other parts of urban communities. Sub Saharan Africa is known for their agriculture, but with people migrating and living in both rural and urban communities it can pose an effect on this. Urban communities face challenges with farming due to the limited space in terms of land for farming, as urban agglomerations consist of roads, buildings and infrastructure. In some cases migrants from rural communities try to bring their agricultural practices with them to urban communities to help support and provide food for their family. For example in Dar es Salaam, Tanzania migrants created urban gardens in their community to help continue their agricultural practices and to contribute to their household food (*Schmidt, 2011*). Still these small scale agricultural practices alone cannot help support or alleviate the issue of infant malnutrition. The basis for starting to combat malnutrition begins with food security, as having food security will enable greater availability, access, utilization and stability of food for all.

Conclusion

There is no way a short paper can propose practical solutions to the complex problem of malnutrition, but it does give the writer a better appreciation of the issues in relation *To what extent does geography and economic inequality in Sub Saharan Africa play a role in infant malnutrition?* Through the lens of food security under the subject of geography and the lens of education under the subject of economics, a better understanding of each subject was developed. Infant malnutrition is when a child does not have the appropriate amount of nutrients absorbed to maintain a healthy diet, therefore risking their health and development (*Organization, Moderate Malnutrition, 2013*). Inequality is present everywhere, dispersed across large undeveloped regions such as Sub Saharan Africa and even within more developed regions such as Vancouver. Inequality between people, geographic location or economic status all play a role in infant malnutrition as whether one is affected by all or some factors each contribute to the food security of that child. Food is a basic need that every person, every child, deserves.

Prior to researching, the knowledge of pockets of poverty that existed within my own community and within urban LEDC's was not apparent. Once seeing that urban poverty leading to infant malnutrition is just as much of an increasing issue as infant malnutrition in LEDC's made connecting this issue on a global and local scale much more real. The malnutrition prevalent in Vancouver is similar to that of malnutrition in SSA as they both share the concept of people not having a sufficient economic foundation to support themselves/their family as a result of lack of education. Though poverty and infant malnutrition was evident in LEDC's such as SSA, the separation within this region was not as well known. Urban slums are the result of human migration, and it causes disparity within these urban communities. This is similar to the regions of poverty that can be found in the city of Vancouver, from Indigenous communities to the East Side of Vancouver. And just like these small areas of poverty can sometimes be overlooked in such an urbanized community, the same can be said for urban slums. So perhaps rather than focusing global aid to LEDC's in rural communities, we need to recognize the lack of development that is hidden within urban communities as well.

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This research paper shows that a culmination of factors influences infant malnutrition and to specify it to just geography or economics would be impossible. As a global citizen, my understanding of infant malnutrition has changed as it is now apparent that it is intertwined to so many other global issues such as education and healthcare along with other influencing factors. Knowing this, it is important to keep in mind that to try and break this cycle of poverty and of underdevelopment it will need to be addressed with such care to balance all of this. As a part of the future generation, one must remember the complexity behind global issues, such as infant malnutrition, when trying to better understand and perhaps resolve these issues in the hopes of moving towards a more harmonious world.

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