"One of the greatest regrets in life is being what others would want you to be, rather than being yourself.” Shannon L. Alder
THE EFFECT OF EMPOWERMENT/SELF DETERMINATION ON POPULATION HEALTH

by

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ABSTRACT

In the face of the growing gap in health within and between populations, health promotion models have focused on the healthcare system, and more recently the social determinants of health. A less explored idea is the effect of empowerment/self-determination on health. Using published cross-country data and the “general-to-specific” (GETS) algorithm implemented in PcGets (Hendry and Krolzig, 2001), this study found that one standard deviation increase in the level of empowerment is associated with a 0.17 standard deviation increase in all life expectancy, a 0.61 standard deviation increase in female life expectancy, a 0.14 standard deviation decrease in infant mortality, and a 0.09 standard deviation decrease in under 5 mortality; and one standard deviation increase in the level of empowerment is associated with a 0.18 standard deviation increase in all life expectancy, a 0.67 standard deviation increase in female life expectancy, a 0.16 standard deviation increase in male life expectancy, and a 0.2 standard deviation decrease in infant mortality (using political rights and civil liberties freedom respectively) while controlling for wealth, education and income inequality (p ≤ 0.05).
DEDICATION

This thesis is dedicated to the memory of my beloved mother Lilian Ureh Kalu Uwaka, who fought against all odds to achieve her dreams of getting educated; to God who made this all possible, and to my wonderful family.

I would not have done this without the help and support of my best friend and husband Ikechi and our lovely children – Ogbogu, Salome, Eke and Iheanyi. Thank you Ik for giving me this opportunity, for allowing me time off our life to do this and for always encouraging me to be the best I can be. Thanks Ogbogu for urging me on, for reading my scripts and asking critical questions, and for always having my back. Thanks Salome for bridging the gap, for being there when I couldn’t, for standing strong and giving me a reason to fight on. Thanks Eke for teaching me the meaning of hard work, discipline and resilience. Thanks for reading the scripts, for your inputs and for helping out with some of the references. Ni my baby, what can I say? You stayed awake with me, you were my alarm clock, and you celebrated my milestones, encouraged me, and cheered me right on to the finish line. Thank you.

Most importantly, none of this would be without God, the source of my life and strength, and the Holy Spirit – my greatest teacher. Thank You.
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Chapter 1: Introduction

The significance of the principle of empowerment to health promotion was highlighted by the Alma Ata Declaration and the Ottawa Charter of the World Health Organization particularly for interventions in socioeconomically disadvantaged communities and populations (Heritage and Dooris, 2009). This follows from work such as that done by Paulo Freire, an educator and philosopher, who following his experiences of poverty and hunger during the Great Depression of the 1930s, worked on raising critical consciousness among the poor in Brazil. He educated the people in the social, economic and political structures in society in order to take action and gain control, influence and improve their well-being.

In the face of the growing gap in health within and between populations, health promotion models have focused on improving equitable healthcare, advancing medical technology, and more recently, action on the social determinants of health. A less explored idea is the effect of empowerment/self-determination on health in countries. Using country-level indicators of empowerment/self-determination (political rights and civil liberties freedom) and health, this quantitative study explores the effect of empowerment/self-determination on the health of populations, while controlling for wealth, education and income inequality.

1.1 Background

The past fifty years have seen significant improvements in overall health in most parts of the world (De Maio, 2014) with average global life expectancy increasing from 48 years in 1955 to 66 years in 2000 (CDC, 2011), and projected to reach 73 years by 2025.
Globally, under-five mortality rates decreased from 108 in 1980 to 58 in 2009 (UNDP, 2012). Improvements in the socio-economic determinants of health, health awareness campaigns, and tremendous advancements in medical science and technology (faster MRIs, bioengineered body parts such as the bionic eye, genomic interventions for hereditary diseases, telemedicine, electronic health records, less-invasive surgical interventions such as laparoscopy, new vaccines, innovative pharmaceuticals and devices, have resulted in improvements in disease treatment, extension of life, alleviation of suffering and eradication or control of various infectious diseases including polio and smallpox (CDC, 1999). Despite these health promotion interventions, social exclusion and health inequities have grown as absolute poverty persists with about 1.2 billion people living on less than US $1.25 per day (World Bank, 2015a). Furthermore, in spite of globalization and increasing Gross Domestic Product (GDP) of most (developed) countries, disparity in income between the richest 20% of the world’s population and the poorest 20% in 2011 was 83:1 (World Bank, 2015b) compared to 30:1 in 1960. This gap is increasing in the face of violence, severe malnutrition, and rapid re-emergence of infectious diseases (such as the recent Ebola and measles outbreaks) as well as inadequate investment in healthcare especially by low income countries. Figure 1 shows the widening health gap among the regions of the world despite upward trends in Gross Domestic Product (GDP) of most high and middle income countries shown in Figure 2.
Figure 1: Median Age by Region of the World 1950-2010

Source: UN World Population Prospects, 2012 Revision.
The medical and technological advancements and improvements in the situations in which people live, are not equitably assessable and taken up, causing the poor and rich to live in different conditions. With these manifest health outcomes such as preventable infant mortality, adverse pregnancy outcomes and unequal life expectancy. While overall indicators such as life expectancy and infant mortality have improved over the past decades, the health inequities between the worst-off and the best—off are increasing (De Maio, 2014).

Models examining the determinants of health have tended to focus on the role of the physical environment, access to medical services and individual’s material well-being (social determinants of health) as being the important drivers of health outcomes (WHO,
2008; Braveman, Egerter and Williams, 2011; Amick, Levine, Tarlov & Walsh, 1995; Adler, Marmot, McEwen &, Stewart, 1999). More recently social capital has been incorporated into the model, and this has typically shown that social relationships and a sense of community do play an important role in the health and well-being of human populations (Islam et al, 2006; Scheffler, Brown and Rice, 2007; Folland, 2007; and D’Hombres et al, 2010). Social capital is the expected collective or economic benefits derived from the preferential treatment and cooperation between individuals and groups. Although different social sciences emphasize different aspects of social capital, they tend to share the core idea that social networks have value and that there is a significant correlation between feeling in control of one's own life and well-being (Putnam, 2000). Improvements in the social determinants of health have been shown to be correlated to better health outcomes. A less explored idea is the effect on health of the sense of empowerment/self-determination or the idea that individuals have control over their own destiny or have freedom or liberty to make choices that affect their own lives.

1.2 Research Question

This research seeks to answer the question, “Will a greater sense of empowerment/self-determination have positive health benefits for countries?”

It will be guided by the following questions:

• What is population health?
• What are the known determinants of population health?
• What is Empowerment/Self-determination?
• What is the effect of Empowerment/Self-determination on population health?
1.3 Hypothesis

This study hypothesizes that where there is a greater sense of empowerment/self-determination, there will be positive health benefits; and that this sense of empowerment/self-determination can be captured by the level of political rights (PR) and civil liberties (CL) freedom in a country.

1.4 Purpose of study

The purpose of this research is to seek to provide objective and measurable evidence on the impact empowerment has on global health outcomes. There is evidence of isolated success stories of empowerment interventions among women (Fleury, Keller and Murdaugh, 2000; Leuning and Ngavirue, 1995; Sandiford et al., 1995; & Al Riyami and Afifi, 2003), youth (Chinman and Linney, 1998; Kim et al., 1998; & Holden, 2004), people at risk for HIV/AIDS (Sanstad, Stall and Doll, 1999; Hays, Rebchook and Kegeles, 2003; Gomez, Hernez and Faigeles, 1999; Zimmerman et al., 1997; and Gollub, 2000), and patients (Neuhauser, 2003; Rosenfield, 1992; Howorka et al., 2000; Lorig, Ritter and Gonzalez, 2003, Lorig et al., 2001; Mayer-Davis et al., 2004; and Cooper, Booth and Gill, 2003). This study seeks to stimulate the discuss or research on empowerment-based health promotion interventions being applied more globally to achieve global health equity as well as optimise health and well-being, which have not been achieved by increased spending and other current intervention models.
This research will add to the literature on the impact of how empowerment affects health outcomes, after controlling for other determinants of health including income, education and income inequality.

The researcher acknowledges the limitation presented by not having universally accepted measures for empowerment and this study adopting civil liberties and political rights freedom as proxy for the level of empowerment of people the country. As such, an important aim of conducting this study is to stimulate interest in research into this area of study and into seeking measures that better measure empowerment than those used in this study, if any.

The thesis is organized into five chapters. Chapter 1 provides a context and scope for the study. It highlights the problem of health inequity and the increasing health gap within and between populations despite action on the social determinants of health, increase in GDPs of most countries, health behaviour change campaigns, and advancements in medicine and technology. The research question, “Will a greater sense of empowerment/self-determination have positive health benefits for countries?” and the hypothesis that a greater sense of empowerment will have positive health benefits for countries, are stated. The purpose of the study is presented. Chapter 2 reviews literature on the evolution of the discourse on determinants of health, drivers of health inequities and the concept of empowerment. The empowerment interventions are as well reviewed and literature typically shows adopting an empowerment strategy made social determinant of health promotion interventions more effective and sustainable. Chapter 3 explains the methods used in the data collection, preparation, description and analysis. Chapter 4 reports and discusses the results of the study. It presents a description of the
data and the results of the regression analysis using the published cross-country data and “general-to-specific” (GETS) algorithm implemented in PcGets (Hendry and Krolzig, 2001). Chapter 5 provides a conclusion for the thesis report, limitations of the study and suggestions for further research.
Chapter 2: Literature Review

University of California Beckley Professor Emeritus of epidemiology, Leonard Syme, in his presentation at the 2003 National Conference on Chronic Disease Prevention and Control in St. Louis, Missouri, described his humbling experience in a health promotion project he undertook which led him to begin to think differently about health intervention models. He had designed a 5-year smoking cessation project for Richmond California to assist people individually quit smoking. Aside access to smoking cessation clinics and counselling services for people who wanted to quit smoking, members of the community were educated on providing positive reinforcement support. He involved the business community, schools and community groups. His plan was to change the way the community perceived smoking by using leaders and members of the community to challenge the acceptance and attractiveness of smoking.

The expensive project was considered brilliant by the National Cancer Institute (NCI) which provided funding for the project and used the design as the basis for a nationwide smoking cessation campaign conducted in more than 20 communities around the country. At the end of the 5 year period of the project, comparison results showed no difference in smoking cessation rates between Richmond and the two comparison communities, Oakland and San Francisco. The nationwide study based on the Richmond design also failed to show a difference in smoking cessation rates between study and comparison communities. However, a rock video about smoking cessation which a group of teenagers from the Richmond community offered to make with music written by them in their own words, played at shows organized and advertised by them, with tickets sold by them and at which they were ushers, seemed to make much more impact. The video project was not
evaluated as it was not part of the initial project and had no funding, but, the tickets sold out and the video which was shown at a large movie theater in the community received long standing ovations from the audience. The video was also later shown in many places around the world and the community received royalty money from it (Syme, 2004).

Although Syme’s Richmond study was criticized for having a small study population and for his assumption that the smoking population in Richmond constituted a community when others argue it lacked the dynamics and stratification of a community, Syme suggests the intervention may have been more effective if the community was engaged as an ‘empowered partner’ (Syme, 2004). Richmond was a low income city with high unemployment, high crime rate, high drug use, very few health services and high levels of air pollution from a near-by oil refinery. Smoking cessation though important, may not have been considered the priority challenge to be tackled at that time from the community’s standpoint. Syme suggested that as the conditions in which people live affect not only their health but the outcomes of health promotion interventions, working with the community to identify the risk factors for their poor health outcomes and methods of behaviour change which are best suited for their own environment and situations may make for more effective interventions (Syme, 2004). Syme’s suggestions form the basis of this review.

This chapter reviews literature on the determinants of health and well-being and the place of empowerment in the health of populations in four broad sections. The first section discusses the dynamics of population health. The second section looks at the determinants of health and inequalities in health of populations. The third section examines the concept of empowerment, how empowerment can be measured and the
measures of empowerment adopted for this study. Section four looks at empowerment interventions and how they relate to the determinants of health.

2.1 Sources of Literature

A scan through a list of online databases was conducted to identify databases that may be relevant to the subject of study. The CINAHL (cumulative index of nursing and allied health) with full text, PubMed, PsycInfo, Cochrane, American Economic Association, SocIndex with full text and Health and Psychosocial instruments databases were selected and searched for ‘empowerment, health’ and ‘empowerment and health’. Topics and then abstracts for English articles were examined for inclusion in the literature review. No restriction was made on the date inclusion as the study of empowerment and population health is an emerging one and there are not many articles or literature on this. Additional searches based on bibliographic information from identified articles were also made and were a good resource. Gray literature was reviewed from unpublished reports and project evaluations as well as websites of the World Bank, World Health Organization (WHO), United Nations (UN), Global Entrepreneurial Monitor (GEM), Heritage Foundation, New Economic Foundation, Freedom House and other associated agencies and organizations identified from literature.

2.2 The Dynamics of Population Health

The Public Health Agency of Canada defines population health as an approach to health that aims to improve the health of the entire population and to reduce health inequities among population groups (PHAC, 2011). Canada’s Advisory Committee on Population Health (ACPH) posits that it refers to the health of a population as measured by health
status indicators and as influenced by social, economic and physical environments, personal health practices, individual capacity and coping skills, human biology, early childhood development, and health services. It is "the health outcomes of a group of individuals, including the distribution of such outcomes within the group" (Kindig and Stoddart, 2003), and aims at improving the health of entire populations and as such considers health inequity reduction important in achieving this. It changes the focus from individual level health to the broader scope of health of entire groups or populations.

From a population health perspective, health has been defined not simply as a state free from disease, but as "the capacity of people to adapt to, respond to, or control life's challenges and changes" (Frankish et al, 1996). The World Health Organization (WHO) defined health in its broader sense in 1946 as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1946; WHO, 2006), making health synonymous with well-being, quality of life and human development.

The WHO constitution stipulates that every human being has a fundamental right to the highest attainable standard of health, known as the Right to Health. In keeping with the concept of health as a fundamental human right, the Ottawa Charter emphasizes that peace, adequate economic resources, sustainable resource use, food, shelter and a stable ecosystem are preconditions for health. This understanding links the physical, social, environmental, economic, political, health behaviour and biomedical models and presents a holistic view of what determines health and what approaches improve population health. Figure 3 shows key declarations of the WHO with regards to international health promotion.
Figure 3: Key International Declarations on Improving Health

1978 Alma Ata Declaration (WHO, 1978)

- WHO declared gross inequalities in health between and within countries unacceptable and identified primary health care as key to attaining health for all.
- Beyond increased participation, the declaration implied empowerment is a necessary component of primary health care (Laverack, 2004).

1986 Ottawa Charter for Health Promotion (WHO, 1986)

- WHO identified peace, shelter, education, food, income, stable ecosystem, sustainable resources, social justice and equity as fundamental conditions crucial for the improvement of health.
- Defined five action areas for achieving better health as building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, reorienting health services.


- WHO stated that health is both a fundamental human right and a social investment.
- "Inequalities in health are rooted in inequalities in society and closing the health gap would require public policies that improved access to health enhancing goods and services and created supportive environments."


- Addressed creating supportive environment for attaining health - both physical and social aspects of where people live, work and play.
- Highlighted some key aspects of supportive environments as traditional values, cultures and beliefs that provide a sense of belonging, bonding and purpose; and governmental commitment to human rights, social justice, peace and democracy.


- Endorsed health as a fundamental human right and affirmed among others that there is clear evidence that participation by all people is necessary to sustain health improvement efforts; health literacy fosters participation and access to education and information is essential to achieving effective participation and the empowerment of people and communities (Laverack, 2004).

2000 Mexico Global Conference for Health Promotion (WHO, 2000)

- Recognised health as an important input into economic development and equity and not just as its output.
- Declared improving health and social development as a key duty and responsibility of every government.
- Attention was called to the growing global disparities in wealth and health.

2005 Bangkok Global Conference for Health Promotion (WHO, 2005)
2.3 Determinants of health

2.3.1 Evolution of Determinants of Health

The discourse on what determines health has evolved over the years from the superstitious speculations of early man to the modern day biomedical, lifestyle and social determinants of health theories. Ancient Egyptian manuscripts show primitive man believed poor health was caused by superhuman agencies such as the spirits of the dead (either human or animal), hostile spirits, disease demons, and anger of a god/s, or individuals who might act by controlling the spirits or agencies of disease (Osler, 2006). Relief from disease was by magic, incantations, spells and prayers. Sixth to fourth century BC records show that the ancient Greeks were the first to break from the supernatural conceptions of health and disease. The instincts of self-preservation, sympathy, and maternal passion are believed to be the basis of the practice of medicine. Through experiences of injuries, accidents, bites of beasts and serpents, knowledge was formed of what to prescribe for different ailments. Women cared for ill family members by applying these remedies and physicians were only consulted for serious cases. The Greeks developed the physiocratic school of thought which believed health and illness were based on a balance of the four bodily fluids (blood, phlegm, yellow bile and black bile) (Temkin, 1995). They posited that an excess or deficiency of any of the fluids in a person directly influenced their temperament (behaviour) and health. This presented an approach to medicine which linked the mental and physical aspects of human health. It was adopted by the Roman, Persian and later European physicians until the advent of modern medical research in the nineteenth century.
The biomedical model of health promotion focused on the functionality of the body and opined that poor health resulted from a malfunction of the human body caused mainly by disease and health represented absence of disease, pain or defect (Annandale, 1998). Infectious disease was the predominant cause of illness and death. The pathology, biochemistry and the physiology of disease were the main considerations for intervention for this model; social factors and individual peculiarities were not considered (Annandale, 1998). Health was viewed as a state of normal function of the body which could be intermittently disrupted by disease, and health interventions based on treating and curing illnesses and injuries, and improvement of the health care system.

By the mid-1900s, the incidence of many infections had been significantly reduced, and the focus shifted from absence of disease to the view that health was influenced by human biology, lifestyle, the organization of health care system, and the social and physical environments in which people live. In 1948, the World Health Organization (WHO) proposed a definition aimed at broadening the view of health and linking health to well-being, "A state of complete physical, mental, and social well-being, and not merely the absence of disease and infirmity". This definition though initially criticized as being vague, excessively broad and unmeasurable, is widely accepted today as the standard definition of health.

In 1974, a Canadian federal government white paper, “A New Perspective on the Health of Canadians (Lalonde Report), proposed that “changes in lifestyles or social and physical environments would likely lead to more improvements in health than would be achieved by spending more money on existing health care delivery systems” (Lalonde, 1974). It legitimised the idea of developing health policies and practices within the
broader context of human living (as shown in Table 1). This Report led to several successful health promotion programs on awareness of the impact of certain behaviour, and lifestyle on health.

The 1970s saw more focus on lifestyle choices and behaviour as key determinants of health. Health education programs and public awareness campaigns were geared towards promoting healthy behaviors such as healthy eating (eating more fresh fruits and vegetables and reducing high fat, sugar and sodium intake), increasing physical activity, getting recommended immunizations and screening tests; and reducing or stopping adverse health behaviour such as smoking and excessive intake of alcohol. Governments also put in place laws to discourage health risk behaviour, for example, requiring tobacco companies to include warnings such as “smoking is dangerous to health” notifications on each cigarette packet and caloric information on food items. This model tends to ‘blame’ the individual for their poor health as it views health as determined by or under the control of the individual.

The 1980s saw a change in focus from factors within and controlled by the individual to extrinsic factors often beyond their control. The health promotion movement in which the World Health Organization (WHO) played a leading role, brought in a new concept of health which considered health less as a ‘state’ and more as a resource which allowed people to lead productive lives at the individual, social and economic levels (Table 1 shows the health promotion milestones for Canada as shown by key reports). The health sector has traditionally been looked upon to deal with health concerns and disease such as inequitable access to health care, but the high burden of illness responsible for preventable loss of life arises from the conditions in which people are born, grow, live,
work, and age. Health was therefore viewed as a resource or capability for everyday living and not the goal of living – it concerns the physical, mental, social, intellectual, emotional and economic capabilities that help a person or a group of people achieve life goals through resilience and independent living; and includes "the extent to which an individual or group of people is able to handle stress, maintain relationships, acquire skills, realize aspirations and satisfy needs" (WHO, 1981).

Table 1: Health Promotion Milestones-The Canadian Perspective

<table>
<thead>
<tr>
<th>Year</th>
<th>Report</th>
<th>Author</th>
<th>Key Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>Lalonde Report – A New Perspective on the Health of Canadians</td>
<td>Canadian Federal Government</td>
<td>Proposed that changes in lifestyles or social and physical environments would lead to more improvements in health than would be achieved by spending more money on existing health care delivery systems.</td>
</tr>
<tr>
<td>1986</td>
<td>Ottawa Charter for Health Promotion</td>
<td>World Health Organization</td>
<td>Focussed on the broader social, economic and environmental factors that affect health, including income, education, and the physical environment where one lives and works as important influences on health.</td>
</tr>
<tr>
<td>1986</td>
<td>Achieving Health for All - A Framework for Health Promotion</td>
<td>Jake Epp and World Health Organization</td>
<td>Proposed that individual determinants of health do not act in isolation. Complex interaction among determinants have significant effect on health.</td>
</tr>
<tr>
<td>1989</td>
<td>Population Health Concept</td>
<td>Canadian Institute for Advanced Research (CIAR)</td>
<td>Population health approach was officially endorsed by the Canadian federal, provincial and territorial Ministers of Health. Laid out a framework to guide the development of policies and strategies to improve population health.</td>
</tr>
</tbody>
</table>
The effects of the physical, social, economic and political environments or conditions in which people live were considered important determinants of health and was publicized through the third point of the Alma Ata Declaration of the World Health Organization:

“Economic and social development, based on a New International Economic Order, is of basic importance to the fullest attainment of health for all and to the reduction of the gap between the health status of the developing and developed countries. The promotion and protection of the health of the people is essential to sustained economic and social development and contributes to a better quality of life and to world peace”   (WHO, 1978)

This was broadly discussed at the first international conference on health promotion in 1986 hosted by Canada which led to the release of two significant documents: The Ottawa Charter on Health Promotion, and Achieving Health for All: A Framework for Health Promotion. Besides highlighting these determinants of health, the documents proposed disease prevention, enhanced capacity for coping with chronic health conditions and reduction in health inequities, as key for maintaining global health. This is reflected by the prioritization of health promotion and health inequity reduction effort by organizations such as the United Nations and World Bank in partnership with the World Health Organization, governments of member countries, civil and not-for-profit organizations and the private sector (World Bank, 2015b).

Health is now viewed as a part of everyday living – a resource which gives people the opportunity and/or ability both to make choices that affect them and their environments; and to gain satisfaction from living. Although the Constitution of the World Health Organization (WHO) and several international agreements (UN, 2000) enshrine the right
to the highest attainable standard of health, the degree to which this right is met is unequal around the world. The poor have worse health, there are health inequities between countries, and a social gradient in health within countries, caused by the unequal distribution of power, income, goods, and services. Economic growth provides the opportunity to invest resources in improving living but does not achieve overall good without fair distribution. In the spirit of social justice, the Commission on Social Determinants of Health was set up by the World Health Organization (WHO) in 2005 to marshal evidence on what can be done to promote health equity, and to foster a global movement to “achieving the new agenda for health – closing the health gap” (WHO, 2005). A key recommendation of the Commission for reducing the health gap is action on the social, political, and economical spheres of living. From this perspective, the goal, challenges, mechanisms and interventions in health are no longer measured strictly in terms of illness and death but through broader terms as shown in Epp’s Framework for Health Promotion.

The model developed by Jake Epp in the "Achieving Health for All" World Health Organization Report, offers a framework that defines the goal of health promotion as achieving health for all (shown in Figure 4). It identifies the challenges facing global health as reducing inequities, increasing prevention and enhancing coping. This approach does not undermine the importance of the healthcare system, and earlier approaches to health promotion, it seeks to make them more relevant in the face of the emerging challenges of global health in the 21st century.
2.3.2 What really makes people healthy?

The Ottawa Charter on Health Promotion, and Achieving Health for All: A Framework for Health Promotion state that factors outside the health care system significantly affect health. These factors, known as the “social determinants of health”, include the entire range of individual and group factors, conditions and their interactions that have been shown to be correlated with the health status of people. Figure 5 shows a simple illustration of Jason that explains the interconnectedness of a person’s health and their environment and conditions.
Beyond access to and use of the healthcare system, the health of individuals and populations is influenced by a combination of intrinsic factors such as genetics as well as extrinsic ones such as income, level of education, where they live, their work, relationships with family and friends and many others. Social determinants of health broadly include factors in the make-up and behaviour of people as well as their physical, economic and social environments. The Public Health Agency of Canada (PHAC, 2011) identified 12 social determinants and acknowledges that the list may evolve as research in this area progresses. They are:
The Canadian Public Health Association (CPHA) however lists 14 determinants of health as follows: Income and Income Distribution, Education, Unemployment and Job Security, Employment and Working Conditions, Early Childhood Development, Food Insecurity, Housing, Social Exclusion, Social Safety Network, Health Services, Aboriginal Status, Gender, Race and Disability (CPHA, 2015). Although the CPHA list of social determinants of health appears more detailed specifically including food insecurity and aboriginal status, this study adopts the PHAC list that has broader classifications that can be applied to the study population.

Beyond tracing the roots of ill health to factors such as income, education, employment, material environment and lifestyle, the 1998 Acheson Report by the United Kingdom Health Department concludes that health inequalities are also caused by these socio-economic factors. Dahlgren and Whitehead (1991) depicts social determinants of health as layers of influence beginning from intrinsic factors such as age, sex and genetics to individual lifestyle factors, social/ community networks (like family and friends) to the broader global factors such as global warming, terrorism and political instability (as shown in Figure 6).
Evidence shows the relationship between these socio-economic factors and health. Ross and Wu (1995), Marmot et al. (2000) and Wilkinson (1996) found that higher social class and economic status are linked to higher life expectancies. The gap between the richest and poorest people was found to be correlated with the difference in health which is referred to as the “social gradient of health” (WHO, 2008; Mikkonen & Raphael, 2010). “The social gradient not only represents the effects of income on health but also the importance of income as a means of gaining access to other social determinants of health such as education, food, housing, recreational activities, and other societal resources” (CPHA, 2015). This social gradient of health exists even in high income countries such as
Canada but may be hidden by the overall high level of health (Mikkonen & Raphael, 2010).

Lower levels of education are linked with poorer health, low self-esteem and more stress. Using data from the National Longitudinal Mortality Study (NLMS), the National Bureau of Economic Research (NBER) found that one additional year of education increases life expectancy by 0.18 years and four extra years of education lowers five-year mortality by 1.8 percentage points, reduces the risk of heart disease by 2.2 percentage points, reduces the risk of diabetes by 1.3 percentage points, lowers the probability of self-reporting fair or poor health by 6 percentage points and reduces lost days of work to sickness by 2.3 days each year (Cutler and Lleras-Muney, 2006). Well planned built and natural physical environments which provide safe water, clean air, healthy workplaces, safe houses, communities and roads, safe walking and bicycle tracks, access to community gardens and parks, add to good health. People who are employed, in regular (as opposed to contract or temporary) employment, and who have more control over their working conditions have better health outcomes than those who do not. People who have greater support from families, friends and communities have better health outcomes.

Gender affects health in that men and women suffer from different types of diseases at different ages and in different ways. Besides this, women experience an uneven share of global poverty, social marginalization and gender inequality (UNIFEM, 2008). In some communities, women do not have the same educational, economic and political freedom as males forcing them to live in poverty and often poorer health with their children. Such disparities are particularly acute in sub-Saharan African countries and parts of Asia, where women lack adequate employment, healthcare access, food security, education
access and political opportunities. In 2012, 87% of female youths had basic literacy skills, compared to 92% of male youths (UNESCO Institute of statistics, 2014). In Nepal for instance, poor rural families consider education for girls a needless burden. Parents prefer to pay for their sons’ education and keep their daughters at home to help their “overburdened” mothers (Kuruvilla et al., 2014). Labor and physical exploitation of young girls, gender-based violence largely attributed to derogatory attitudes towards women, which is reinforced by low socioeconomic status (Pandey et al, 2013) high maternal mortality often associated with adolescent pregnancies and poor health services.

Recent studies reveal that one out of every thirty-two pregnant women die due to pregnancy and childbirth related complications (World Bank, 2013). Women’s participation in politics is only one-fifth that of men, and the same pattern prevails in professional occupations and administrative jobs. Although a substantial proportion of women, around 40 percent, are economically active, many are unpaid family workers involved in subsistence agriculture (GoN, Ministry of Finance, 2013).

In sub-Saharan Africa, 81% of women compared with 64% of men are engaged in vulnerable employment, defined as self-employed workers and those contributing to family work with little or no pay (UNIFEM, 2008). In Kenya’s population of 40 million, almost half (47%) live below the national poverty line (World Bank 2012). Kenyan women comprise 47% of the total labor force and 78% of women versus 50% of men are self-employed. More than 75% of Kenyan women live in rural areas, where they dominate the agricultural sector and operate nearly half of all small businesses. These women’s business ventures are twice as likely as male counterparts to be operating from home (World Bank 2007).

Given these impoverished conditions and employment
inequities, it is not surprising that women lack control over key decisions in their lives such as personal healthcare, daily purchases, forays out of the home and even what food to cook (UNIFEM, 2008).

The customs, traditional beliefs and practices of a people affect health. A tradition in West Africa which requires that a widow touch the corpse of her late husband and, in certain cases, drink water used in washing the corpse as part of the burial rites, aids the spread of infectious diseases in such communities. In societies where education of female children is forbidden, the circle of poverty and poor health continues from generation to generation.

Genetics contributes to the likelihood of developing certain diseases or health conditions. Healthy food choices, active living, smoking habits, alcohol intake and how one deals with challenges of life and stress affect health. Access and use of health services for disease treatment and prevention also influence health outcomes.

Labonte (1989) identified leading problems in the well-being of populations by the three approaches (the biomedical, behavioral and social determinants of health approaches, as shown in Table 2.
Table 2: Leading Problems in Health and Well-Being of Populations

<table>
<thead>
<tr>
<th>Medical Approach</th>
<th>Behavioural Approach</th>
<th>Socioenvironmental Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>cardiovascular disease</td>
<td>smoking</td>
<td>poverty</td>
</tr>
<tr>
<td>cancer</td>
<td>poor eating habits</td>
<td>unemployment</td>
</tr>
<tr>
<td>AIDS</td>
<td>lack of fitness</td>
<td>powerlessness</td>
</tr>
<tr>
<td>diabetes</td>
<td>drug abuse</td>
<td>isolation</td>
</tr>
<tr>
<td>obesity</td>
<td>alcohol abuse</td>
<td>pollution</td>
</tr>
<tr>
<td>mental disease</td>
<td>poor stress coping</td>
<td>stressors</td>
</tr>
<tr>
<td>hypertension</td>
<td>lack of life skills</td>
<td>hazardous living</td>
</tr>
<tr>
<td></td>
<td></td>
<td>poor working conditions</td>
</tr>
</tbody>
</table>

Labonte, 1989

Focusing on the health of populations also necessitates the reduction in inequalities in health status between population groups. An underlying assumption of population health is that reductions in health inequities require reductions in material and social inequities. This approach to public health has benefits that extend beyond improved population health outcomes to include a sustainable and integrated health system, increased national growth and productivity, and strengthened social cohesion and citizen engagement (CPHA, 2015).

2.3.3 Inequalities in Health of Populations

Health inequities are systematic differences in health outcomes. They are differences in health status or in the distribution of health resources between different population groups, arising from the social conditions in which people are born, grow, live, work and age. Various factors such as differences in income, education and social status have been shown to influence health inequities (WHO, 2015). Generally, people with higher social
and economic situations tend to have better health. Data from Western and Eastern European countries showed that “socioeconomically disadvantaged men and women had higher overall mortality rates than did persons with a higher socioeconomic status” (Berkman & Epstein, 2008). Marmot (2005) shows a variation in health outcomes with socio-economic status in countries. Under-5 mortality was shown to be highest among the poorest households in Indonesia, Brazil, India and Kenya in Figure 7.

Figure 7: Health and Wealth Chart

![Health and Wealth Chart](Marmot, 2005)

According to WHO, 99% of maternal deaths in the world occur in developing countries. Women in Afghanistan have a lifetime risk of maternal death of 1 in 11, while a woman in Ireland has a risk of 1 in 17,800. About 95% of tuberculosis deaths are in the developing world. These deaths affect mainly young adults in their most productive years. Low and middle income countries account for about 80% of non-communicable
diseases. Health care costs for these non-communicable diseases often drive families in these low income situations further into poverty. Life expectancy varies by 36 years between rich versus poor countries. A child born in Malawi can expect to live for 47 years while a child born in Japan can expect to live 83 years. Furthermore, the infant mortality rate is two per 1000 live births in Iceland and over 120 per 1000 live births in Mozambique. Maternal mortality is one in 17,400 in Sweden but one in eleven in Afghanistan.

Health inequities also exist within countries. In the United States of America, African Americans represent about 12% of the population but accounted for about 44% of new HIV infections in 2010 and 41% of people living with HIV in 2011 (Centre for Disease Control, 2014; 2012). In Bolivia, babies born to women with no education have infant mortality greater than 100 per 1000 live births, while the infant mortality rate of babies born to mothers with at least secondary education is under 40 per 1000; life expectancy at birth among indigenous Australians is substantially lower (59.4 for males and 64.8 for females) than that of non-indigenous Australians (76.6 and 82.0, respectively); life expectancy at birth for men in the Calton neighbourhood of Glasgow is 54 years, 28 years less than that of men in Lenzie, located a few kilometers away. The prevalence of long-term disabilities among European men aged 80+ years is 58.8% among the lower educated versus 40.2% among the higher educated.

Health disparities are also significant in cities (Commission on Social Determinants of Health, 2008). In London, men's life expectancy range from 71 years in Tottenham Green ward (Haringey) to 88 years in Queen’s Gate (Kensington and Chelsea) – a difference of 17 years. According to the findings of the London Health Observatory (2010) and as
shown in Figure 8, when travelling east from Westminster, each tube stop represents nearly one year of life expectancy lost.

Figure 8: Life Expectancy Disparities in Men in London

Health inequities have a significant financial cost to societies. The European Parliament has estimated that losses linked to health inequities cost around 1.4% of gross domestic product (GDP) within the European Union – a figure almost as high as the EU’s defense spending (1.6% of GDP). This arises from losses in productivity and tax payments, and from higher welfare payments and health care costs (WHO, 2014). Inequalities-related losses to health amount to more than 700,000 deaths per year, and 33 million prevalent cases of ill-health, in the European Union as a whole. These losses account for 20% of the total costs of health care, and 15% of the total costs of social security benefits.
Inequalities-related losses to health reduce labor productivity and take 1.4% off GDP each year. The monetary value of health inequalities-related welfare losses is estimated to be €980 billion per year, or 9.4% of GDP (Mackenbach, Meerding & Kunst, 2011) for the European Union alone.

2.3.4 Drivers of Health Inequalities

Phelan, Link and Tehranifar (2010) argued that social conditions are the fundamental causes of health inequities. They proposed that this association results because socio-economic status encompasses resources such as money, knowledge, prestige, power, and beneficial social connections that protect health. This agrees with the WHO’s position that the social conditions in which people live powerfully influence their chances to be healthy. Factors such as poverty, food insecurity, social exclusion and discrimination, poor housing, unhealthy early childhood conditions and low occupational status are important determinants of most diseases, deaths and health inequalities between and within countries (WHO, 2004). Layte et al (2007) noted that almost half of those living in consistent poverty reported having a chronic illness and reducing poverty is key to improving the health of people living in poverty. According to WHO, globally, populations thrive through international relations, internal standards and policies which in turn influence the state of affairs within those populations leading to stratification and a hierarchy based on income, education, occupation, gender, race/ethnicity and other factors. Where people fall in this hierarchy then affects the conditions “in which they grow, learn, live, work and age, their vulnerability to ill health and the consequences of ill health” (WHO, 2004). It further states that the benefits of advancements and economic
growth of the past decades are not evenly distributed as the richest countries containing 10% of the world’s population had income 122 times that of the poorest countries containing 10% of the world’s population in 2005. Moreover the net effect between inflow of dwindling international aids to low-income countries and debt-repayment obligations is tragically a financial outflow from the low to high income countries. The income gaps within many countries are widening despite increasing GDP of those countries. For instance, Nigeria recently overtook South Africa as the largest economy in Africa with a GDP of approximately $502 billion (0.8% of the world’s GDP) yet more than 70% of its population live below the poverty line.

Gender biases and ethnic discrimination are also associated with child and maternal health and survival (WHO, 2004). WHO believes health inequity can be tackled by empowerment of individuals and communities:

“Health equity depends vitally on the empowerment of individuals to challenge and change the unfair and steeply graded distribution of social resources to which everyone has equal claims and rights. Inequity in power interacts across four main dimensions – political, economic, social, and cultural – together constituting a continuum along which groups are, to varying degrees, excluded or included.” (WHO, 2004)

2.4 Empowerment

2.4.1 The Concept of Empowerment

The significance of the principle of empowerment to health promotion was highlighted in the Alma Ata Declaration and the Ottawa Charter (World Health Organization (WHO), 1978, 1986), in particular for interventions in socioeconomically disadvantaged
Empowerment is a complex concept that borrows from different bodies of knowledge and despite its wide use and perceived potential, has proven difficult to define (Alsop, Bertelsen and Holland, 2005). Chambers and Thompson (2009) believe much of the confusion surrounding the definition of ‘Empowerment’ stems from the origin of the word. According to Labonte (1993) a misconception may arise from the meaning of the word “empower” as the verb “empower” could mean either “the act of gaining or assuming power” or “an enabling process in which the empowering person gives power to others by sharing the power they hold over them”.

In the second scenario, there is the danger that the empowering person is still in control and defines the terms of the interaction (Labonte, 1994). This power-over rather than power-with situation may lead to resistance (Foucault, 1977). For people to feel empowered, they need to believe they have significant control over their own future (Tones and Tilford, 2001) and be convinced of a commitment to power sharing by institutions and professionals (Labonte, 1994). Rissel (1994) therefore argued that government top-down programs and policies aimed at ‘empowering’ the disenfranchised may actually be disempowering because they do not originate from the people themselves.

Empowerment has been shown to have roots in the civil rights and women's movements, the 'social action' ideology of the 1960s, and the 'self-help' perspectives of the 1970s (Kieffer, 1984; Eng et al, 1992). In the 1950s and 1960s, Paulo Freire worked on raising critical consciousness among the poor in Brazil. He sought to educate people in the
social, economic and political structures in society in order to take action and gain control and influence. He discouraged doing things for the socioeconomicalli disadvantaged but rather advocated for power sharing with them (Freire, 1972). The empowerment concept was further developed by later movements aimed at promoting rights of ‘ethnic and sexual minorities and women’ (Kuokkanen & Leino-Kilpi, 2000); leading to empowered communities demanding social justice (Laverack & Labonte, 2000).

Macdonald (1998) agrees empowerment grew as a result of anti-authoritarianism. In the 1980s, empowerment was promoted as a principal theory of community psychology (Rappaport, 1981; Rappaport et al, 1984; Rappaport, 1987), as it acknowledged the person as a 'citizen' within a political as well as social environment. In the 1990s empowerment was seen as part of the growing movement of people working towards gaining greater control in different aspects of their lives, including health and the physical environment (Illich, 1976; Brown and Margo, 1978; Rappaport, 1985; Auer, 1989; Kari and Michels, 1991). Common themes in early definitions of empowerment are: a process by which people or communities gain mastery of their lives (Rappaport et al, 1984); people become strong enough to share in controlling factors that affect their lives (Torre, 1986); people are able to take decisions and solve problems as a group (Kari and Michels, 1991). Wallerstein (1992) defined empowerment as ‘a social-action process that promotes participation of people, organizations and communities towards the goals of increased individual and community control, political efficacy, improved quality of life and social justice’.

In Rappaport’s (1981) description of the aim of empowerment 'to enhance the possibility for people to control their own lives', no distinction was made between 'people' as
individuals or collective groups. Later definitions of empowerment however, reflect distinctions made by Swift and Levin (1987) between the subjective experience or feeling of empowerment (often referred to as psychological empowerment) and the objective reality of observable changes in conditions such as in resource reallocation due to social action (referred to as community empowerment). Zimmerman and Rappaport (1988) described psychological empowerment as ‘the connection between a sense of personal competence, a desire for, and a willingness to take action in the public domain’. It has also been described as often resulting from active membership or participation in groups or organizations. Community empowerment, on the other hand, comprises of psychological empowerment among members, a socio-political action component, and the achievement of goals favorable to the community. The work of Saul Alinsky, Paulo Freire, and Jack Rothman is recognized as the logical and practical basis of the concept of community empowerment (Swift and Levin, 1987; Wallerstein and Bernstein, 1988; Gibson, 1991; Fahlberg et al., 1991; Eng, Salmon and Mullan, 1992; Wallerstein, 1992). Saul David Alinsky (1909-1972), author of the book Rules for Radicals, is noted for his work in improving the living conditions of communities across North America and is considered the founder of modern community organizing. Paulo Freire, a Brazilian educator who began a national literacy program for peasants and slum dwellers in the 1950s and 1960s is well known for his empowering education theory. Jack Rothman is recognized for his work Strategies in Community Intervention. Wallerstein (1992), Israel et al. (1994) and Zimmerman (1995) defined empowerment as a multi-level process of gaining understanding and control over personal, social, economic and political forces in
order to take action to improve one's life situations. Braithwaite and Lythcott (1989) and Breslow (1992) believe it should be a major goal of health promotion.

2.4.2 The process of empowerment

Literature on the process of empowerment have the common idea that empowerment consists of personal development, participation, consciousness raising and social action as shown in Figure 9.

Figure 9: The process of empowerment

Kieffer (1984) identified four stages in the empowerment process: era of entry (power and authority are explored), era of advancement (mentoring and supportive peer relationships lead to an increase in critical understanding), era of incorporation (development of organizational and political skills and confronting activity), and era of commitment (integration of these social actions into the reality). Torre (1986) proposed three essential components of community empowerment: micro factors such as developments of self-esteem and self-efficacy (Bandura, 1982, 1986); mediating structures referring to the group mechanisms which lead to critical consciousness of members (Freire, 1973); and macro factors referring to the socio-political action. Swift and Levin (1987) proposed a model in which the individual progressed from a critical consciousness of powerlessness, to dissatisfaction with state of inequity and
joining/participating in groups with like-minded persons who through deliberate action
address conditions that lead to powerlessness.

Much research has been focused on empowerment of socially disadvantaged populations
such as women (Fleury, Keller and Murdaugh, 2000; Leuning and Ngavirue, 1995;
Sandiford et al., 1995; & Al Riyami and Afifi, 2003), youth (Chinman and Linney, 1998;
Kim et al., 1998; & Holden, 2004), people at risk for HIV/AIDS (Sanstad, Stall and Doll,
1999; Hays, Rebchook and Kegeles, 2003; Gomez, Hernez and Faigeles, 1999;
Zimmerman et al., 1997; and Gollub, 2000), and patients (Neuhauser, 2003; Rosenfield,
1992; Howorka et al., 2000; Lorig, Ritter and Gonzalez, 2003, Lorig et al., 2001; Mayer-
Davis et al., 2004; and Cooper, Booth and Gill, 2003). Research on the effect of
empowerment on health and social outcomes identified the processes by which
empowerment is achieved and its effects in improving health and reducing inequities.

In health promotion, the focus of empowerment is on promoting equality in health and
participation of the public in decisions affecting their health (Laverack & Labonte, 2000);
and has been referred to as, “individual people being encouraged to assert their own
autonomy and self-esteem sufficiently to be able to identify their own health agendas,
rather than being told what to do” (Macdonald, 1998, p. 8). Labonte (1989), identified the
goals of empowerment in Table 3.
### Table 3: Labonte's Goals of Empowerment

<table>
<thead>
<tr>
<th>Empowerment Goals</th>
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<tbody>
<tr>
<td>Improvements in:</td>
</tr>
<tr>
<td>- personal sense of power</td>
</tr>
<tr>
<td>- group identity</td>
</tr>
<tr>
<td>- ability to reflect critically and to solve problems</td>
</tr>
<tr>
<td>- ability to make choices</td>
</tr>
<tr>
<td>- power equity in social relationships</td>
</tr>
<tr>
<td>- self-discipline and ability to work with others</td>
</tr>
<tr>
<td>For less powerful groups, increases in:</td>
</tr>
<tr>
<td>- access to resources</td>
</tr>
<tr>
<td>- collective bargaining power</td>
</tr>
<tr>
<td>- political legitimation of demands</td>
</tr>
</tbody>
</table>

Labonte, 1989

#### 2.4.3 Measuring empowerment

The empowerment or control measures used in two cross-country studies were reviewed. Bobak et al (2000) used a score of perceived control based on agreement or disagreement with nine statements, in studying the association between perceived control and material deprivation, self-rated health, education and marital status in seven post-communist countries. The statements were adapted from the Whitehall II Study (Marmot et al., 1991) and the MacArthur Foundation program on Midlife Development (Lachman & Boone James, 1997) and recorded on a six point Likert scale. The statements are: (1) At home, I feel I have control over what happens in most situations; (2) I feel that what happens in
my life is often determined by factors beyond my control; (3) Over the next 5–10 years I expect to have many more positive than negative experiences; (4) I often have the feeling that I am being treated unfairly; (5) In the past 10 years my life has been full of changes without my knowing what will happen next; (6) I gave up trying to make big improvements or changes in my life a long time ago; (7) Keeping healthy depends on things that I can do; (8) There are certain things I can do for myself to reduce the risk of a heart attack; (9) There are certain things I can do for myself to reduce the risk of getting cancer.

Gilmore, McKee and Rose (2000) investigating the socioeconomic and psychosocial determinants of self-perceived health in Ukraine used the question: “Some people feel they have completely free choice and control over their lives, while others feel that what they do has no real effect on what happens to them. How about yourself? Where would you place yourself on this scale of how much free choice and control you have over the way your life turns out?” on a ten-point scale as a measure of self-reported control.

The United Nations Human Development Program (UNDP) recognizes three basic dimensions of empowerment as follows:

• Economic participation and decision-making
• Political participation and decision-making
• Power over economic resources

(UNDP, 2009)

The Heritage Foundation (research think tank based in Washington D.C.), in partnership with Wall Street Journal tracks economic freedom in countries of the world using the Economic Freedom Index. The Heritage Foundation defines economic freedom as:
“The fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please. In economically free societies, governments allow labor, capital, and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself” (Heritage Foundation, 2015).

It recognizes four pillars of economic freedom namely Rule of Law (property rights, freedom from corruption); Limited Government (fiscal freedom, government spending); Regulatory Efficiency (business freedom, labor freedom, monetary freedom); and Open Markets (trade freedom, investment freedom, financial freedom).

The property rights component measures the ability of individuals to own private property, the degree to which a country’s laws protect private property rights and the degree to which its government enforces those laws. Individuals will create new forms of property to generate wealth, only when they are assured that their property are protected, and government will protect them against unjust and/or unlawful actions by other parties.

Fiscal freedom measures the tax burden imposed by government. Government spending measures government expenditure as a percentage of GDP.

Believing corruption causes insecurity and uncertainty in economic relationships, Freedom from Corruption is incorporated into the Economic Freedom index using Transparency International’s Corruption Perception Index. Business Freedom measures the ability to start, operate, and close a business, this shows the entrepreneurial environment both burden of regulation and efficiency of regulatory process. Labor Freedom provides data on the laws and regulatory processes of a country’s labor market such as minimum wages, hiring hours and severance processes. Monetary freedom
measures price stability and trade freedom measures tariff barriers to importation and exportation of goods and services. Investment freedom measures barriers to the free flow of investment capital by individuals and firms both within and across a country’s borders. Financial freedom measures the independence of the banks and financial sector from government control and interference (The Heritage Foundation, 2012).

Freedom House, using principles of the Universal Declaration of Human Rights, evaluates the state of political freedom enjoyed by individuals within countries using two measures: political rights and civil liberties. Political rights measure the extent to which elections are free and fair, elected candidates actually rule, political parties are free to compete, opposition plays a role, and interests of minority groups are represented in government. Civil liberties measure the extent to which individuals within a country enjoy such liberties as freedoms of expression, assembly, association, education, and religion (Freedom House, 2015).

2.5 Empowerment Interventions and the Social Determinants of Health

The concept of empowerment has been criticized by some authors as vague, lacking a clear theoretical underpinning, having measurement ambiguities, and having structural barriers that make ‘empowerment’ difficult to attain (Rissel, 1994). However, empowerment interventions have been shown to produce various health and wellness outcomes among targeted groups (Wallerstein, 2006). Empowerment interventions are programs planned to strengthen the capacity of communities to solve their own problems, with the aim of improving their quality of life. It often involves “mobilizing resources, developing the community’s local planning capacity, increasing collaborative problem
solving, promoting greater cooperation, developing an advocacy capacity of the community, and increasing information access” (Gnauck et al, 2013).

As will be shown below, empowerment interventions have resulted in: a greater sense of individual and group worth, stronger connections, increased participation in structured activities including youth social action, and policy changes, leading to improved mental health and school performance in youths. Improved health status and reduced HIV infection rates, improved quality of life, autonomy and authority for women as well as improved child and family health have also been reported when empowerment strategies were employed. Patients were better able to manage their diseases, use health services more effectively and make healthier behavioral choices (Wallerstein, 2006).

Glen Laverack, a community engagement officer at the United Nations who has done notable work in the field of health promotion, reviewed literature on improving health outcomes through community empowerment. He found evidence to show the pathways through which empowerment affected the health and well-being of individuals. He called these pathways, ‘domains’ of empowerment. Laverack’s nine domains of empowerment are: participation, community-based organizations, local leadership, resource mobilization, asking ‘why’, assessing the problems, links with other people and organizations, role of outside agents and program management (Laverack, 2006).

Just as community organizations and groups require the structure and direction of strong leadership to move towards achieving goals, leadership requires a strong participant base to achieve health goals and outcomes (Laverack, 2006). The appropriate model of leadership is that which allows for the interplay between positional leaders (those who have been elected or appointed) and reputational leaders (those who informally serve the
community) and precludes the dominance of one leader where power-over the community or group is used to manipulate situations to their own advantage (Laverack, 2006).

Partnerships, coalitions and health alliances formed to address community health needs outside the community is an important step towards empowerment and can also lead to improvement in health outcomes by pooling limited resources and by taking collective action (Laverack, 2006). An Asian Health Forum in Liverpool, England, identified a large number of cases of depression and isolation among Asian women in the Liverpool area. A government health practitioner who was working with the local women held discussions with them to identify their needs and then approached a leisure center to arrange swimming lessons. Privacy was ensured as the windows were blacked out and lessons run by other women. The alliance between the Asian women and the leisure center was able to organize weekly lessons and to secure funding for a female instructor. The women reported losing weight and having improved feelings of well-being brought about by regular exercise. Eventually the health worker was able to delegate some responsibilities for the lessons to the alliance and other sporting activities were gradually included increasing the choices available to the Asian women (Jones and Sidell, 1997). The initiation of health promotion programs or interventions are often professionally-led which necessitates the professional, expert or their agency choosing individuals, groups or communities that they work with and the methods to be used. The issue becomes how much control the outside agent gives to the community. Control, which is in part a consequence of the position people occupy in the structural and social hierarchies of society has been shown to have an influence on their health and well-being (Laverack,
2006). The community must have a sense of ownership of the program which in turn must address their concern. An example of this is the recent Community Health Needs Assessments in Saint John, New Brunswick in which the Participatory Action Research (PAR) was used as the framework to help guide the CHNA process and provide “an effective dynamic for embracing community empowerment, self-determination and the facilitation of agreed change” (Horizon Health Network, 2014). This was successful in identifying key community needs and recommendations such as access to community-based Health and Wellness programs, engaging community in policy and spending, addressing poverty, and coordinating food security planning (Horizon Health Network, 2014; HFHG, 2014).

“In Participatory Action Research (PAR), outsiders (experts) and insiders (community members) are partners, sharing and learning together (Cornwall & Jewkes, 1995). The “outsiders are conveners, catalysts and facilitators” (Chambers, 1983).

2.5.1 Empowerment, Income and Social status

There is little evidence which shows that the ability of a community or group to mobilize resources from within or outside itself will allow the community to gain social and political power (Laverack, 2006). There is however evidence to show that resource mobilization, improved literacy and education, particularly for women can lead to improved health outcomes in developing countries (Pokhrel and Sauerborn, 2004; Wallerstein, 1993). When remote Aboriginal communities in Australia raised funds (internally through small scale fund raising, pool-entrance fees and externally through seeking government funding) to maintain public swimming pools, they also found
reduced incidence of ear, nose and throat infections (Carapetis, Johnston, Nadjamerrek and Kairupan, 1995) and report of improved well-being of community members (Peart & Szoke, 1995). Moreover, the continued use of the swimming pools provided a means of physical activity, leisure and recreation which had health and well-being benefits for the community (Laverack, 2005).

Bobak et al (2000) examined the association between perceived control and material deprivation, self-rated health, education and marital status in seven post-communist countries. Countries included are Russia, Estonia, Lithuania, Latvia, Hungary, Poland and Czech Republic. Using questionnaires, self-reported data for the last 12 months was collected and analyzed from 5330 men and women aged 20-60 years. Perceived control was based on nine questions, and material deprivation based on availability of food, clothing and heating. Two measures of material inequalities (Gini coefficient and an inequality score estimated from the survey data as the distance between the 90th and 10th percentiles of material deprivation) for each country were incorporated. The results showed a strong correlation between self-rated health and education and material deprivation which is consistent with findings for countries in Western Europe (Bobak et al, 2000). Perceived control appeared to reduce the ill-health effects of material deprivation.

Gilmore, McKee and Rose (2000) conducted a cross-sectional study in Ukraine in March 2000 investigating socioeconomic and psychosocial determinants of self-perceived health. Besides finding that women had lower self-rated health compared to men, as do women living in villages compared with those in cities; poor material situation, and low control over life were identified as determinants of health. It was also found that control
over life accounted for the negative impact of low social status on health while good family relations protected against poor health. The findings suggest that decreased control (arising from an increasingly uncertain political and economic environment), a reduction in material wealth and the stress of change may all have contributed to the decreased life expectancies observed in the post-communist countries studied (Gilmore, McKee & Rose, 2000). Although the Bobak et al and Gilmore et al studies show similar results for Eastern Europe, the results may not be transferable to other countries of the world because of the difference in the economic, political and social situations in other countries compared to these post-communist countries. They are also short time span studies (one year for the Bobak et al study and cross-sectional for the Gilmore et al study) and do not take into account changes that may occur over time to the relationship between perceived health and socioeconomic as well as psychosocial factors in the face of changes in the economic and political environments in which people live.

2.5.2 Empowerment and Education

Empowerment has been linked to increases in knowledge and awareness in individuals. Participants in community engagement activities were reported to have developed skills, particularly skills for self and community improvement, as a result of their participation in the activities (NICE, 2008). A significant number of gay men reported having improved health awareness and knowledge as a result of participating in an empowerment program (Crossley, 2001).

Community-based organizations such as youth groups, committees, cooperatives and sports associations provide the opportunity for their members to acquire skills and
competences necessary to allow them move towards achieving better health outcomes or goals (Laverack, 2006). These skills include planning, development of strategy, time management, negotiating, team building, networking, fund raising, marketing, and writing of proposals among others. In a national program designed to address the health needs of women in Samoa, Polynesia, the Samoan government created a community based self-help system, a neighborhood support and nursing care program that operated through women’s committees. The government supported these organizations through resource allocation and building the prestige, skills and competencies of their members. The women were shown to have an improved ability to organize and mobilize themselves in that they raised resources to build sanitary and health facilities in their communities which lead to improved health status (Thomas, 2001).

2.5.3 Empowerment and Social Support Networks/ Social environments

Social support has been known as an important determinant of health as people who share their problems are better able to manage stressful situations (Geyer, 1997; Wilkinson, 1996; Wissman and Tankel, 2001) and this can lead to empowerment (Wallerstein, 1993). Social support is associated with social capital and social inclusiveness, and these are fundamental to a sense of connection to a community or group. Participation and trust between group or community members are manifested through traditions, rites and customary groupings. Involvement in groups that share interests can help individuals compete for limited resources and increase their perception of their control over their lives (Laverack, 2006).
Fisher and Gosselink (2005) assessed the impact of group involvement on individuals in their later years using members of the Studio 55 Fine Arts Guild. Studio 55 is a fine arts guild of more than 70 individuals aged between 60 and 97 years (at the time of the study). The activities of the guild include inviting guest speakers to monthly meetings to demonstrate their art techniques, and annual art exhibitions at which members displayed their work for sale and fund-raising. Entrance fees to the events were used to support the activities of the arts guild and provide funds for local charitable organizations. Fisher & Gosselink studied how members perceived group goals and accomplishments, membership benefits, the effect of the group on the community, how the society views older adults, and the impact of group activities on the members. The results showed that “collective efficacy and empowerment through social engagement were beneficial to members as individuals and as a group, and contributed to well-being through a general sense of accomplishment and pride” (Fisher & Gosselink, 2005).

A review of over 700 alcohol, tobacco and drug-use prevention programs showed that two common themes observed in successful programs are an empowerment approach (building youth capacity to tackle the problem rather than a “fix the deficit” approach) and participation in voluntary activities (GAO, 1992). As well, Tobler’s (1986) meta-analysis of 98 research reports involving 143 adolescent drug prevention programs concluded that programs which taught skills and provided adolescents opportunities to participate in volunteer activities were the most effective in preventing adolescent drug abuse. Wallerstein (2006) found that participation is linked to improved health and educational outcomes. Receiving recognition for involvement may lead increased
confidence, critical awareness, self-efficacy, and self-esteem which are associated with better health and well-being.

Individuals better achieve health goals if they participate with others with similar conditions (Brehm and Rahm, 1997). For instance, Nepalese women in a poor rural community who belonged to a women’s group and took part in participatory learning exercises were found to have reduced neonatal and maternal mortality (Manandhar et al, 2004). The women met weekly to learn about basic hygiene, their bodies, their environment and disease with the help of a health worker. They also discussed the problems and challenges they experienced as women living in their particular community, as well as and possible solutions. The study showed the participants had antenatal care, delivered their children in institutions, were attended to by trained birth attendants, and had more hygienic care, which led to improved birth outcomes.

Participating in the groups helped the women identify, think through and with the support of other members of the group, act on their concerns about childbirth and this led to better health outcomes (Laverack, 2006). Participation in the group as well strengthened the social network among the women and improved the social support between the women and also health service providers.

Although it may be argued that the improved health outcomes resulted from instructions and guidance of the health worker, the women reported feeling more confident owning their problems and more open to seeking solutions because other members of the group had similar challenges as they did (Laverack, 2006). Hatzidimitriadou’s (2002) study on a self–help supports Laverack’s findings as it showed members of the group reported
feeling more empowered and in control of their lives as a result of their membership in
the group.

Community-action initiatives on alcohol regulation resulted in reductions in injuries and
drink-driving by those aged 18-19 years as it led to the training of bar staff, reduced
hours of operation of licensed alcohol premises, increased age-verification checks and
highly visible drink-driving enforcement (Laverack, 2006). As well, evidence from a
large scale program (Communities First program in Wales), which intended to increase
opportunities for community empowerment and influence over service providers, showed
that communities were making political impact which helped improve their situations
(Adamson and Bromiley, 2008). The Communities First program, an initiative of the
Welsh government, has the goal of narrowing the economic, education/skills and health
gaps between the most deprived and more affluent areas (Welsh Government, 2014). By
providing funding to key ‘distribution’ organizations within the communities, the
program aims to build “prosperous communities, learning communities and healthier
communities” (Welsh Government, 2014). Adamson and Bromiley (2008) evaluated the
Communities First program and found the communities showed increased capacity to
vocalize their needs and create change. They also found high levels of existing skills and
widespread abilities among community members to participate in the partnership process
of improving their communities. However, there was a need for formal support to
develop the specific skills, knowledge and understanding required for effective
participation in the partnerships (Adamson and Bromiley, 2008).

International research shows empowerment interventions “have used community
mobilization approaches to improve equity of services, reduce institutional barriers of
government, enhance participation in local government, strengthen civil society associations and create healthy public policies which themselves lead to improved health” (Wallerstein, 2006). The ability of a community to assess the fundamental causes of their powerlessness and poor health and well-being outcomes or to “ask why” has also been associated with improved health and well-being outcomes (Laverack, 2005).

Goodman et al (1998) described it as “…the ability to reflect on the assumptions underlying our and others’ ideas and actions and to contemplate alternative ways of living”. Shrestha (2003) describes this process of discussion, reflection, and action as ‘critical awareness’ and ‘critical thinking’ and opines that it forms the basis for a number of approaches for learning and social change. An example is the Resource Sisters/Compañeras program implemented in an inner city area in Florida which had a predominantly African American population and high rates of low-birth-weight babies and infant mortality (Rudner-Lugo, 1996). Support groups or “mothers’ circles” were formed as a forum to listen to problems and provide opportunity for the women to share their experiences. It was found that initially most participants focused on their immediate problems but over time, the women began to understand the broader determinants underlying their poor health, poverty and powerlessness such as under-resourced health and education in their neighborhoods.

Wang, et al (1998) used the ‘photovoice’ exercise in a reproductive health and development program for Yunnan women of southwestern China, an area known for its large number of ethnic minorities. Cameras were given to women in rural communities to visually document their life conditions as they saw them. The images were then used to stimulate dialogue and share ideas and experiences to promote critical thinking and
identify the causes of their powerlessness. The participants were encouraged to develop a strategy for action to resolve the identified problems. This involved presenting their concerns in a visual way to policy makers. This led to the establishment of day-care centers, midwifery programs, and scholarships for rural girls. The visual images allowed the women to better advocate for change and led to an improvement in the reported levels of self-esteem and confidence observed through their increased participation in the program.

Seebhom et al (2012) studied the contribution of self-help/mutual aid groups to mental well-being. The findings showed that groups made a strong contribution to members’ mental well-being by enhancing a sense of control, increasing resilience and facilitating participation. Group members were uplifted by exchanging emotional and practical support. They gained self-esteem, knowledge and confidence, thereby increasing their control over their situation. As well, rural women in Gujarat India who participated in a health promotion learning exercise for rural women, requested and received cooking stoves that reduced the level of smoke in their small non-ventilated huts. Following the perceived improvement in their health and success of this first project they went on to identify other health problems in their community, including poor maternal and child health facilities and the need for gynecological training of health workers (Rifkin, 2003). Laverack (2006) is of the opinion that for a community to identify common problems of its members, solutions to the problems and action towards resolving the problems, there often has to be an assessment of the community’s problems by the community. And as such, motivation to improve health must come from within the community and not from experts outside the community (Laverack, 2006). “Program inputs such as education and
training, can play a role in improving health outcomes but these must always support the problems that have been identified by the community members as being relevant and important to themselves” (Syme, 1997).

2.5.4 Empowerment and Physical environments

Peter Ambrose, a professor at the Brighton University, United Kingdom led a study on the potential for fully community owned housing to empower people and improve well-being. Residents of the Walterton and Elgin Community Homes (WECH), were interviewed and their responses collected and compared with other populations and data sets. WECH is a resident-controlled housing association in Westminster which emerged from the struggle of residents against the sale of their homes (especially run down ones) to private developers, through grants from the City council and bank loans repaid through rents from residents. Notwithstanding the high level of deprivation in the area, residents of WECH expressed high levels of satisfaction with the neighbourhood, and greater levels of community engagement than people living in areas with comparable levels of deprivation (Rosenberg, 2012). The findings support the hypothesis that “an empowering and participatory management style – especially where based upon full community ownership and resident control – effectively enhances community engagement, activates citizenship and significantly improves individual and collective well-being. These findings imply that happiness and well-being are not so much a function of incomes and costs, as a product of control and influence” (Rosenberg, 2012).

In 2003, the Government of Nepal (GoN) established a long-term policy on communication and information identifying it as indispensable for economic prosperity
and social progress (GoN a, 2003) and emphasizing the need to extend communication services to rural parts of the country. A significant feature in Nepal’s media development is the expansion of radio broadcasting through its pioneer community-based FM broadcasting in South Asia, which has wide coverage across Nepal (GoN b, 2012). Access to TV viewing also increased with the increase in the number of private TV channels and the entry of satellite TV providers in 2010, into Nepal’s communication industry (UNESCO, 2011). Approximately 70% of the population had access to mobile phones as at 2013 (Nepal Dispatch, 2013). The various communication channels provided increased awareness about health generally and have also been used to promote health seeking behaviour.

Three medical students were sent to a small rural mill town area of Massachusetts, U.S.A. which was experiencing 17% unemployment, as part of an innovative medical education program by the Massachusetts Area Health Education Centers (AHEC). The students reported “human suffering, a need for social and health services, and a poor resource-helping system that was extremely stressed by the excessive needs created by high unemployment” (Wolff, 1992). Initial assessment visits by an AHEC consultant revealed that there were no mechanisms in place for the community to either plan towards or actually address its needs or problems. Although the Massachusetts Governor had announced the investment of resources to improve the economic condition of the area, there was no actual provision of resources for health and human services or improved quality of living. AHEC partnered with the local hospital, mental health service and the Chamber of Commerce to launch a Health and Human Service Coalition to bring community forces together with the goal of addressing the community’s needs.
A meeting of the business people, state legislators, local government, human services, health services, clergy, and citizens of the community, served as a key informants’ assessment of needs and assets, and identified the need for information and referral services for unemployed workers in the community. The Coalition developed a community directory of services entitled "Linkages", and made a proposal to the state for the funding of an information and referral service. An information and referral service was developed in partnership with the local poverty agency through successful lobbying for funding from the state government. The information and referral service received numerous phone calls about homelessness and imminent homelessness, and this led to the second coalition effort, the development of an emergency homeless shelter in the basement of a local church. The success achieved by the coalition in this community led to its spread to four more communities (Wolff, 1992).

2.5.5 Empowerment, Personal health practices and coping skills

Empowerment interventions have been shown to increase the psychological well-being, including self-efficacy, confidence and self-esteem of participants (Laverack, 2006; Fisher & Gosselink, 2008; Wallerstein, 2006; Gibbon, 2000; Crossley, 2000; Jacobs, 2006; Adey & Kehoe, 2008) while powerlessness, or lack of control over destiny, emerges as a broad-based risk factor for disease (Wallerstein, 1992). Behaviour change among high health risk groups (such as sex workers, injecting drug users, gay men/Men Who Have Sex With Men-MWHSWM), including greater condom use which leads to reductions in HIV infection rates (Wallerstein, 2006), has often been reported with empowerment interventions (Wallerstein, 2006, Crossley, 2001). Evidence also suggests
that engaging young people in structured activities that link them to each other and to institutions reduces rates of substance abuse (Wallerstein, 2006). Glen Laverack (2006) makes the point that individuals do have a better chance of achieving their health goals if they can participate with other people who are in similar circumstances, as this builds trust among the participants and in public institutions (Laverack, 2006).

Self-management education programs for chronic disease patients have been shown to have impact on their health behaviour, health status, and healthcare utilization (Brown et al., 2000; Lorig, González, & Ritter, 1999; Lorig, Sobel et al., 1999; Clark et al., 1992; Glasgow et al., 1997; Lorig et al., 2001). Arthritis patients who took part in a 6-weeks self-management education program, were studied four months following the program. The results showed increased physical activity and reduced pain among the participants (Lorig, Lubeck, Kraines, Seleznick, & Holman, 1985). A 4-year longitudinal study of the same intervention showed 19% reduction in pain and 42% reduction in outpatient visits to physicians among the participants (Lorig, Mazonson, & Holman, 1993). When the 6-week arthritis program was culturally adapted and offered to Spanish speakers in a randomized trial, the 4-month results were similar to those for the English speakers (Lorig, Gonzales & Ritter, 1999). A chronic disease self-management program based on the self-efficacy theory was evaluated for nearly 1,000 subjects with heart disease, lung disease, stroke, or arthritis (Lorig et al., 1999). Outcomes of the 6-month randomized trial and the 2-year longitudinal follow-up evaluation demonstrated that participants had significant improvements in health behaviour and health status as well as reduced healthcare use (Lorig et al., 2001; Lorig et al., 1999).
Empowerment has been defined as increasing the capacity of individuals or groups to make choices and to convert those choices into desired actions and outcomes (Alsop and Heinsohn, 2005). And for reducing HIV risk among women, empowerment translates to economic opportunities, which lessen women’s financial dependence on their partners and give them HIV-prevention options (Caldas et al. 2010; Kim et al. 2008; Romero et al. 2006). Addressing HIV risk through economic empowerment has been successful in reducing health disparities. In South Africa, microfinance, coupled with peer mediated HIV/AIDS education that addressed gender inequity, poverty and low self-esteem, has been associated with decreased HIV risk for women (Pronyk et al. 2008). In Kenya, microfinance, coupled with peer mediated HIV/AIDS education amongst women sex workers, led to a decreased number of sexual partners and increased consistent condom use in the population (Odek et al. 2009). In the words of the women, with regards to availability of money, “we feel comfortable”, “we are able to buy things, to develop the home”, “we are able to pay school fees for our children … we also buy things for our family - clothes, food.” Both women who participated in the microfinance program and those who did not, agreed money should be dedicated to home purchases, especially food, school fees and school supplies. Both groups stressed the need for women to be open to their husbands about their spending and also consider their husbands’ preferences with regards to spending money. Although the additional income from membership in the coop was appreciated by the husbands, the men were reported to be in control of the home. Some replied, “…a woman is under rules, she is under the control of the husband”, “we don’t really be more powerful than men...he money we [women] get from the baskets or from what we sell we take it to our husband, who feels as well supported”.

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Economic empowerment appeared to improve the personal, family and community statuses of the women in study, but did not protect against domestic violence with regards to HIV disclosure, nor the perceived vulnerability of increased HIV-infection risk. The enhanced social status of the women in the study combined with the shame and blame around HIV disclosure likely increased the barrier to HIV testing and treatment, increasing the HIV risk for the women.

In 2000, Crossley evaluated the Armistead project, a sexual health and HIV prevention service for gay men and MWHSWM (men who have sex with men) in the Liverpool and Sefton areas in northwest England. The aim of the evaluation was to explore the connections and conflicts between empowerment, sexual practices and government funded health promotion interventions. The Armistead project was established in 1997 in response to the Health of the Nation: A Strategy for Health in England report (Department of Health, 1992) which identified HIV/AIDS and sexual health as a key area for action and targets for national health. The main aim of the project was to provide gay men with the information and opportunities to develop the personal and social skills required to live healthier lifestyles. This was carried out through a telephone helpline; a Liverpool city center location which provided advice, information, opportunities for clients to discuss concerns in confidence with staff (who identified as gay men) and other clients; outreach work through which project workers developed contact with other gay/lesbian organizations and managers of gay venues in order to promote easy access to sexual health education material; training and facilitation of numerous social and support groups.
The evaluation was done through analysis of project documents, in-depth interviews with key informants, semi-structured interviews with agency representatives and a focus group (Crossley, 2000). The agencies included all genito-urinary medicine clinics, all drugs services, and most support and social groups for men, MWHSWM and lesbians, main police contacts and managers of the main gay clubs and pubs in the area.

The results of the evaluation showed the project was perceived by many of the clients as providing social support leading to safer sexual practices and increased self-esteem as a participant said the project made him more aware of himself, and others said “if you don’t value yourself, you are not really going to take much account of risky behaviour”, “You have safer sex if you have self-esteem, if you don’t, you just don’t care…these issues have just not been addressed within gay culture”. These comments imply self-empowerment through a sense of increased self-esteem and self-worth provided by social support. Some clients were of the opinion that the project’s dependence on government funding restricted the direction of the development of the project as a result of a conflict between the agenda of the health authority/government and that of the gay men. One respondent said the government funding of the project was actually creating an increased sense of dependence and vulnerability on the clients who see themselves as, “I’ve got a problem, I’ve got a need” and was detrimental to some of the central goals of the empowerment agenda which is enhancing a person’s sense of control and self-empowerment.
2.5.6 Empowerment and Healthy child development

Leuning and Ngavirue (1995), studied how disadvantaged Namibian women experienced empowerment when their children regularly attended a daycare or kindergarten program. The qualitative research used semi-structured interviewing in a natural setting to collect information on the women’s experiences with day care and kindergarten; the benefits the women experienced personally, socially, vocationally, and economically when they had placed their children in daycare or kindergarten; and the changes the women observed in their lives when they had placed their in daycare or kindergarten. Fifty two mothers were interviewed over six weeks in the English, Oshivambo and Afrikaans Languages in sessions that were not tape-recorded. The findings showed five themes of how the participants experienced empowerment as increased vitality, freedom from worry, opportunities to increase financial security, strengthened parenting competence and personal satisfaction and a sense of fulfilment. This study showed that the disadvantaged Namibian women, who had a “legacy of colonialism, apartheid, gender discrimination and social isolation” experienced empowerment when they had access to safe child care (Leuning & Ngavirue, 1995). The authors found the themes to be interrelated in a non-hierarchical circular pattern implying that as the women gained vitality or physical strength, increased confidence in their parenting and they could more confidently use their skills to increase their financial security, this caused a ripple effect of benefits to their families – more likeliness for children to be educated, more adequate shelter, more adequate food, increase in self-esteem and respect from and for members of the community (Leuning & Ngavirue, 1995).
The health and welfare of children have been linked to the degree to which women are allowed to participate in the political, educational, religious, technical and economic institutions in the society. Sherwin’s (1987) work showed that poverty and low social status in women result in poor nutrition, reduced strength and diminished self-esteem among others. This may be further exacerbated by violence and assault, which many women experience. As primary care givers in their families, their children suffer too (Sherwin, 1987). However, with literacy and access to better education, women better understand both their own health needs and those of their children/wards and pursue the options they consider appropriate for meeting those needs (Sherwin, 1987). Leininger (1978 & 1991) worked on ‘culturally congruent’ nursing care and showed that culturally sensitive nursing care improved access to health care services among native women. Jurkowski et al (2014) studied the effect of parental empowerment on parental attitudes to children’s obesity risk factors. Integrating community-based participatory research approach with the Family Ecological Model and the Empowerment theory, Jurkowski et al (2014) developed a childhood obesity intervention and studied the attitudes of low-income parents pre- and post-empowerment to children’s obesity risk factors such as nutrition and exercise. The study showed improvement in both parental empowerment and parenting practices with regards to childhood obesity.

2.5.7 Empowerment, Gender and Culture

Women, especially those in the low income bracket, occupy the lower level of the social status ladder and are prone to experiencing more stressful situations, less opportunities to make healthy life choices and poorer health outcomes. In recent times, women are
increasingly seen as an important part of the international development agenda. Empowering women and promoting gender equality have therefore been top priority global development objectives and as such, formed the third of the Millennium Development Goals (MDGs) agreed to in 2000 by the United Nations and its partners. Despite empowerment of women widely being viewed as a “good thing”, the question of how development interventions can be planned to actually contribute to female empowerment, and enable women to make more choices about their own lives, has been often debated. Microcredit and women’s savings groups are examples of interventions that have been widely used to tackle poverty and promote women empowerment (Scott, 2012). Critics of the use of these interventions argue that it fails to address the fundamental causes of the disadvantaged position women are often relegated to in society in relation to men, mainly gender inequality. The critics also suggest that the provision of credit for business burdens women with additional responsibilities beyond their traditional responsibilities of managing and caring for their families, leading to a situation where “women are working for development, rather than development working for women” (Scott, 2012). Instead, it is advocated that the focus be on removing institutional discrimination and transfer of rights from the state, which may be achieved through “uniting women, raising their awareness, and encouraging their mobilization so they receive what they are entitled to and begin to overturn the unequal structures within society” (Scott, 2012).

The Chars Livelihoods Program (CLP) funded by the United Kingdom’s Department for International Development (DFID) and some partners, is a program that aims to reduce poverty among extremely poor households living on the Chars (islands) of the Jamuna
River in northwest Bangladesh. The program provided women within targeted households GB £100 worth of investment capital to spend on a range of productive investment options, and also training sessions on how to manage their investment. The program aimed to open up economic opportunities for women, the majority of whom purchased cattle for investment. The women also attended social development classes for eighteen months at which they discussed topics like “the illegality of social evils such as child marriage, domestic violence and dowry, as well as entitlements from the state.”

Over a year following the start of the program, a survey was carried out though focus group discussions, informal conversations and semi-structured interviews with 143 female beneficiaries in four villages (CLP, 2013). Results of the survey showed that the transfer of investment capital specifically to women reduced their economic dependence on their husbands as the women gained income from their investments. The beneficiaries, with very few exceptions, maintained control over their cattle as they reared their cattle around their homes, still conforming to the tradition in rural Bangladesh that frowned at women travelling far from their homes (CLP, 2013). The women reported not feeling overburdened by the additional responsibility but rather enjoyed having cash-in-hand to spend on purchases such as school books for their children and cooking pots. The women also reported having greater say in small household decisions due to their contributions to household income, such as how much money their husband should spend at the market. There were few examples of women influencing “bigger” decisions about strategic life choices, including having children or purchasing a large piece of agricultural machinery, which tend to be made by the husband.
A notable observation was the decline in domestic violence, and later greater freedom of movement for the women, and the election of 17 female beneficiaries, across the approximately 700 villages where the CLP operated, as local government officers (CLP, 2013). The study suggests that combining the transfer of investment capital with social development/awareness, fostered a sense of self-confidence and greater feeling of solidarity among the women, allowing them to stand up for each other in cases of domestic violence. The women’s control over cattle and their contribution to household income, improved their participation in making decisions in their households. Improved household material wealth and consequently, food security contributed to reduced domestic violence, with husbands being less hungry and angry, having more hope for the future, and a greater sense of purpose. As well, women who were single parents or caretakers no longer had to work as maids, increasing their self-respect (CLP, 2013).

The effect that culture had on the outcome of the Chars Livelihoods Program and similar interventions in rural communities is noteworthy. The tradition of the woman being subordinate to her husband remained strong and was upheld by the women despite their improved economic, social and psychological situations. In 2004, the World Health Organization (WHO) launched a worldwide hand hygiene campaign as a patient safety initiative which included the concept of “patient empowerment” as a way to improve hand hygiene compliance (WHO, 2009). Sung- Ching et al (2013) studied hand hygiene knowledge and the attitudes among patients/families and health care workers (HCW) in a tertiary teaching hospital in Taiwan. The results showed that although 95.4% of patients and their families had positive attitudes towards being involved in hand hygiene, only 67.2% agreed they would remind health care workers about hand hygiene. Women,
illiterates and those receiving care from pediatric health care workers were less likely than others in the study to remind a HCW to wash their hands as it was perceived as being disrespectful to one who provided care.

An analysis of 40 women empowerment projects, demonstrated a range of quality of life improvements as a result of the projects, including increases in women’s advocacy demands, enhanced services and government change (Wallerstein, 2006). Health and well-being benefits have also been reported by some studies. Gibbon and Cazottes (2001) worked with women’s groups in Nepal to promote community health using the Health Analysis and Action Cycle (HAAC). The HAAC is an empowering approach that enabled women reflect on their understanding and perceptions of health and environmental situations, consider their own beliefs surrounding health and illness in a supportive way and plan and take action for themselves. The approach was first developed for use among literate women groups but later adapted to a more visual approach for non-literate groups due to the high level of illiteracy (75%) among women in the community. The cycle uses a process that provides an opportunity to exchange knowledge through dialogue between the facilitators and participants, using tools such as health mapping, seasonal calendars (some of the diseases were seasonal), body maps, and cause trees. The groups discussed and visualized the effects of good and bad health in their daily lives, the effects of the environment on their health, the effect of health situations and the environment on their bodies through their own interpretation, possible ways to prevent adverse health issues, and the attitude to adopt for each discussed health issue.
The Pelangma women’s group (one of the Nepalese women’s groups which participated in the HAAC project) during the first circle, identified diarrhea as the health problem their group wanted to tackle. They decided to implement a household hygiene program that ensured all their group members had built latrines. They then decided among themselves how the latrines would be built, timelines for completion and appointed members of the group to monitor the progress of the project. The focus on diarrhea also led to a discussion about what to do in the case of diarrhea. Members were able to learn from each other about where to go for Jeevan jal (oral rehydration salts). With the success of this first project, the group decided to go beyond the group to the community level. Group members attended a village development committee meeting to discuss the drinking water problem in their village. They presented the need for pipes and other materials to protect their water source. The village development committee then agreed to help in the construction of a protected water source. The group went on to tackle pneumonia and scabies through improved cooking facilities (external cooking facilities) and improved hygiene (keeping chickens from entering their homes and covering their drinking water) respectively.

Women’s empowerment has been linked to population health. Varkey, Kureshi and Lesnick (2010) assessed the relationship between women’s empowerment and health in 75 countries (countries with available GEM data in 2006). Using the Gender Empowerment Measure (GEM) as an indicator of gender inequality, economic participation, political participation, decision making, and power over economic resources. After adjusting for Gross Domestic Product (GDP), GEM was found to be significantly statistically associated with infant mortality, under five mortality, fertility
rate, and low birth weight. There was no significant correlation between GEM and proportion of one year olds immunized against measles. This result suggests that empowerment of women is associated with health outcomes at the national level. This study did not, however, explore the causal relationship between the measures as it used only simple and multiple linear regression models in analyzing the data. Besides GDP there could be other possible cofounders that would have influenced the result obtained by this study.

Fleury, Keller and Murdaugh (2000) studied the effect of social and background factors such as socioeconomic status, access to healthcare, culture, working conditions, multiple roles, and social isolation, on Coronary Heart Disease (CHD) prevention and management in women. They noted women often experience economic, political and social discrimination which may adversely affect their efforts at CHD prevention, health promotion and treatment. They recommended the full spectrum of CHD risk factors in women be further explored and incorporated into interventions and recognized the need for empowering women as an important strategy for reducing the prevalence of CHD in women.

A WHO funded study assessing the relation between gender empowerment and the female-to-male smoking prevalence ratios across countries, showed that the Gender Empowerment Measure (GEM) – a United Nations indicator for gender empowerment, remained a strong and highly significant predictor of Gender Smoking Ratio (GSR) after controlling for Gross National Income (GNI) per capita and Gini coefficient (which are known measures of economic development and inequality respectively) (Hitchman & Fong, 2011). The finding supports previous studies associating social changes and
women’s increasing economic resources with rise in smoking rates in women relative to men especially in developed countries (Waldron, 1991; Mackay & Amos, 2003; Waldron et al, 1988; Graham, 1996). The relation between the GEM and smoking rates among women in Europe was consistent with the findings of this study, though not statistically significant (Mackay & Amos, 2003; Graham, 1996). Pampel (2006) in exploring the reasons for the difference in smoking rates between men and women across countries did not find a strong relation between the differing smoking rates and gender inequality. Hitchman & Fong are of the opinion that Pampel’s use of a gender equality rather than a women’s empowerment measure, and his inclusion of components such as fertility and literacy measure, may have influenced his findings.

Turshen (1991) showed that general problems with the environment in which women live, work, marry, divorce, bear and raise children affect the health of women in Africa. Broader themes identified are revolution and war, the economy and work, population growth and demographic controls, health services and disease control programs.

In the context of the HIV epidemic in sub-Saharan Africa, AIDS-related stigma and gender inequality are additional driving forces behind women’s health disparities (UNAIDS, 2010). Access to economic empowerment initiatives has been heralded as a means to overcome poverty and social marginalization for women. (UNAIDS 2010; UNIFEM, 2012; Wallerstein 2006; World Bank 2007). There have been encouraging reports in the AIDS literature of economic empowerment initiatives that reduce HIV-related vulnerability for women in sub-Saharan Africa settings (Datta and Njuguna 2008; Odek et al. 2009; Pronyk et al. 2008). Amidst the AIDS epidemic and in the era of antiretroviral treatment, this situation translates to unacceptable health consequences for
women and justifies new approaches, such as coupling economic empowerment strategies with women’s AIDS prevention (Caldas et al., 2010; Dworkin and Blankenship 2009; Kim et al., 2008; Webb-Robins and David, 2008).

2.6 Research Gaps

Despite reports of health and well-being benefits by empowerment interventions, there remains a gap between the theory of empowerment and evidence of its health and well-being benefits. Outcomes reported by some of the studies such as social change and behaviour change were often too broadly representative of health that it becomes a challenge to isolate specific variables in the health and empowerment equation. Most studies have been on targeted disadvantaged groups, mostly in third world countries or poor neighborhoods and this makes transferability to other settings a challenge. The sample sizes and time frames of most of the studies were also small. Most of the studies were on individual empowerment through education, there were not many studies on country level or global dimension effects of empowerment on health and well-being. This study uses civil liberties and political rights freedom as proxies for empowerment, and traditional indicators of health (life expectancy and mortality rates) to quantitatively explore the relationship empowerment/self-determination has with health, while controlling for wealth, education and income inequality; using data from 1970-2013 for 149 of the 213 countries (following data conditioning and cleaning) of the world.
Chapter 3: Methods

This chapter describes and justifies the methods used in gathering and analyzing data for the study. A panel data set or longitudinal data was initially developed incorporating 213 countries of the world with data for the measures being explored as panel members. Available data on measures of empowerment/self-determination, health, education and wealth of interest over the time period 1970-2013 for each country was included. Data was from various sources, as shown in data source table included in the appendix. Due to data conditioning and lack of timeframe uniformity in some of the variables, the initial data was organized into two data sets: one with a shorter time frame but which includes a larger number of variables and a second with fewer variables but a longer time period. In the end, this study employed the latter for regression analysis due primarily to time constraint. The variables, units of measurement, range and years available information are shown in Table 4.

3.1 Research Population and Sample

The study population initially consist of 213 countries and most data used is based mainly on country-level household surveys conducted by the United Nations, World Bank and other global development partners. Due to data conditioning and cleaning, the final sample consists of 149 countries as listed in order of average real GDP: Luxembourg, Switzerland, Norway, United States, Germany, Denmark, Sweden, Canada, Austria, Ireland, Belgium, Australia, France, Italy, New Zealand, Iceland, Finland, Slovenia, United Kingdom, Japan, Cyprus, Czech Republic, Spain, Greece, Bahamas The, Hungary, Estonia, Slovak Republic, Malta, Croatia, Israel, Portugal, Trinidad and
Tobago, Russian Federation, Venezuela RB, Gabon, Lithuania, Poland, Kazakhstan, Lebanon, Seychelles, Mexico, Romania, Suriname, Cuba, Latvia, Iran Islamic Republic, Malaysia, Turkey, Chile, Uruguay, Bulgaria, South Africa, Serbia, Belarus, Mauritius, Maldives, Macedonia, FYR, Algeria, Panama, Brazil, Azerbaijan, Jordan, Grenada, Jamaica, Colombia, Ukraine, Dominica, Ecuador, Bosnia and Herzegovina, Namibia, Thailand, Peru, Tunisia, Egypt, Arab Republic, Dominican Republic, Albania, Fiji, Guatemala, Belize, Paraguay, Swaziland, Mongolia, Angola, Bolivia, Armenia, Congo, Republic, Guyana, Indonesia, Nicaragua, Moldova, Philippines, Yemen, Republic, Sri Lanka, Morocco, Bhutan, Nigeria, Cote d'Ivoire, Cabo Verde, Honduras, Uzbekistan, Zambia, Vietnam, Pakistan, China, Kyrgyz Republic, Sao Tome and Principe, Lao Peoples Democratic Republic, Mauritania, Djibouti, Ghana, Cameroon, Zimbabwe, Sudan, Tajikistan, India, Kenya, Senegal, Cambodia, Papua New Guinea, Madagascar, Tanzania, Haiti, Gambia, The, Comoros, Bangladesh, Benin, Afghanistan, Guinea-Bissau, Sierra Leone, Nepal, Togo, Lesotho, Congo, Democratic Republic, Chad, Mali, Guinea, Uganda, Niger, Burkina Faso, Rwanda, Central African Republic, Burundi, Ethiopia, Liberia, Mozambique and Malawi.
Table 4: Years Available Table

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Unit</th>
<th>Years Available</th>
<th>Number of countries with data</th>
<th>Variable Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy all</td>
<td>Years</td>
<td>1960-2013</td>
<td>202</td>
<td>19.5-83.48</td>
</tr>
<tr>
<td>Life expectancy female</td>
<td>Years</td>
<td>1960-2013</td>
<td>204</td>
<td>28.37-86.7</td>
</tr>
<tr>
<td>Life expectancy male</td>
<td>Years</td>
<td>1960-2013</td>
<td>200</td>
<td>16.46-80.6</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>number/count per 1000 live births</td>
<td>1960-2013</td>
<td>194</td>
<td>1.7-269.2</td>
</tr>
<tr>
<td>Mortality Under-5</td>
<td>number/count per 1000 live births</td>
<td>1960-2013</td>
<td>190</td>
<td>2.2-486</td>
</tr>
<tr>
<td>Literacy rate adult</td>
<td>Percentage</td>
<td>1975-2013</td>
<td>176</td>
<td>0-100</td>
</tr>
<tr>
<td>Lit rate adult female</td>
<td>Percentage</td>
<td>1975-2008</td>
<td>154</td>
<td>0-100</td>
</tr>
<tr>
<td>Lit rate adult male</td>
<td>Percentage</td>
<td>1975-2010</td>
<td>157</td>
<td>0-100</td>
</tr>
<tr>
<td>Secondary school enrolment</td>
<td>Percentage</td>
<td>1970-2008</td>
<td>195</td>
<td>%</td>
</tr>
<tr>
<td>Tertiary school enrolment</td>
<td>Percentage</td>
<td>1970-2008</td>
<td>190</td>
<td>%</td>
</tr>
<tr>
<td>Labor force with tertiary qualifications</td>
<td>Percentage</td>
<td>1985-2007</td>
<td>115</td>
<td>0-100</td>
</tr>
<tr>
<td>Business entry rate</td>
<td>Percentage</td>
<td>1990-2007</td>
<td>76</td>
<td>0-100</td>
</tr>
<tr>
<td>Ease of doing business rank</td>
<td>Ranking</td>
<td>2009</td>
<td>182</td>
<td>1-189</td>
</tr>
<tr>
<td>Time to start new business</td>
<td>Days</td>
<td>2003-2009</td>
<td>182</td>
<td>0-694</td>
</tr>
<tr>
<td>Corruption Perception Index</td>
<td>Score</td>
<td>2000-2013</td>
<td>197</td>
<td>0-100</td>
</tr>
<tr>
<td>Assault Count per 100,000</td>
<td>number/100,000</td>
<td>2005-2008</td>
<td>101</td>
<td>0-1329.11</td>
</tr>
<tr>
<td>Gini Coefficient</td>
<td>Score</td>
<td>1986-2012</td>
<td>132</td>
<td>0-100</td>
</tr>
<tr>
<td>Freedom Political Rights</td>
<td>Score</td>
<td>1972-2013</td>
<td>180</td>
<td>rank 1-7</td>
</tr>
<tr>
<td>Indicator</td>
<td>Type</td>
<td>Year</td>
<td>Score</td>
<td>Range</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------</td>
<td>------------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>Freedom Civil Liberties</td>
<td>Score</td>
<td>1972-2013</td>
<td>185</td>
<td>rank 1-7</td>
</tr>
<tr>
<td>Well Being</td>
<td>Score</td>
<td>2012</td>
<td>150</td>
<td>0-10</td>
</tr>
<tr>
<td>Economic Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>181</td>
<td>0-100</td>
</tr>
<tr>
<td>Property Rights</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Freedom from Corruption</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Fiscal Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Government Spending</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Business Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Labor Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>183</td>
<td>0-100</td>
</tr>
<tr>
<td>Monetary Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Trade Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>183</td>
<td>0-100</td>
</tr>
<tr>
<td>Investment Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>182</td>
<td>0-100</td>
</tr>
<tr>
<td>Financial Freedom</td>
<td>Score</td>
<td>1995-2013</td>
<td>186</td>
<td>0-100</td>
</tr>
<tr>
<td>Gini Coefficient</td>
<td>Score</td>
<td>1980-2012</td>
<td>132</td>
<td>0-100</td>
</tr>
<tr>
<td>Real GDP</td>
<td>number/count</td>
<td>1990-2013</td>
<td>188</td>
<td>142.02-199937</td>
</tr>
</tbody>
</table>
3.2 Description of Indicators

The initial data set consist of five dependent variables and twenty seven independent variables as shown in Figure 10. The variables included in the long-thin data set are described in this section. Additional variables in the short-wide data are described in the appendix.

3.2.1 Indicator of Wealth

The Real GDP is a country’s total output controlling for inflation. It is based on a fixed value of a currency in a given year. For instance, to express the real GDP of a country for years 2000 to 2010 in year 2000 dollars, the nominal GDP of the country for the each year is multiplied by a factor known as the GDP Price Deflator that is equal to percentage change in the average prices of goods and services (inflation) over the period of time being considered (Investopedia, 2015).

3.2.2 Indicators of Health

3.2.2.1 Life Expectancy at Birth, Total (years)

Life expectancy at birth indicates the average number of years a newborn is expected to live if mortality patterns at the time of birth remain constant throughout its life. It is a snapshot of the prevailing mortality pattern of a population across all age groups in a given year. Life expectancy at birth is a frequently used indicator of the country – level health status as data on the incidence and prevalence of diseases are often unavailable. It is calculated in a period life table and does not show mortality patterns over life circles of members of the population, which can be calculated in a cohort life table.
As developing countries do not often have complete vital registration systems, life expectancy is often estimated from sample surveys or by applying indirect estimation techniques to registration, census, or survey data that may be inappropriate for the population being studied. Estimating life expectancy at birth using infant/child mortality data and model life tables for many developing countries, raises reliability issues for this indicator. This is however alleviated by the use of the weighted average aggregation method in the collation of life expectancy.

The sources of data are United Nations Population Division, World Population Prospects; United Nations Statistical Division. Population and Vital Statistics Report (various years); Census reports and other statistical publications from national statistical offices; Eurostat: Demographic Statistics; Secretariat of the Pacific Community: Statistics and Demography Program; and U.S. Census Bureau: International Database. It is collated annually using the weighted average aggregation method.

### 3.2.2.2 Life Expectancy at Birth, male (years)

This is the average number of years a newborn male infant would live. It indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of his birth were to stay the same throughout his life.
Figure 10: Research Indicators

- WEALTH
  - Real Gross Domestic Product (RGDP)

- HEALTH
  - Life expectancy at birth, all (years)
  - Life expectancy at birth, female (years)
  - Life expectancy at birth, male (years)
  - Mortality rate, infants (per 1000 live births)
  - Mortality rate, under five (per 1000 live births)

- EDUCATION
  - Literacy rate, adult all
  - Literacy rate, adult male
  - Literacy rate, adult female
  - Secondary school enrollment (total)
  - Tertiary school enrollment (total)
  - Labor force with tertiary education

- POLITICAL FREEDOM
  - Freedom Political Rights
  - Freedom Civil Liberties

- ECONOMIC FREEDOM
  - Economic Freedom Index
  - Property Rights
  - Freedom from Corruption
  - Fiscal Freedom
  - Gov’t Spending
  - Business Freedom
  - Labor Freedom
  - Monetary Freedom
  - Trade Freedom
  - Investment Freedom
  - Financial Freedom

- INEQUALITY
  - Gini coefficient

- ENTREPRENEURSHIP
  - Business entry rate
  - Ease of doing business
  - New businesses registered
  - Time required to start a business

- CORRUPTION
  - Transparency International Corruption Perception Index

- SECURITY
  - UNODC Assault count per 100,000
3.2.2.3 Life Expectancy at Birth, female (years)

This is the average number of years a newborn female infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout her life.

3.2.2.4 Mortality Rate, Infants (per 1000 live births)

This is the number of infants dying before reaching the age of one year, per 1,000 live births in a given year in a country. It is calculated annually using the weighted average aggregation method. As with life expectancies, incomplete vital registration systems especially in developing countries and varying sources and methods of estimation, make comparison across countries and time difficult.

To correct this, the United Nations Inter-agency Group for Child Mortality Estimation (IGME), which comprises the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), the United Nations Population Division, the World Bank, and some universities and research institutes, developed and adopted a statistical method that uses available data to obtain a best estimate trend line fit for country-specific regression models of mortality rates against their reference dates.

3.2.2.5 Mortality Rate, Under-five (per 1000 live births)

This is the probability per 1,000 live births that a newborn baby will die before reaching age of five years. Its estimates were also developed by the UN Inter-agency Group for Child Mortality Estimation. It is collated annually using the weighted average aggregation method.
3.2.3 **Indicator of Education**

3.2.3.1 **Secondary School enrollment**

This is the percentage of total enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary level of education. Secondary education completes the basic education that began at the primary level, and lays the foundations for development and learning throughout one’s life. It is collated annually by United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics using the weighted average aggregation method.

3.2.4 **Indicators of Income Inequality**

3.2.4.1 **Gini Index (Net)**

Gini index, proposed by Gini (1936), measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. It ranges between zero and one (1). A Gini index of zero represents perfect equality, and suggests everyone has the same income; while an index of 1, implies perfect inequality and suggests one person has all the income while all the others have none. Gini index net, also known as after-tax Gini index is calculated based on income after taxes and transfers or disposable income. It measures inequality in income after considering the effect of taxes and social spending already in place in a country (OECD, 2012; Kakwani, 1977; Chu, Davoodi, Gupta, 2000).
The Gini index is collated by the World Bank Development Research Group based on primary household survey data obtained from government statistical agencies and World Bank country departments.

3.2.4.2 Gini Index (Redistributed)

Gini index redistributed is takes into account the income and wealth transfer machineries existing in a country, which include taxation, monetary policies, welfare, land reform, charity, confiscation, divorce or tort law.

3.2.5 Indicators of empowerment/self-determination

3.2.5.1 Political Rights (PR) Freedom

The Freedom in the World survey provides an annual evaluation of the state of global freedom as experienced by individuals. The survey measures freedom according to two broad categories namely political rights and civil liberties. Political rights allow people to take part freely in the political process, including the right to vote freely in elections, compete for public office, join political parties and organizations, and elect accountable representatives who able to influence public policies.

Data collection is through surveys whose standards are based on the Universal Declaration of Human Rights.

The surveys provide numerical ratings for about 195 countries annually on a scale of 1 to 7. A score of 1 indicates the highest degree of freedom and 7 the lowest level of freedom.

Data analysis is by a multilayered process by a team of regional experts and scholars.

Data for most countries and are drawn from the Population Reference Bureau. Alternate
sources include the World Gazetteer, the CIA World Fact book, BBC Country Profiles, and the Unrepresented Nations and Peoples Organization (UNPO).

3.2.5.2 Civil Liberties (CL) Freedom

Civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state. Countries with a score of 1 enjoy a wide range of civil liberties, including freedoms of expression, assembly, association, education, and religion. They have an established and generally fair legal system that ensures the rule of law (including an independent judiciary), allow free economic activity, and tend to strive for equality of opportunity for everyone, including women and minority groups. On the other hand, countries and territories with a rating of 7 have few or no civil liberties. They allow virtually no freedom of expression or association, do not protect the rights of detainees and prisoners, and often control or dominate most economic activity.

3.3 Data preparation

3.3.1 Data Update and Cleaning

An earlier compiled data set with indicators of wealth, health, corruption and happiness from 1960 to 2009 for the 214 countries with World Development Indicators (WDI) data, provided the basic framework for the data set used for this study. The variables were updated and compiled as shown in the table 5.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Initial data set</th>
<th>New data set</th>
<th>Change</th>
</tr>
</thead>
</table>
| Wealth     | GDP (US$ current)  
GDP per capita (US$ current)                                                     | Real GDP              | Updated current GDPs from 2009-2013. Later replaced current GDP with constant GDP and then replaced both with Real GDP (RGDP).       |
| Health     | Life expectancy at birth (total)  
Life expectancy at birth (male)  
Life expectancy at birth (female)  
Mortality rate infant  
Mortality rate Under 5 | Life expectancy at birth (total)  
Life expectancy at birth (male)  
Life expectancy at birth (female)  
Mortality rate infant  
Mortality rate Under 5 | Updated life expectancies and mortality rates from 2009 to 2013.                   |
| Education  | Literacy rate, total  
Literacy rate, male  
Literacy rate, female  
School enrolment secondary gross  
School enrolment secondary net  
School enrolment tertiary  
Labor force with tertiary education | Literacy rate, total  
Literacy rate, male  
Literacy rate, female  
School enrolment secondary gross  
School enrolment secondary net  
School enrolment tertiary  
Labor force with tertiary education | Updated all education variables in initial data set then scaled down to 5 indices. |
| Corruption | Transparency International Corruption Perception Index  
Transparency International Corruption Perception Index | Transparency International Corruption Perception Index | Updated data up to 2013.                                                                                                             |
| Assault    | UNODC Assault count  
UNODC Assault/100,000                                                              | UNODC Assault/100,000 | Updated both counts, later chose assault/100,000.                                                                                     |
| Happiness  | HPI OECD  
Happy Planet Life Satisfaction OECD                                               | Happiness as a dependent variable was dropped late in the          | Updated the OECD data, later changed to the                                                                                           |
study to make the thesis more manageable.

HPI and its component indices, which include more countries than the OECD indices.

Entrepreneurship | Business Entry Rate | Business Entry Rate
| Ease of Doing Business | Ease of Doing Business
| Time required to start new business | Time required to start new business.

Updated data.

Entrepreneurship

| Political Freedom | None | Civil Liberties, Political Rights | Added data |
| Economic Freedom | None | Economic freedom index, property rights, freedom from corruption, business freedom, trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, and financial freedom. | Added data |
| Inequality | None | Gini coefficient (net, market and redistributed) | Added data |

3.3.2: Data Splitting into Subsets

The resulting panel data of 213 countries and 34 variables (5 dependent and 29 independent) for the time interval 1970 -2013, was split into two subsets:

- Subset 1: Long-thin data set: Longer time series but fewer variables
- Subset 2: Short-wide data set: Shorter time series but more variables

This is to make for more data with more even time frame, as the time intervals and frequency of collection the variables in the complete data set are very disparate. For
instance, some variables are available from 1970-2013, while others are only available from 2006. Some are collected annually and others 3-yearly.

### 3.3.2.1 Subset 1: Long Thin Data Set

**Dependent variables:** Life expectancy all, life expectancy female, life expectancy male, infant mortality, mortality under 5.

It is necessary to use all five dependent variables to explore how empowerment interacts with different aspects of health. This specificity can be helpful in policy direction or program planning.

**Independent variables:** Due to data conditioning and cleaning, the final independent variables for the study are secondary school enrolment, tertiary school enrolment, Freedom PR, Freedom CL, RGDP, Gini net and Gini redistributed.

**Null hypotheses:** Empowerment (Political Rights Freedom or Civil Liberties Freedom) has no effect on health as measured by life expectancy and child mortality.

**Alternate Hypotheses:** Empowerment (Political Rights Freedom or Civil Liberties Freedom) has effect on health as measured by the life expectancy and child mortality.

The countries and income groups for the Long Thin data set is shown in Table 7.

**Table 6: Country Income Groupings**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Income Grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luxembourg, Switzerland, Norway, United States, Germany, Denmark, Sweden, Canada, Austria, Ireland, Belgium, Australia, France, Italy, New Zealand, Iceland, Finland, Slovenia, United Kingdom, Japan, Czech Republic, Spain, Greece, Estonia, Slovak Republic, Israel, Portugal, Poland, Chile</td>
<td>High income: OECD</td>
</tr>
<tr>
<td>Cyprus, Bahamas The, Malta, Croatia, Trinidad and Tobago, Russian Federation, Lithuania, Latvia, Uruguay</td>
<td>High income: Non OECD</td>
</tr>
</tbody>
</table>
Hungary, Venezuela RB, Gabon, Kazakhstan, Lebanon, Seychelles, Mexico, Romania, Suriname, Cuba, Iran, Islamic Rep., Malaysia, Turkey, Bulgaria, South Africa, Serbia, Belarus, Mauritius, Maldives, Macedonia FYR, Algeria, Panama, Brazil, Azerbaijan, Jordan, Grenada, Jamaica, Colombia, Dominica, Ecuador, Bosnia and Herzegovina, Namibia, Thailand, Peru, Tunisia, Dominican Republic, Albania, Fiji, Belize, Angola, China

Ukraine, Egypt Arab Rep, Guatemala, Paraguay, Swaziland, Mongolia, Bolivia, Armenia, Congo Rep, Guyana, Indonesia, Nicaragua, Moldova, Philippines, Yemen Rep, Sri Lanka, Morocco, Bhutan, Nigeria, Cote d'Ivoire, Cabo Verde, Honduras, Uzbekistan, Zambia, Vietnam, Pakistan, Kyrgyz Republic, Sao Tome and Principe, Lao PDR, Mauritania, Djibouti, Ghana, Cameroon, India, Papua New Guinea, Lesotho


3.3.2.2 Subset 2: Short Wide Data Set

The short wide data set was needed for this study as it has more variables for economic empowerment, political empowerment, education, and income inequality than in the long thin data. It also includes other variables which can add to the study but are not in the long thin data set; corruption, security (assault count), entrepreneurship. Ideally, this data set could add robustness to the analysis as these varied measures are more representative of the multifaceted concept of empowerment as shown from literature.

**Dependent variables:** Life expectancy all, life expectancy female, life expectancy male, infant mortality, mortality under 5.

3.4 Steps for Data Analysis

3.4.1 Averaging of measures over time

The variables in each subset are averaged over time to simplify the data. In order to perform a cross sectional analysis of the data, each variable is averaged over time.

3.4.2 Standard Normal Transformation

The variables are standardized to give the data normal distribution. The standard normal transformation is performed when data in different scales are being used together in a multiple regression analysis or in the development of scales. Standardizing of variables is performed by subtracting each observation from the mean and then dividing the result by the standard deviation (Audas, 2014).

The new variables created have a mean of 0 and a standard deviation of 1, which means they are on the same scale, making interpretation much more straightforward in a regression framework and enhancing the possibility to add items together to form scales.
Standardizing variables does not change the variability of the data, it provides a consistent way to interpret the results. For instance, a coefficient may be interpreted as having an effect given one standard deviation increase in the independent variable (Audas, 2014).

3.4.3 Generation of Quadratic Terms

Quadratic terms are generated for each variables to explore any non-linearities that might exist. Some variables may show non-linearity in that they may have a negative effect at some points in the distribution and have a positive effect at other points, or may be more positive at some levels of hierarchy and not relevant at other levels. Using a quadratic term as an independent regressor can be used to explore such behaviour in addition to the normal independent variable. Producing quadratic terms for school enrolment, civil liberties, property rights, real GDP and the Gini indices provide the opportunity to explore how these variables behave at higher levels; for instance, exploring the effect of having more school enrolment on life expectancy or mortality rates and if there is a level beyond which there is a reverse effect. A quadratic term is the squared value of the independent variable. It is obtained by multiplying the variable by itself. For this study, if a variable’s name ends with _z, it means it has undergone a standard normal transformation, and if it has _sq at the end, it has been squared (quadratic term).

3.4.4 General to Specific “GETS” Modelling

Although data should be allowed to “speak for themselves”, theory should play an important role in specification (that is, defining what variables to include in a regression model). Testing down (beginning with a general model and simplifying it in light of
sample evidence to a specific) is preferable to testing up (specific to general). “General-to-specific” (GETS) algorithm implemented in PcGets (Hendry and Krolzig, 2001), is used to model correlation between the dependent variables ((life expectancy all, live expectancy female, life expectancy male, infant mortality and mortality under 5) and the independent variables. “GETS involves simplifying a ‘general’ unrestricted model that adequately characterizes the empirical evidence within a theoretical framework, by a ‘testing down’ process, eliminating variables with coefficients that are not statistically significant, thus leading to a simpler ‘specific’ congruent model that encompasses rival models” (Campos, Ericsson, and Hendry, 2005). The choice of the GETS model is informed by certain desired characteristics that it possesses. As models should routinely be exposed to a battery of mis-specification diagnostic tests before being accepted, GETS eliminates the possibility of one type of test affecting the other by its ability to simultaneously test for several mis-specifications (over-testing). GETS also encompasses rival models in that it can predict what results would be obtained from regression suggested by the rival models. It is capable of explaining the data and of explaining the successes and failures of rival models in accounting for the same data.
Chapter 4: Results and Discussion

Following data conditioning and cleaning, the earlier compiled data set with indicators of health, wealth, education, economic freedom, political freedom, income inequality, security, corruption and entrepreneurship, for 213 countries from 1970 to 2013 was split into two data sets. The Long Thin data set comprises of eleven variables for 149 countries from 1970 to 2013 while the Short Wide data set comprises of 42 variables for all 213 countries. This chapter describes the Long Thin data set across country income groups and discusses results of the regression analysis which shows that higher levels of empowerment (political rights and civil liberties freedom) are associated with better health outcomes. Regression analysis of the short wide data set is beyond the scope of the Master’s program; a descriptive table of this data set is included in the Appendix for reference.

4.1: Description of the Long Thin Data Set

Using cross-country data from 149 countries, a general unrestricted model (GUM) and the corresponding specific model is estimated based on the general functional form:

\[ (\text{LEall\_avg}}_z_i, \text{LEfemale\_avg}}_z_i, \text{LEmale\_avg}}_z_i, \text{InfM\_avg}}_z_i, \text{or U5Mort}_i,) = b_1 + b_2 (\text{sec\_sch\_avg}}_z_i) + b_3 (\text{freedom\_pr\_avg}}_z_i \text{ or freedom\_cl\_avg}}_z_i) + b_4 (\text{real\_gdp\_avg}}_z_i) + b_5 (\text{gini\_net\_avg}}_z_i) + b_6 (\text{gini\_redist\_avg}}_z_i) + e_i \]

Where, _avg indicates averaging of variables over time, _z indicates standard normalization of variables, i indexes countries, b1, b2, b3…b6 are the coefficients on variables sec_sch, freedom_pr or freedom_cl, real_gdp, gini_net, gini_redist and e, the error term.
The variables are defined as follows: Sec_sch (secondary school enrolment), freedom_pr (political rights freedom), real_gdp (real gross domestic product), gini_net (net Gini Index) and gini_redist (redistributed Gini index), and are described in Table 7.

Table 7: Description of the Long Thin dataset

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>life_exp_all_avg</td>
<td>149</td>
<td>37.95</td>
<td>77.5</td>
<td>62.59</td>
<td>10.4</td>
</tr>
<tr>
<td>life_exp_female_avg</td>
<td>149</td>
<td>38.53</td>
<td>80.06</td>
<td>64.83</td>
<td>11.22</td>
</tr>
<tr>
<td>life_exp_male_avg</td>
<td>149</td>
<td>37.39</td>
<td>74.7</td>
<td>60.38</td>
<td>9.85</td>
</tr>
<tr>
<td>infant_mort_avg</td>
<td>149</td>
<td>6.88</td>
<td>161.46</td>
<td>57.27</td>
<td>41.45</td>
</tr>
<tr>
<td>mort_u5_avg</td>
<td>149</td>
<td>8.16</td>
<td>291.98</td>
<td>86.86</td>
<td>71.92</td>
</tr>
<tr>
<td>sec_school_enrl_avg</td>
<td>149</td>
<td>4.76</td>
<td>149.45</td>
<td>62.36</td>
<td>32.74</td>
</tr>
<tr>
<td>freedom_pr_avg</td>
<td>149</td>
<td>1.00</td>
<td>6.95</td>
<td>3.70</td>
<td>1.85</td>
</tr>
<tr>
<td>freedom_cl_avg</td>
<td>149</td>
<td>1.00</td>
<td>6.56</td>
<td>3.68</td>
<td>1.60</td>
</tr>
<tr>
<td>real_gdp_avg</td>
<td>149</td>
<td>584.29</td>
<td>120352.90</td>
<td>10898.94</td>
<td>13676.77</td>
</tr>
<tr>
<td>gini_net_avg</td>
<td>149</td>
<td>21.31</td>
<td>64.53</td>
<td>39.05</td>
<td>9.49</td>
</tr>
<tr>
<td>gini_redistribution_avg</td>
<td>149</td>
<td>-.04</td>
<td>.90</td>
<td>.18</td>
<td>.23</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data variables were explored in country income groupings. The World Bank classifies the world's economies based on estimates of gross national income (GNI) per capita. Low-income economies are defined as those with a GNI per capita of $1,045 or less; middle-income economies are those with a GNI per capita of more than $1,045 but less than $12,736; high-income economies are those with a GNI per capita of $12,736 or more. Lower-middle-income and upper-middle-income economies are separated at a GNI per capita of $4,125. High income economies are divided into OECD and non-OECD countries (World Bank, 2015). Figure 11 shows percentages of the country income groups included in the Long Thin data set.
For the 149 countries included in data set, average the life expectancies (all, female and male) had downward trends from high (mean all LE 74.6 years) to low (48.86 years) income countries, as shown in Table 8. Life expectancy indicates the average number of years a newborn is expected to live if mortality patterns at the time of its birth remain constant throughout its life. High income OECD countries had higher average life expectancy (mean all LE 74.6 years) than the high income non OECD (mean all LE 70.88 years) countries. Across the income groups, female life expectancy (minimum, maximum and mean) was higher than male life expectancy.

Infant mortality and under 5 mortality are the number of infants dying before reaching the age of one year and the number of newborn babies dying before reaching the age of five years, respectively, per 1,000 live births in a given year in a country. Under 5 mortalities were higher than infant mortalities as expected – infant mortality records the number of
deaths of newborns while under 5 mortality includes infant mortalities and deaths of other children under the age of five years. Mean average infant mortality increased from 12.26 deaths per 1,000 live births per year in high income OECD countries to 110.64 deaths per 1,000 live births per year in low income countries. Mean average under five mortalities increased from 15.02 deaths per 1,000 live births per year in high income OECD countries to 185.74 deaths per 1,000 live births per year in low income countries. Figure 12 shows income groups life expectancies.
Table 8: Data Variables and Ranges by Country Income Grouping

<table>
<thead>
<tr>
<th>Data Variables</th>
<th>High Income OECD</th>
<th>High Income Non OECD</th>
<th>Upper Middle Income</th>
<th>Lower Middle Income</th>
<th>Low Income</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Life Expectancy</td>
<td>Min 70.23</td>
<td>67.17</td>
<td>41.47</td>
<td>45.01</td>
<td>37.95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 77.5</td>
<td>75.42</td>
<td>73.99</td>
<td>70.15</td>
<td>62.32</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 74.6</td>
<td>70.88</td>
<td>57.73</td>
<td>57.58</td>
<td>48.86</td>
<td></td>
</tr>
<tr>
<td>Female Life Expectancy</td>
<td>Min 73.37</td>
<td>70.08</td>
<td>43.07</td>
<td>45.91</td>
<td>38.53</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 80.06</td>
<td>77.52</td>
<td>76.24</td>
<td>73.89</td>
<td>65.34</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 77.97</td>
<td>74.6</td>
<td>59.66</td>
<td>59.9</td>
<td>50.09</td>
<td></td>
</tr>
<tr>
<td>Male Life Expectancy</td>
<td>Min 65.36</td>
<td>61.97</td>
<td>39.94</td>
<td>44.15</td>
<td>37.39</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 74.7</td>
<td>73.42</td>
<td>74.32</td>
<td>72.61</td>
<td>59.44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 71.26</td>
<td>67.34</td>
<td>57.13</td>
<td>58.38</td>
<td>47.55</td>
<td></td>
</tr>
<tr>
<td>Infant Mortality</td>
<td>Min 6.88</td>
<td>8.48</td>
<td>11.89</td>
<td>17.97</td>
<td>63.29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 35.18</td>
<td>33.22</td>
<td>121.24</td>
<td>129.71</td>
<td>161.46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 12.26</td>
<td>18.56</td>
<td>66.56</td>
<td>73.84</td>
<td>110.64</td>
<td></td>
</tr>
<tr>
<td>Under 5 Mortality</td>
<td>Min 8.16</td>
<td>9.55</td>
<td>13.72</td>
<td>21.2</td>
<td>101.52</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 44.05</td>
<td>39.04</td>
<td>203.8</td>
<td>217.44</td>
<td>291.98</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 15.02</td>
<td>21.86</td>
<td>108.76</td>
<td>119.32</td>
<td>185.74</td>
<td></td>
</tr>
<tr>
<td>Political Rights Freedom</td>
<td>Min 1</td>
<td>1.59</td>
<td>1.03</td>
<td>2.22</td>
<td>3.61</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 3.34</td>
<td>5.27</td>
<td>6.76</td>
<td>6.94</td>
<td>6.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 1.29</td>
<td>2.37</td>
<td>3.89</td>
<td>4.58</td>
<td>5.26</td>
<td></td>
</tr>
<tr>
<td>Civil Liberties Freedom</td>
<td>Min 1</td>
<td>1.13</td>
<td>1.31</td>
<td>2.79</td>
<td>3.73</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 3.05</td>
<td>5.44</td>
<td>6.56</td>
<td>6.48</td>
<td>6.46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 1.29</td>
<td>2.07</td>
<td>3.94</td>
<td>4.63</td>
<td>5.06</td>
<td></td>
</tr>
<tr>
<td>Secondary School Enrolment</td>
<td>Min 80.35</td>
<td>75.55</td>
<td>12.68</td>
<td>11.33</td>
<td>4.76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 149.45</td>
<td>96.14</td>
<td>109.69</td>
<td>96.91</td>
<td>83.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 100.94</td>
<td>87.9</td>
<td>61.18</td>
<td>54.13</td>
<td>21.69</td>
<td></td>
</tr>
<tr>
<td>Real GDP</td>
<td>Min 10467.9</td>
<td>10332.31</td>
<td>2618.18</td>
<td>1257.15</td>
<td>584.29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 54094.2</td>
<td>22756.93</td>
<td>19011.26</td>
<td>7198.89</td>
<td>2176.36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 26874.25</td>
<td>16694.54</td>
<td>10814.71</td>
<td>4228.02</td>
<td>1332.67</td>
<td></td>
</tr>
<tr>
<td>Gini Net</td>
<td>Min 21.31</td>
<td>25.97</td>
<td>25.05</td>
<td>27.61</td>
<td>31.89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 49.62</td>
<td>57.89</td>
<td>64.53</td>
<td>59.06</td>
<td>57.97</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 28.7</td>
<td>35.11</td>
<td>44.79</td>
<td>43.35</td>
<td>42.77</td>
<td></td>
</tr>
<tr>
<td>Gini Redistributed</td>
<td>Min 0.07</td>
<td>0.03</td>
<td>-0.044</td>
<td>-0.02</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Max 0.9</td>
<td>0.71</td>
<td>0.72</td>
<td>0.13</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean 0.54</td>
<td>0.39</td>
<td>0.33</td>
<td>0.06</td>
<td>0.06</td>
<td></td>
</tr>
</tbody>
</table>
Secondary schooling is measured as the percentage of total enrollment, regardless of age, to the population of the age group that officially corresponds to the secondary level of education. This value may be over 100% as it includes enrolments for people outside of the secondary schooling age group. The mean average secondary schooling increased from 100.94% for high income OECD countries to 21.69% for low income countries. The Real GDP is a country’s total output controlling for inflation. It is based on a fixed value of a currency in a given year. It is measured in dollars. The mean average real GDP increased from $26874.25 for high income OECD countries to $1332.67 for low income countries.

Political rights freedom measures the extent to which people in a country can freely take part in the political process, including the right to vote freely in elections, compete for public office and join political parties and organizations. It is measured by a score of 1 to
7 with countries having the highest levels of political rights freedom scored 1, while those with few or no political rights freedom scored up to 7. The mean average political rights freedom score increased from 1.29 for high income OECD countries to a score of 5.26 for low income countries, which means a decrease in political rights from high to low income countries.

Civil liberties freedom measures the extent to which individuals within a country have freedom of expression, assembly, association, education, and religion. Similar to political rights freedom, it is measured by a score of 1 to 7 with countries having the highest levels of civil liberties scored 1, while those with few or no civil liberties scored up to 7 (Freedom House, 2015). The mean average civil rights liberties increased from a score of 1.29 for high income OECD countries to a score of 5.06 for low income countries, which similar to political rights freedom, means a decrease in civil liberties freedom from high to low income countries.

Net Gini index is measures the level of income inequality in a country in a year after considering the effect of taxes and social spending in a country. It ranges between zero and 100. A Gini index of zero represents perfect equality, and suggests everyone has the same income; while an index of 100, implies perfect inequality and suggests one person has all the income while all the others have none. The mean average Gini net index increased from a score of 28.7 for high income OECD countries to a score of 42.77 for low income countries, which means an increase in income inequality from low to high income countries. Redistributed Gini index is takes into account the income and wealth transfer machineries existing in a country, which include taxation, monetary policies, welfare, land reform, charity, confiscation, divorce or tort law. The mean average
redistributed Gini index decreased from 0.54 in high income OECD countries to 0.06 in low income countries.

4.2 Regression Results and Discussion

Using the “general-to-specific” (GETS) algorithm implemented in PcGets (Hendry and Krolzig, 2001), general unrestricted models (GUMs) for each of the dependent variable were implemented. Tables 8 and 9 present the results for each of the estimated GUMs and the corresponding specific models selected by the GETS testimation process. Table 8 Political Rights Freedom while Table 9 includes Civil Liberties Freedom. The results are:

One standard deviation decrease in average political rights freedom index (that is a standard deviation increase in the level of empowerment - political rights freedom) is associated with a 0.173 standard deviation increase in average all life expectancy and a 0.609 standard deviation increase in average female life expectancy at the 1% level of significance; a 0.139 standard deviation decrease in average infant mortality at the 5% level of significance and a 0.085 standard deviation decrease in average under 5 mortality at the 10% level of significance. Reporting the different levels of significance for the regression coefficients provides a more robust exploration of the relationships between variables especially for further study.

One standard deviation decrease in average civil liberties freedom index (that is a standard deviation increase in the level of empowerment - civil liberties freedom) is associated with a 0.181 standard deviation increase in average all life expectancy and a 0.672 standard deviation increase in average female life expectancy at the 1% level of significance; a 0.162 standard deviation increase in average male life expectancy at the
5% level of significance; and a 0.199 standard deviation decrease in average infant mortality at the 5% level of significance.

These results are consistent with the findings of Bobak et al (2000) and Gilmore, McKee and Rose (2000). Bobak et al examined the association between perceived control or freedom (empowerment) and material deprivation, self-rated health, education and marital status in seven post-communist countries. The results showed perceived control appeared to reduce the ill-health effects of material deprivation. Gilmore, McKee and Rose in their study investigating the socioeconomic and psychosocial determinants of self-perceived health in seven post-communist countries, identified poor material situation and low control over life as determinants of health. They also found that poor control over life accounted for the negative impact of low social status on health while good family relations protected against poor health, suggesting that decreased control (arising from an increasingly uncertain political and economic environment), a reduction in material wealth and the stress of change may all have contributed to the decreased life expectancies observed in the post-communist countries studied.

One standard deviation increase in average secondary schooling (education) is associated with a 1.4 standard deviation increase in average all life expectancy, a 1.5 standard deviation increase in average female life expectancy and a 1.3 standard deviation increase in average male life expectancy at the 1% significance level. It is also associated with a 1.3 standard deviation decrease average infant mortality and a 1.6 standard deviation decrease in average under-5 mortality at the 1% significance level. Higher standard deviation increase in average secondary schooling is associated with standard deviation decrease in average all, female and male life expectancies; and standard deviation
increase in average infant mortality and average under-5 mortality at the 1% level of significance. This result is consistent with the findings of the National Bureau of Economic Research (NBER) using data from the National Longitudinal Mortality Study (NLMS). They found that one additional year of education increases life expectancy by 0.18 years and four extra years of education lowers five-year mortality by 1.8 percentage points, reduces the risk of heart disease by 2.2 percentage points, reduces the risk of diabetes by 1.3 percentage points, lowers the probability of self-reporting fair or poor health by 6 percentage points and reduces lost days of work to sickness by 2.3 days each year (Cutler and Lleras-Muney, 2006).

One unit standard deviation increase in average real GDP (wealth) is associated with a 0.2 standard deviation increase in life expectancy all at the 1% level of significance, and a 0.3 standard deviation increase in average male life expectancy at the 5% level of significance; and a 0.6 standard deviation decrease in both average infant mortality and under-5 mortality at the 5% significance level. Higher standard deviation increase in average real GDP is associated with standard deviation increase in average infant mortality and under-5 mortality at the 10% level of significance. This is consistent with the findings of Ross and Wu (1995), Marmot et al. (2000) and Wilkinson (1996) that higher social class and economic status are linked to higher life expectancies.

One standard deviation increase in average net Gini index (income inequality) is associated with a 0.1 standard deviation decrease in average female life expectancy at the 1% level of significance. Higher standard deviation increase in average net Gini index is associated with standard deviation decrease in average all life expectancy and male life expectancy at the 10% level of significance. This is consistent with the findings of
Mikkonen and Raphael (2010), who found the gap between the richest and poorest people to be correlated with the difference in health referred to as the “social gradient of health”.

In summary, the study shows that increase in the level of empowerment (political rights freedom and civil liberties freedom) is associated with better health outcomes (all life expectancy, female life expectancy, male life expectancy, infant mortality and under-5 mortality), when wealth, education and income inequality were controlled for.
### Table 9: Estimates of the Gums and Specific Models 1: Life expectancy and mortality rates as dependent variables

<table>
<thead>
<tr>
<th>Gums</th>
<th>(LE_{all})</th>
<th>(LE_{female})</th>
<th>(LE_{male})</th>
<th>InfM</th>
<th>U5Mort</th>
<th>Specific Models</th>
<th>(LE_{all})</th>
<th>(LE_{female})</th>
<th>(LE_{male})</th>
<th>InfM</th>
<th>U5Mort</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constant</strong></td>
<td>-0.093**</td>
<td>-0.102**</td>
<td>-0.080</td>
<td>0.106*</td>
<td>0.105*</td>
<td>(-0.048)</td>
<td>-0.080</td>
<td>0.106*</td>
<td>0.105*</td>
<td>(-0.048)</td>
<td>(-0.060)</td>
</tr>
<tr>
<td><strong>Sec_school</strong></td>
<td>1.327***</td>
<td>1.318***</td>
<td>1.178***</td>
<td>-1.241***</td>
<td>-1.530***</td>
<td>(0.135)</td>
<td>1.178***</td>
<td>-1.241***</td>
<td>-1.530***</td>
<td>(0.135)</td>
<td>(0.170)</td>
</tr>
<tr>
<td><strong>Freedom PR</strong></td>
<td>-0.346*</td>
<td>-0.396*</td>
<td>-0.372</td>
<td>0.321</td>
<td>0.346</td>
<td>(-0.209)</td>
<td>-0.372</td>
<td>0.321</td>
<td>0.346</td>
<td>(-0.209)</td>
<td>(0.262)</td>
</tr>
<tr>
<td><strong>RGDP</strong></td>
<td>0.664***</td>
<td>0.678***</td>
<td>0.754***</td>
<td>-0.796***</td>
<td>-0.736***</td>
<td>(0.253)</td>
<td>0.754***</td>
<td>-0.796***</td>
<td>-0.736***</td>
<td>(0.253)</td>
<td>(0.316)</td>
</tr>
<tr>
<td><strong>Gini net</strong></td>
<td>0.124</td>
<td>0.079</td>
<td>0.188</td>
<td>0.438</td>
<td>0.520</td>
<td>(0.309)</td>
<td>0.188</td>
<td>0.438</td>
<td>0.520</td>
<td>(0.309)</td>
<td>(0.387)</td>
</tr>
<tr>
<td><strong>Gini redist</strong></td>
<td>-0.007</td>
<td>-0.010</td>
<td>-0.252</td>
<td>-0.119</td>
<td>0.006</td>
<td>(0.148)</td>
<td>-0.010</td>
<td>-0.252</td>
<td>-0.119</td>
<td>(0.148)</td>
<td>(0.186)</td>
</tr>
<tr>
<td><strong>Sec_school squared</strong></td>
<td>-0.787***</td>
<td>-0.767***</td>
<td>-0.663***</td>
<td>0.712***</td>
<td>0.943***</td>
<td>(0.138)</td>
<td>-0.663***</td>
<td>0.712***</td>
<td>0.943***</td>
<td>(0.138)</td>
<td>(0.173)</td>
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<tr>
<td><strong>Freedom PR squared</strong></td>
<td>0.149</td>
<td>0.205</td>
<td>0.177</td>
<td>-0.153</td>
<td>-0.217</td>
<td>(0.189)</td>
<td>0.177</td>
<td>-0.153</td>
<td>-0.217</td>
<td>(0.189)</td>
<td>(0.236)</td>
</tr>
<tr>
<td><strong>RGDP squared</strong></td>
<td>-0.882***</td>
<td>-0.936***</td>
<td>-0.927***</td>
<td>1.227***</td>
<td>1.156***</td>
<td>(0.435)</td>
<td>-0.927***</td>
<td>1.227***</td>
<td>1.156***</td>
<td>(0.435)</td>
<td>(0.545)</td>
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<tr>
<td><strong>Gini net squared</strong></td>
<td>-0.258</td>
<td>-0.204</td>
<td>-0.348</td>
<td>-0.372</td>
<td>-0.462</td>
<td>(0.284)</td>
<td>-0.204</td>
<td>-0.348</td>
<td>-0.372</td>
<td>(0.284)</td>
<td>(0.356)</td>
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<tr>
<td><strong>Gini redist squared</strong></td>
<td>-0.066</td>
<td>-0.060</td>
<td>0.114</td>
<td>0.168</td>
<td>0.079</td>
<td>(0.128)</td>
<td>-0.060</td>
<td>0.114</td>
<td>0.168</td>
<td>(0.128)</td>
<td>(0.168)</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.887</td>
<td>0.881</td>
<td>0.806</td>
<td>0.832</td>
<td>0.835</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Adj R-squared</strong></td>
<td>0.879</td>
<td>0.873</td>
<td>0.792</td>
<td>0.820</td>
<td>0.823</td>
<td></td>
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<tr>
<td><strong>Normality</strong></td>
<td>2.6589</td>
<td>9.846</td>
<td>79.428†</td>
<td>7.4016</td>
<td>10.931†</td>
<td>2.6007</td>
<td>9.846</td>
<td>79.428†</td>
<td>7.4016</td>
<td>2.6007</td>
<td>10.931†</td>
</tr>
<tr>
<td><strong>Hetero</strong></td>
<td>1.3553</td>
<td>1.0693</td>
<td>0.8301</td>
<td>1.4102</td>
<td>1.6074</td>
<td>1.9602</td>
<td>1.0693</td>
<td>0.8301</td>
<td>1.4102</td>
<td>1.6074</td>
<td>1.9602</td>
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<tr>
<td><strong>Reset</strong></td>
<td>2.2305</td>
<td>2.2115</td>
<td>0.5352</td>
<td>4.2217</td>
<td>3.7172</td>
<td>4.411†</td>
<td>2.2115</td>
<td>0.5352</td>
<td>4.2217</td>
<td>3.7172</td>
<td>4.411†</td>
</tr>
<tr>
<td><strong>Chow</strong></td>
<td>0.3895</td>
<td>0.0028</td>
<td>0.2752</td>
<td>2.2097</td>
<td>1.4375</td>
<td>1.4997</td>
<td>0.0028</td>
<td>0.2752</td>
<td>2.2097</td>
<td>1.4375</td>
<td>1.4997</td>
</tr>
<tr>
<td><strong>N</strong></td>
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<td>149</td>
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<td>149</td>
<td>149</td>
<td>149</td>
<td>149</td>
</tr>
</tbody>
</table>

Notes: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels respectively. Standard errors are in parentheses. Chow (n) is a parameter constancy test and is F-distributed under the null of parameter constancy. Normality is the Doornik-Hansen test for normality and is asymptotically chi-squared distributed under the null of normality. Hetero is an F-approximation of White’s (1980) test for unconditional heteroscedasticity. †denotes failed diagnostic test.
Table 10: Estimates of the Gums and Specific Models 2: Life expectancy and mortality rates as dependent variables

<table>
<thead>
<tr>
<th>Gums</th>
<th>Specific Models</th>
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<tr>
<td></td>
<td>LE_{all}</td>
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<tr>
<td>Constant</td>
<td>-0.100** (0.048)</td>
</tr>
<tr>
<td>Sec_school</td>
<td>1.367*** (0.138)</td>
</tr>
<tr>
<td>Freedom CL</td>
<td>-0.429* (0.226)</td>
</tr>
<tr>
<td>RGDP</td>
<td>0.671** (0.251)</td>
</tr>
<tr>
<td>Gini net</td>
<td>0.132 (0.311)</td>
</tr>
<tr>
<td>Gini redist</td>
<td>-0.006 (0.149)</td>
</tr>
<tr>
<td>Sec_school squared</td>
<td>-0.836*** (0.142)</td>
</tr>
<tr>
<td>Freedom CL squared</td>
<td>0.219 (0.206)</td>
</tr>
<tr>
<td>RGDP squared</td>
<td>-0.977** (0.435)</td>
</tr>
<tr>
<td>Gini net squared</td>
<td>-0.259 (0.285)</td>
</tr>
<tr>
<td>Gini redist squared</td>
<td>-0.071 (0.128)</td>
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<tr>
<td>R-squared</td>
<td>0.887</td>
</tr>
<tr>
<td>Adj R-squared</td>
<td>0.879</td>
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<tr>
<td>Normality</td>
<td>1.7026</td>
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<tr>
<td>Hetero</td>
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<td>Reset</td>
<td>3.1806</td>
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<tr>
<td>Chow</td>
<td>0.3492</td>
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<td>N</td>
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</table>

Notes: *, ** and *** denote statistical significance at the 10%, 5% and 1% levels respectively. Standard errors are in parentheses. Chow (n) is a parameter constancy test and is F-distributed under the null of parameter constancy. Normality is the Doornik-Hansen test for normality and is asymptotically chi-squared distributed under the null of normality. Hetero is an F-approximation of White’s (1980) test for unconditional heteroscedasticity. †denotes failed diagnostic test.
4.3: Diagnostic tests

Tests for normality, heteroscedasticity and functional form were performed and the results (shown in Tables 9 and 10), suggest that the models examined generally pass the diagnostic tests.

The results of the study provides an answer to the research question: Greater levels of empowerment (political rights freedom and civil liberties freedom) have positive health benefits for countries.
Chapter 5: Conclusion

This research explored the effect of empowerment (political rights freedom and civil liberties freedom) on health (all life expectancy, female life expectancy, male life expectancy, infant mortality and under-5 mortality). In the face of the current global health challenge, which is the widening gap in health within and between populations, intervention strategies have to be adapted to meet emerging needs. The World Health Organization framework for health promotion lists the three key challenges in achieving “Health for All” as, reducing inequities, increasing prevention and enhancing coping; and the mechanisms for achieving these are self-aid, mutual help and healthy environments, through fostering public participation, strengthening health services and coordinating healthy public policy. The concept of empowerment/self-determination embodies self-aid, mutual help and public participation.

Although the Alma Ata Declaration and the Ottawa Charter of the World Health Organization drew attention to the significance of empowerment and there is evidence of successful empowerment-based programs particularly for interventions socioeconomically disadvantaged communities and populations (Heritage and Dooris, 2009), its impact on the health of countries is less explored. This study explores the empirical relationship of empowerment with health and seeks to stimulate interest in research in this area of discuss. It as well adds to the literature on empowerment, health and reducing the ‘disadvantaged condition’ of socially excluded groups.
5.1 Key Findings

Using published cross-country data mostly from the World Bank, and the “general-to-specific” (GETS) algorithm implemented in PcGets (Hendry and Krolzig, 2001). This quantitative cross-sectional research explored the null hypothesis: Empowerment (Political Rights/ Civil Liberties) does not have positive effects on health. The study shows that one standard deviation increase in the level of empowerment is associated with a 0.17 standard deviation increase in all life expectancy, a 0.61 standard deviation increase in female life expectancy, a 0.14 standard deviation decrease in infant mortality, and a 0.09 standard deviation decrease in under 5 mortality; and one standard deviation increase in the level of empowerment is associated with a 0.18 standard deviation increase in all life expectancy, a 0.67 standard deviation increase in female life expectancy, a 0.16 standard deviation increase in male life expectancy, and a 0.2 standard deviation decrease in infant mortality (using political rights and civil liberties freedom respectively) while controlling for wealth, education and income inequality (p ≤ 0.05). The null hypothesis is rejected and the alternative hypothesis accepted.

5.2 Limitations of Study

This study was not intended as an extensive research of the relation between health and empowerment within countries, but rather, as an attempt to demonstrate the basic empirical relation between health and empowerment across countries using quantitative research methods. As such, there are limitations to the conclusions drawn from this study. Firstly, the researcher acknowledges the limitation presented by not having universally accepted measures for empowerment and this study adopting political rights freedom and
civil liberties freedom as proxy for the level of empowerment of people in countries. As such, an important aim of conducting this study is to stimulate interest in research into this area of study and into seeking measures that better measure empowerment than those used in this study, if any.

Secondly, a major limitation of this study is the time constraint encountered in carrying out the study within the master’s program timeframe. This limited the regression analysis to just the long-thin data set and not the more robust short–wide data which has 39 independent variables as opposed to five in the long-thin data set. It is the opinion of the researcher that analysis of the short-wide data set is capable of contributing significantly to this area of study, given results obtained from the long-thin data set.

Thirdly, this study used life expectancies (all, female and male) and mortality rates (infant and under 5) which are mortality indicators as measures of health. Other measures of health such as maternal mortality, morbidity indicators, health status indicators (low birth weight, diabetes incidence, and obesity rates), disability, nutritional, lifestyle, social and mental health indicators, among others are possibilities that could be explored in studying how empowerment affects health.

5.3 Suggestions for Future Research

Future research should investigate what indicators adequately measure empowerment which will be a great resource for evaluating and monitoring empowerment based programs. This will also add to the literature on empowerment and health and contribute to evidence-based research in this field.
An analysis of the short-wide data set or analysis of a modification of it, is a good 
suggestion for future research as the data set has a largely inclusive array of variables 
which represents literature’s description of empowerment. The health indices may also be 
expanded or varied.
The World Health Organization defines health as the state of complete wellbeing and not 
just the absence of disease. In the light of this definition, there is a need to look beyond 
traditional measures of health such as mortality and morbidity indicators to explore 
themes like happiness, well-being, life satisfaction, and quality of life as measures of 
progress of societies and the effect that empowerment has on them.
References


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Sources of Data

The World Development Indicators (WDI), the primary World Bank collection of development indicators is a major source of data for this study. It “presents the most current and accurate global development data available” (World Bank, 2015a). The WDI data collection is a time series data type with national and regional data for 214 national economies, updated annually. It provides country by country comparable data about development and people’s lives across the world. Topics included are health, education, economy and growth, social development and poverty. Other topics are agriculture & rural development, aid effectiveness, climate change, energy & mining, environment, external debt, financial sector, gender, infrastructure, labor & social protection, private sector, public sector, science and technology, trade and urban development. For this study, literacy rates, school enrolment and labor force with tertiary education (indicators of education); mortality rates and life expectancy (indicators of health); and business entry rates, time to start new business, ease of doing business (indicators of entrepreneurship) data were from the WDI database which is accessible on the internet. Other sources of data are the Heritage Foundation, Freedom House, Transparency International and the United Nations Office of Drugs and Crime (UNODC) websites, which also have open access to the public through the internet. Table shows the sources of data.

Table 11: Sources of Data

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>SOURCES OF DATA</th>
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121
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<td>Life expectancy at birth, all (years)</td>
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<td>2</td>
<td>Life expectancy at birth, male (years)</td>
<td><a href="http://data.worldbank.org/indicator/SP.DYN.LE00.MA.IN">http://data.worldbank.org/indicator/SP.DYN.LE00.MA.IN</a></td>
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<td>3</td>
<td>Life expectancy at birth, female (years)</td>
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<td>4</td>
<td>Mortality rate, infant (per 1000 live births)</td>
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<td>5</td>
<td>Mortality rate, under-5 (per 1000 live births)</td>
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<td>6</td>
<td>Literacy rate, adult total (% of people ages 15 and above)</td>
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<td>Literacy rate, adult male (% of males ages 15 and above)</td>
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<td>School enrollment, secondary (% gross)</td>
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<tr>
<td>10</td>
<td>School enrollment, tertiary (% gross)</td>
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<td>11</td>
<td>Labor force with tertiary education (% of total)</td>
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# Short Wide Data Set

## Table 12: Description of Short Wide Data Set

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<td>infant_mortality_avg</td>
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Valid N (listwise) 20
Short-Wide Data Set Variables

Indicators of Education

Literacy rate, adult total

Adult literacy rate is the percentage of people aged 15 years and above who can with understanding, both read and write a short, simple statement about their everyday life. It shows the effectiveness or capacity of an educational system to provide opportunities to members of a population to acquire literacy skills. It is collated annually by United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics based on household surveys and national censuses using the weighted average aggregation method.

Estimations are made for countries without required data with the Global Age-Specific Literacy Projection Model (GALP). Although literacy is difficult to measure, literacy rate is based on internationally agreed standards which include achievements in reading and mathematics based on census or survey measurements under controlled conditions.

Literacy rate, adult male

Adult male literacy rate is the percentage of males aged 15 years and above in a country who can, with understanding, read and write a short, simple statement on their everyday life. The sources of data and methods of estimation are similar to those for adult literacy rate.

Literacy rate, adult female

Adult female literacy rate is the percentage of females aged 15 years and above in a country who can, with understanding, read and write a short, simple statement on their everyday life. It shows, to an extent, the percentage of women in a country who have
acquired literary skills that are useful for seeking and using information for the betterment of their lives and those of their household members. The sources of data and methods of estimation are similar to those for adult literacy rate.

**Tertiary School enrollment**

Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education. Tertiary education normally requires, as a minimum condition of admission, the successful completion of secondary level education. It is estimated annually by United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics using weighted average aggregation method.

**Labor force with tertiary education**

Labor force with tertiary education is the share of the total labor force that attained or completed tertiary education as the highest level of education. The sources of data are the International Labor Organization and the Key Indicators of the Labor Market database. It is reported annually.

**Indicators of Entrepreneurship**

**Business entry rate**

This is the number of limited liability organizations newly registered in a country in a year, normalized by working age population. It shows the trends in new business creation across countries and the relationship between entrepreneurship and the politico-economic conditions within an economy. It is estimated annually using the unweighted average collation method. The data is collected from national business registries through telephone interviews and emails. Alternatives sources, such as statistical agencies, tax
and labor agencies, chambers of commerce, and private vendors or publicly available data, are used where the business registries cannot provide required data (for instance in developing countries where there are no digitalized business registration systems).

**Ease of doing business index**

The Ease of doing business index ranks economies from 1 to 189, with 1 assigned to the most business-friendly regulations. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation. The index averages the country's percentile rankings on 10 topics covered in the World Bank's Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicators. The source of data is World Bank, Doing Business project. It is collated annually using the unweighted average aggregate method. Its limitation is that data before 2013 are not comparable with data from 2013 onward due to methodological changes.

**Time Required to Start a Business**

Time required to start a business is the number of days needed to complete the procedures to legally operate a business in a country. The source of data is the World Bank, Doing Business project. Data are collected annually by the World Bank using a standardized survey that ensures comparability across economies and over time using a business case module with assumptions about the legal form of the business, its size, its location, and nature of its operation. The surveys are carried out by more than 9,000 local experts, including lawyers, business consultants, accountants, freight forwarders, government officials, and other professionals who usually oversee or advise on legal and regulatory requirements. The indicator measures the procedures, time, cost and paid-in
minimum capital required for a small or medium-size limited liability company to start up and formally operate.

**Indicator of Corruption**

**Corruption Perception Index**

Corruption Perception Index is a ranking of countries according to the extent to which corruption is believed to exist. It was created in 1995 by Transparency International and ranks about 200 countries on a scale of zero to 10, with zero signifying high levels of corruption and 10 signifying low levels. Corruption is the abuse of public position and/or resources for private gain. The Corruption Perception Index is based on surveys of experts and business elites (domestic and international business executives, financial journalists, and risk analysts) and not of the general public. It focuses on the public sector and evaluates the degree of corruption among public officials and politicians. It represents average scores from three to 15 surveys for each country from the two years prior to its year of release.

Indicator of Security

The United Nations Office on Drugs and Crime (UNODC) Assault count per 100,000

The UNODC Assault count is the number of police-recorded physical attacks against the body of another person, resulting in bodily injury per 100,000 people in a country in a year. This excludes indecent/sexual assault, threats and slapping/punching and injuries resulting in death. There is some concern that definitions, or methods of offence counting and recording, might vary from country to country.

Indicator of Income Inequality

Gini Index (Market)

Gini Index market also known as the pre-tax Gini index is calculated on income before taxes and transfers, and it measures inequality in income without considering the effect of taxes and social spending already in place in a country.

Indicators of Empowerment

Economic Freedom Index

This is an average of the nine freedom measures of economic freedom namely property rights, freedom from corruption, business freedom, trade freedom, fiscal freedom, government spending, monetary freedom, investment freedom, and financial freedom which are described below.

Property Rights

Property rights is the ability of individuals to own private property that are legally protected by the state. It measures the extent to which a country’s laws protect private property rights and the degree to which its government enforces those laws. Countries
with more certain legal protection of property in which the court system enforces contracts efficiently and quickly and the justice system punishes those who unlawfully confiscate private property, have higher property rights scores of up to 100. Countries in which private property is outlawed, all property belongs to the state, and people do not have the right to sue others and do not have access to the courts have the lowest score of 0. The sources of data for the Property Rights score are the Economist Intelligence Unit, Country Commerce; U.S. Department of Commerce, Country Commercial Guide; U.S. Department of State, Country Reports on Human Rights Practices; and various news and magazine articles.

**Fiscal Freedom**

Fiscal freedom is a measure of the tax burden imposed by government. It is made up of three components namely: the top marginal tax rate on individual income, the top marginal tax rate on corporate income, and the total tax burden as a percentage of GDP which are weighted equally in the computation of the Fiscal Freedom index.

Fiscal freedom scores are calculated with a quadratic cost function to reflect the diminishing revenue returns from very high rates of taxation. The data for each factor are converted to a 100-point scale using the following equation:

\[ \text{Fiscal Freedom}_{ij} = 100 - \alpha \left( \text{Factor}_{ij} \right)^2 \]

Where Fiscal Freedom\(_{ij}\) represents the fiscal freedom in country i for factor j; Factor\(_{ij}\) represents the value (based on a scale of 0 to 100) in country i for factor j; and \(\alpha\) is a coefficient set equal to 0.03.

The sources of data for the Fiscal Freedom score are Deloitte, International Tax and Business Guide Highlights; International Monetary Fund, Staff Country Report,
Government Spending

This is the level of government expenditures as a percentage of GDP. Government expenditures, include consumption and transfers, and they vary from country to country depending on such factors as culture, geography and level of development. The scale for scoring government spending is non-linear, which means that government spending that is close to zero is lightly penalized, while levels of government spending that exceed 30 percent of GDP lead to much worse scores in a quadratic fashion (for example, doubling spending yields four times less freedom). Only extraordinarily large levels of government spending—for example, over 58 percent of GDP—receive a score of zero.

The expenditure equation used is: \( GE_i = 100 - \alpha (\text{Expenditures}_i)^2 \)

Where \( GE_i \) represents the government expenditure score in country \( i \); \( \text{Expenditures}_i \) represents the total amount of government spending at all levels as a portion of GDP.

“Selected Issues and Statistical Appendix,” and Staff Country Report, “Article IV Consultation,”; PricewaterhouseCoopers, Worldwide Tax Summaries; countries’ investment agencies; other government authorities (embassy confirmations and/or the country’s treasury or tax authority); and Economist Intelligence Unit, Country Commerce and Country Finance. Other sources are Organization for Economic Co-operation and Development data; Eurostat, Government Finance Statistics data; African Development Bank and Organization for Economic Co-operation and Development, African Economic Outlook; International Monetary Fund, Staff Country Report, “Selected Issues,” and Staff Country Report, “Article IV Consultation,”; Asian Development Bank, Key Indicators for Asia and the Pacific; and individual contacts from government agencies and multinational organizations such as the IMF and World Bank.
(between 0 and 100); and $\alpha$ is a coefficient to control for variation among scores (set at 0.03).

In most cases, general government expenditure data include all levels of government such as federal, state, and local. In cases where general government spending data are not available, data on central government expenditures are used instead.


**Business Freedom**

This is an indicator of the efficiency of government regulation of business. The score is calculated from ten measurements of the difficulty of starting, operating, and closing a business. The business freedom score for each country is a number between 0 and 100, with 100 equaling the most free business environment.

Each of the measurements is converted to a scale of 0 to 100, after which the average of the converted values is computed and represents the country’s business freedom score.
Each factor is converted to a scale of 0 to 100 using the following equation:  
\[ \text{Factor Score}_i = 50 \times \frac{\text{factor average}}{\text{factor}_i} \]

Which is based on the ratio of the country data for each factor relative to the world average, multiplied by 50. For example, on average worldwide, it takes 18 procedures to get necessary licenses. Canada’s 14 licensing procedures are a factor value better than the average, resulting in a ratio of 1.29. That ratio multiplied by 50 equals the final factor score of 64.5.

The sources of data for the Business Freedom scores are the World Bank, Doing Business; Economist Intelligence Unit, Country Commerce; U.S. Department of Commerce, Country Commercial Guide; and official government publications of each country.

**Labor Freedom**

This is a measure of the legal and regulatory framework of a country’s labor market, including regulations concerning minimum wages, laws inhibiting layoffs, severance requirements, and measurable regulatory restraints on hiring and hours worked. It is calculated based on six equally weighted factors namely, ratio of minimum wage to the average value added per worker, hindrance to hiring additional workers, rigidity of working hours, difficulty of firing redundant employees, legally mandated notice period, and mandatory severance pay.

Each of the six factors is converted to a scale of 0 to 100 based on the following equation:

\[ \text{Factor Score}_i = 50 \times \frac{\text{factor average}}{\text{factor}_i} \]

Where country i data are calculated relative to the world average and then multiplied by 50. The six factor scores are then averaged for each country, yielding a labor freedom
score. The average of the converted values for the six factors is computed for the overall labor freedom score for each country.

The sources for data for labor freedom are the World Bank, Doing Business; Economist Intelligence Unit, Country Commerce; U.S. Department of Commerce, Country Commercial Guide; and official government publications of each country.

Monetary Freedom

Monetary Freedom measures price stability and the level of price control in a country. Price control and inflation alter market dynamics. The ideal state for a free market is price stability without microeconomic intervention.

The monetary freedom score is calculated using the weighted average inflation rate for the most recent three years and the extent of price controls using the two equations below:

\[
\text{Weighted Avg. Inflation}_i = \theta_1 \text{Inflation}_{it} + \theta_2 \text{Inflation}_{it-1} + \theta_3 \text{Inflation}_{it-2}
\]

\[
\text{Monetary Freedom}_i = 100 - \alpha \sqrt{\text{Weighted Avg. Inflation}_i - \text{PC penalty}_i}
\]

where \(\theta_1\) through \(\theta_3\) represent three numbers that sum to 1 and are exponentially smaller in sequence; \(\text{Inflation}_{it}\) is the absolute value of the annual inflation rate in country \(i\) during year \(t\) as measured by the consumer price index; \(\alpha\) represents a coefficient that stabilizes the variance of scores; and the price control (PC) penalty is an assigned value of 0–20 points based on the extent of price controls. The sources of data for the monetary freedom measure are International Monetary Fund, International Financial Statistics Online; International Monetary Fund, World Economic Outlook; Economist Intelligence Unit, ViewsWire; and official government publications of each country.
**Trade Freedom**

Trade freedom measures the tariff and non-tariff barriers (NTB) that affect imports and exports of goods and services into and out of a country. It is calculated using the equation: 

\[
\text{Trade Freedom}_i = \left(\frac{\text{Tariff}_{\text{max}} - \text{Tariff}_i}{\text{Tariff}_{\text{max}} - \text{Tariff}_{\text{min}}}\right) \times 100 - \text{NTBi}
\]

where Trade Freedom$_i$ represents the trade freedom in country $i$; Tariff$_{\text{max}}$ and Tariff$_{\text{min}}$ represent the upper and lower bounds for tariff rates (%); and Tariff$_i$ represents the weighted average tariff rate (%) in country $i$. The minimum tariff is naturally zero percent, and the upper bound was set as 50 percent. An NTB penalty (of 5, 10, 15 or 20 points) is then subtracted from the base score. A score of 20 points indicates NTBs are used extensively across many goods and services and/or act to effectively impede a significant amount of international trade, while a score of 0 indicates NTBs are not used to limit international trade.

The sources of data for the Trade Freedom measure are World Bank, World Development Indicators; World Trade Organization, Trade Policy Review; Office of the U.S. Trade Representative, National Trade Estimate Report on Foreign Trade Barriers; World Bank, Doing Business; U.S. Department of Commerce, Country Commercial Guide; Economist Intelligence Unit, Country Commerce; World Bank, Data on Trade and Import Barriers: Trends in Average Applied Tariff Rates in Developing and Industrial Countries; and official government publications of each country.

**Investment Freedom**

Investment Freedom measures the level of restrictions investment in a country. Points are deducted from the ideal score of 100 for each restriction found in a country’s investment
system. Investment restrictions. For different levels of restriction, 5, 10, 15, 20 or 25 points are deducted for the following categories: National treatment of foreign investment, Foreign investment code, Restrictions on land ownership, Sectorial investment restrictions, Expropriation of investments without fair compensation, Foreign exchange controls and capital controls. Up to an additional 20 points may be deducted for security problems, a lack of basic investment infrastructure, or other government policies that indirectly burden the investment process and limit investment freedom.

The sources of data for the investment freedom measure are official government publications of each country; Economist Intelligence Unit, Country Commerce; Office of the U.S. Trade Representative, National Trade Estimate Report on Foreign Trade Barriers; and U.S. Department of Commerce, Country Commercial Guide.

**Financial Freedom**

Financial freedom measures of the banking efficiency and level independence from government control and interference of a country’s financial sector. The score is based on five broad areas namely: The extent of government regulation of financial services, the degree of state intervention in banks and other financial firms through direct and indirect ownership, the extent of financial and capital market development, government influence on the allocation of credit, and openness to foreign competition. An overall score on a scale of 0 to 100 is given to an economy’s financial freedom through deductions from the ideal score of 100. A score of 100 indicates negligible government interference while a score of 0 indicates a repressive situation in which private financial institutions are prohibited.
Curriculum Vitae

Candidate’s full name: Edna Ikechi Kalu

Universities attended: Abia State University Nigeria (1994, Doctor of Optometry)

Publications: Redefining Community Health Needs Assessments: A Social Determinants of Health Approach (Journal of Mixed Methods Research) - co-author

Conference Presentations: The Effect of Empowerment on Population Health and Happiness (Atlantic Regional Training Center Conference Halifax, December 2015)