REPRODUCTIVE HEALTH OF WOMEN IN DEVELOPING COUNTRIES AND HUMAN

DEVELOPMENT: A TEST OF SEN'S THEORY

by

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This dissertation is dedicated to a few very special women of my childhood, without whom I would not be here: foremost, my mother, Srimathi Jayasundara; my sisters, Mrs. Dhyani Jayasundara and Dr. Siddhika Jayasundara; and Mrs. Kalyani Karunasena, Mrs. Manel Ellapathe,

and the late Mrs. Chris De Mel.

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ABSTRACT

REPRODUCTIVE HEALTH OF WOMEN IN DEVELOPING COUNTRIES AND HUMAN

DEVELOPMENT: A TEST OF SEN'S PERSPECTIVES

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The purpose of this study is to extend prior research on reproductive health in developing countries and to examine the utility of the extended model for the social work profession. This study applied Nobel Prize–winning economist Amartya Sen's theoretical propositions on human development to reproductive health of women in developing countries. His approach is a social development–based, capability and freedom method to improve human well-being. Applications of this method considerably modify the previous, epidemiological, coercive and value-based models and provide a more comprehensive humanistic model of reproductive health, thus contributing to an improved public health model of reproductive health of women in developing countries. Sen's theoretical propositions argue that political and economic growth has a direct effect on social development and that social development has a direct effect on both reproductive capability or freedom and reproductive health. Additionally, reproductive capability or freedom is argued to have a direct effect on reproductive health.

The data for this study was obtained from 142 developing countries. This study used secondary data for the analysis, collected by various international nongovernmental organizations such as the U.N., WHO, and the World Bank. Economic growth was measured

using GDP per parity. Political development was measured using (1) the Economists Intelligence Unit's Index of Democracy (Demindex), (2) two of the indicators of the Vanhanen Scale of Democratization: (i) the percentage share of the smaller parties and independents of the votes cast in parliamentary elections or seats in the parliament (Compete) and (ii) the percentage of the population that voted in the previous election (Partici).

Social development was measured using (1) adult literacy rate (percent ages 15 and above) (adultlit), (2) total public expenditure as a percent of health expenditure (Pubex), (3) social security expenditure as percent of public expenditure on health (Socialsec), (4) population without access to water sources (Water1), and (5) telephone and Internet users per 10,000 population (Tele). Reproductive freedom was measured by (1) deliveries attended by skilled attendants (Skillper), (2) pregnant women who received prenatal care (Precare), (3) 1-year-olds fully immunized (Immun1), (4) contraceptive prevalence rate (Contra), (5) abortion policies (Abopol), and (6) percentage of girls married before age 18 (bmage18). Reproductive health was measured by (1) births per 1,000 women aged 15–19 (Birthwo), (2) Infant mortality rate (per 1,000 live births) (Infant), (3) maternal mortality rate (per 100,000) (Matmort), (4) total fertility rate (TFR), and (5) percentage of children stunted under the age of 5 (Stuntnew). Measures were tested for validity using factor analysis and confirmatory factor analysis; reliability was measured using Cronbach's alpha. The model was tested using both path analysis and the structural equation method.

Study results from path analysis found total support for all paths specified as well as overall model fit. However, the structural equation method did not find support for overall model fit; in addition, no direct effect was found between social development and reproductive health, only an indirect effect through reproductive capability. It is clear that this study suffered from measurement error because of using cross-national data coming from several bodies, collected from several different years.

Despite partial support, Sen's theory has several implications for the field of social work as well as for the field of reproductive health of women in developing countries. It is a theory that is congruent with social work values, as well as a more advanced theory than current perspectives guiding social work. Additionally, this theory can help us bring reproductive health, a field of study that is on the backburner of social work practice, to the forefront.

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CHAPTER 1

INTRODUCTION

1.1 The Problem

Record highs are being achieved in general health advances all over the world in the nascent 21st century. Health problems related to reproduction, however, remain a major social problem. Because of women's childbearing role, there are many more problems with women's reproductive health than there are with men's. There is also a disparity of reproductive well-being between women in developing countries when compared to women in more developed countries, which reflect disproportionate numbers. Therefore, that topic warranted our special attention.

Each year more than 500,000 women die of pregnancy-related complications (Ashford, 2001); over 95% of these reproductive-linked deaths are reported in the developing countries (Ashford, 2001; Glasier et al., 2006; Merali, 2000; Pillai & Johnson, 2007; Population Action International [PAI], 2001). Consequently, the threat of death due to pregnancy-related complications is estimated to be almost 33% higher in developing countries than in developed countries (Pillai & Johnson, 2007; World Health Organization [WHO], 2002), where the risk of maternal death is reduced to about 1 in 10,000 (Ashford, 2001; Goldbenberg & Jobe, 2001). Maternal mortality rates comprise the largest reproductive health discrepancy between the developing and developed world (Ashford, 2001; Caroli, Rooney, & Villar, 2001).

Thirteen percent of the maternal deaths in the world are abortion related (Ashford, 2001). WHO estimations indicate that each year over 20 million abortions take place, causing over 70,000 maternal deaths (Merali, 2001). Once again, however, vast discrepancies are seen between developing and developed regions. In African countries alone, the number of abortion-related deaths are reported to be at least 700 times higher than in developed regions (Ashford,

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2001; Berer, 2000). Also, each year reportedly over 30,000 abortions result in deaths in the African continent, while approximately 39,000 maternal deaths from abortions are said to occur annually in Asia (Thonneau et al., 2004).

Sexually transmitted diseases (STDs) are another reproductive health-related killer of young women in the developing world. HIV/AIDS is an STD that has a very high fatality rate in developing countries (Ashford, 2001). While in many parts of the world men are more likely to contract HIV/AIDS, in sub-Sahara Africa over half of all HIV/AIDS infections are contracted by women (Ashford, 2001; Lux, & Nguyen, 1997), and for women in early adulthood the rate is three times higher than that of men (Ashford, 2001). It is estimated that today one third of all pregnant women in sub-Sahara Africa are suffering from HIV/AIDS (Goldenberg & Jobe, 2001).

In addition to fatalities, over one fourth of the women suffer from short- or long-term complications resulting from reproduction-related problems (Merali, 2000), and nearly 200 million women in developing countries suffer from life-threatening complications related to pregnancies (Glasier et al., 2006). Competent maternal healthcare barely exists in developing countries (Glasier et al., 2006; Merali, 2000). It is reported that about one third of women receive no health care at all during pregnancy, and that almost 60% of the deliveries take place under unsafe conditions (Glasier et al., 2006). Fewer than 30% of women and girls receive postpartum care, while in developed countries over 90% receive this service (Merali, 2000).

Violence against women and girls is another serious phenomenon that produces disturbing reproductive ill health. Once again, women in developing countries suffer far more staggering gender-based violence than do women in developed countries. It is estimated that 32% of women in developing countries undergo some form of violence during their pregnancy (Glasier et al., 2006). Each year over 2 million girls are bound into a commercial sex industry contributing to reproductive health problems, with most trafficking taking place in Asia (Ashford,

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2001). It is estimated that over 130 million women have already been subjected to female genital mutilation world wide, and it is projected that in each future year over 2 million more girls will be subjected to it (Ashford, 2001; Merali, 2000). Most of these procedures take place in East and West Africa and some parts of the Middle East (Fathalla, 1994).

These statistics are difficult to comprehend in and of themselves, and yet they are but a portion of the reproductive-related problems faced by women in developing countries. These obvious physical health problems create even further consequences and become devastating on other fronts as well. These health problems can not only wipe out women and productive labor from communities, but it can cause harm to future generations due to the impact maternal health and mortality has on young children. WHO reports that in most developing countries the death of a mother with children under 5 years of age increases the chances of the death of those children by almost 50% (Ashford, 2001) and the remaining children are left without mothers (Seipel, 1992). Furthermore, as HIV/AIDS rates are high among pregnant women in developing countries, the transmission occurs at 25% to 35% of births. Thus, HIV/AIDS infection alone causes an increasingly high number of infants' and children's deaths (Goldenberg & Jobe, 2001). Therefore, it is clearly apparent there is a crucial need for studies on reproductive health of women in developing countries.

1.2 Reproductive Health Policies and Perspectives

Having introduced the gravity and extent of women's reproductive health problems in developing countries, this section will contain a brief discussion of how global policies have defined the problems and what remedial approaches have been taken. An overview of the policies affecting reproductive health indicates that sometimes the larger political agendas and their policy implications influence how reproductive health is viewed and what remedial approaches are taken. On the other hand, how reproductive health is defined also can affect policies and the subsequently remedial approaches. In general, in the past, the major approaches to reproductive health that have affected women in developing countries can be

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summarized into four categories: (1) demographic determinist approaches (antinatalist), (2) pro-life based (pronatalist) approaches, (3) epidemiologically-based traditional public health approaches, and (4) modern public health approach or reproductive rights–based developmental approach.

1.2.1 Demographic Deterministic Approach

The demographic determinist–based approach is also called the neo-Malthusian perspective. Named after Thomas Malthus, who lived during the 18th century and is considered the biggest advocate of this approach (Weinstein & Pillai, 2001). It is based on the concept that human existence is determined by population patterns and that population must be controlled. Here, reproductive health is looked at from a narrow fertility perspective. Malthus believed that while food is finite and grows arithmetically, population, if not checked, can grow infinitely in geometrical circles. In addition, Malthus' theory also blamed the poor for the population's expansion and their impoverishment (Rao, 2004; Weinstein & Pillai, 2001). A population-deterministic or neo-Malthusian approach emphasizes the negative effects of population growth on the human environment (Weinstein & Pillai, 2001). Thus, according to this approach, the concept of reproductive freedom is overlooked for the greater good of the larger society to control population growth.

During the 1960s, Malthus's work was revived by population alarmists such as Paul Ehrlich and Garrett Hardin (Weinstein & Pillai, 2001). However, this approach gained its greatest revival and started influencing developing world policies during the 1970s. The World Population Conference in Bucharest (1974), for example, emphasized the importance of population control and reduction (Correa, 1994; Mauldin, Choucri, Notestein, & Teitelbaum, 1974). It had special significance for developing countries because of their heavy dependence on international funding to promote public policy. Influenced by the international population movement, many governments used coercive methods to persuade women to accept fertility regulations (Rao, 2004). The one-child policy in China is a good example of overambitious

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plans of population control carried out by individual governments overlooking individual rights for the perceived greater good of the society. Women's desires for fertility were disregarded and women's rights were violated in many third-world countries.

Today, the neo-Malthusian theory is highly criticized both for its faulty connections between population and food growth as well as for its blatant disregard of reproductive rights of women and families (Rao, 2004; Weinstein & Pillai, 2001); however, recollection of this approach is still visible in many governmental policy efforts in developing countries.

1.2.2 Pronatalistic Anti-abortion–Centered Approach

Pronatalistic approaches are also well worth mentioning given the effect they have on the reproductive health of women all over the world, and particularly women in developing countries. Pronatalist stands in direct opposition to population-determinist approaches by promoting human reproduction. It is also called the prolife approach. It has a Vatican and fundamentalist value base and is opposed to abortion of the fetus. The most fundamentalist of the prolife approach opposes even the use of contraceptives as a family planning method (Smyth, 1998). Abortion-centered prolife versus prochoice policies remain the single most debated reproductive health-related issue.

One of the most prominent pronatalist policies that affected developing countries was propelled by the Reagan-led U.S. government, as a reaction against the resolution of the International Population Conference in Mexico City in 1984 (Dixon-Mueller, 1990). The Mexico declaration led the U.N. to adopt family planning as their solution for overpopulation (Dixon-Mueller, 1990; Smyth, 1998). As an attack against this policy, the United States adopted the well-known "Mexico City Policy," or what is called the "global gag rule," which forbade the United States from funding any nongovernmental programs that directly or indirectly promoted abortion (Dixon-Mueller, 1990; Pillai & Gupta, 2006). This policy affected many family planning programs and dismantled programs that disseminated abortion-related information in developing countries. While the Clinton administration lifted this policy, it was again reinstated

by the Bush administration (Pathfinder International Advocacy Programs, 2006). More recently, the Obama administration once again lifted the ban. Critics of pronatalist approaches have argued that pronatalistic policies not only preserve the traditional Vatican moralistic value base, but are also based on traditional conservative patriarchal fundamentalism, and therefore, are essentially opposed to the advancement of women's rights (Petchesky, 1995). However, many developing as well as developed countries even today maintain policies that are in many senses reflective of pronatalistic values. Abortion is still illegal in many parts of world.

1.2.3 Epidemiologically-based Traditional Public Health Approach

The traditional public health model (epidemiological approach) in the strictest sense refers to health of communities with emphasis placed strongly on illness and how illness affects populations. Health is viewed from a narrow angle identifying "risk factors for injury and disease" (Gostin, 2001; p. 122). The goal of public health from this traditional disease-based perspective is to identify risk factors for ill health and prevent and cure them (Gostin, 2001). The purpose of the epidemiological interventions is to advance the interest of the public safety and health. Interventions have taken the forms of "surveillance," "infectious disease control," and "sanitary measures" (Gostin, 2001, p. 122). Consequently, "reproductive health" is not a new term in the world of medicine and other epidemiological sciences (Fathalla, 1994). Thus, from a medical approach, "reproductive health of women" as an aspect of a larger model of public health also aimed to identify, cure or prevent "health risk factors" affecting the reproduction in the interest of the public health and safety. Therefore, from a traditional reproductive health perspective, disease and its consequences were the primary focus. Hence, according to this approach, the definitional scope and focus of reproductive health is defined by the presence or absence of illness (Fathalla, 1994; Mann, 1998).

The scope and definition of the traditional epidemiologically-based public health approach is contested today. Mann (1997a) argues that the traditional approach is limited. He claims that while medical contributions to health are significant, they are narrow and limiting in

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scope when it comes to concentrating on the larger issue of conditions under which people become ill. For example, he cites that the World Bank estimates that 11% to 24% of worldwide diseases are due to lack of proper clinical services. Mann (1997a), on the other hand, points to the conclusions of the majority of research on health today, that various societal factors have been identified as the major determinants of health status.

The criticism of the traditional approach has led reproductive health interest groups to adopt a more holistic approach. In 1994 at the United Nations Cairo Conference, the U.N. adopted the well-being–based WHO definition of health:

> A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health therefore implies that people are able to have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this last condition is the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice for regulation of fertility. (U.N., 1994, Chapter VIIa)

As a result of the U.N. having stamped this definition as the official designation of reproductive health, public health dialogue on the subject has taken a different course in its policy approach toward reproductive health in developing countries. This modern approach to reproductive health is considered the modern public health approach or reproductive rights based–developmental approach.

1.2.4 Modern Public Health Approach or Reproductive Rights–based Developmental Approach

Thus, according to the modern public health approach, the scope of reproductive health spans beyond narrow medical determinants to recognizing the centrality of social and environments conditions to reproductive health (Mann, 1998). It is therefore a broader approach than all previous approaches. It is based on the idea that improvement to health is not

unidimensional. In fact it is based on the argument that a broad range of social factors, and reproductive rights in particular, affect reproductive health (Mann, 1997a; 1998).

These changes were brought about largely because of three different forces: (1) the international women's movements in reaction to the antinatalist and pronatalist approaches, (2) the public health movement seeking more holistic approaches; and (3) the rapid progress of the HIV/AIDS epidemic, necessitating the urgency to look for root causes of the epidemic (Pillai, & Johnson, 2007). This new concept of reproductive health served as a paradigm shift in the international policy movement (Ashford, 2001; Correa, 1997; Fathalla, & Fathalla, 2008; Wang, 2004, 2007). This concept has special significance to developing countries. It is a progressive departure from the previously mentioned coercive population control approach and pronatalist approach. It even reflects an exit from the narrowly focused disease models.

In addition to the new definition, the declaration makes an affirmative statement that reproductive rights are integral to reproductive well-being. It states:

> The basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have information and the means to do so, and the right to attain the highest standard of sexual and reproductive health. It also includes the right to make decisions concerning reproduction free of discrimination, coercion and violence. (U.N., 1994, Chapter VIIa).

Thus, for the first time individuals and individual families became the key priority. They were allowed to make decisions about their own reproductive health. Consequently, the concept of reproductive rights was introduced and emphasized as a fundamental human right. Thus, the new public health model strongly empathizes "reproductive rights" (Mann, 1997a; 1998).

Additionally, the definition fully incorporated values and principles of gender equality and promoted empowerment of women to achieve equality through holistic multidimensional socioeconomic, political and health improvements (Petchesky, 1995). An entire chapter was devoted to gender and empowerment. "The empowerment and autonomy of women and the

improvements of their political, social, economic and health status is highly important end in itself. . .and essential for achievement of sustainable development" (U.N., 1994, Chapter IV.a).

The Cairo Plan of Action that followed in 1995 in Beijing further advanced and elaborated these concepts of reproductive health, reproductive rights, gender equality, and empowerment. Additionally, sustainable development became the framework for their "efforts to achieve higher quality of life for all people" (U.N., 1995, Section 36). Sustainable development was identified as interdependent and mutually reinforcing mechanisms between "economic development, social development and environmental protection" (U.N., 1995, section 36). Thus, according to this new approach a strong emphasis was also placed on development.

More recently the Millennium Development Summit (2000) also strongly emphasized the importance of reproductive health. Three out of the eight millennium goals identified for the millennium development are directly related to reproductive health: maternal mortality, infant health, and HIV/AIDS conditions. More recently developed efforts toward reproductive health operate from economic and gender equality frameworks.

As with previous approaches toward reproductive health, reservations are voiced by different interest groups concerning the definition of reproductive health itself and the methods identified to eradicate reproductive problems (Petchesky, 1998). Notably among them is the concern over the overemphasis of an individual rights–based approach to reproductive health of women in developing countries (Corea, 1994; Hartmann, 1995; Quadeer, 1998). Additionally, concern is also raised about what structural elements should be given precedence (Petchesky, 2003; Sen, A, 1999; Sen, G, 1994).

1.3 Purpose of the Study

Criticism of past approaches has led some critics to seek alternative models to address reproductive health of women in developing countries. They argue that "a multidisciplinary approach is needed" to take into account context such as socioeconomic, cultural, and relational conditions that create vulnerabilities in the reproductive ill health of women, and also

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prevent attainment of reproductive well-being in developing countries (Global Poverty Research Group, 2005, p 1).

As a result, some scholars have proposed Sen's capability/freedom-based human development perspectives as an alternative approach to better address reproductive health of women in developing countries (Dejong, 2006; Robeyns, 2002). Sen's (1999) development model has two distinct variations from the previous models of reproductive health: (1) It replaces the focus of individualistic human rights with the much broader concept of freedom/capabilities (that take into consideration cultural and relational structures in its definition among other structures) and (2) argues that social development efforts may be more important to human well-being than economic growth (Sen, 1999; 2007). Thus it is a more comprehensive public health model of reproductive health that advances previous values-based models with capability, leading to empowerment.

However, this model is not a new concept to the U.N. Since the 1990s, the United Nations Development Program, separate from the reproductive movement, has adopted Sen's human development paradigm in their developmental efforts (Fakuda-Parr, 2005). But to date no research has been conducted testing the efficacy of Sen's theory to reproductive health of women in developing countries. In the past, empirical studies have focused on a limited number of possible structural influences, centering on human rights and gender-based perspectives with structural variables as their backdrop constructs (Clark, 2006; Pillai & Gupta, 2006; Pillai & Wang, 2001; Swatzyna, 2004; Wang, 2004, 2007).

With the mounting criticism of the older approaches to reproductive health, it was important to determine whether the effect of human rights–based development methods on the reproductive health of women in developing countries can be explained away by other variables. Empirical studies have not pursued these dimensions. Therefore, it was timely to test empirically the applicability of Sen's theory on the reproductive health of women in developing countries.

Consequently, the focus of the present study was to test the efficacy of Sen's (1999) human development model of reproductive health of women in developing countries. The study tested this theory empirically using data from 142 countries. The study was designed to expand our knowledge base on factors that affect reproductive health, and at the same time to reduce the research gaps left by previous studies on the topic. This approach has potential to contribute significantly to the advancement of the international social work focus on reproductive health of women in developing countries.

CHAPTER 2

REVIEW OF THE LITERATURE

2.1 Introduction

The 1994 Cairo Conference brought about a major paradigm shift in reproductive health policy. Globally, ICPD (1994) can rightfully be understood as the landmark historical event that changed the definition at an international level and subsequently sparked transformations in the overall approaches toward women's reproductive health policies in developing countries. It instigated seismic waves in the rhetoric of how reproductive health was viewed (Petchesky, 1995). For the first time the criticalness of reproductive health and reproductive rights to the well-being of populations, especially that of women in developing countries, was firmly instated in international development agendas (Ranvindra, 2008). This action shifted the focus from pronatalist, antinatalist and disease models to placing women at the center of the focus of reproductive well-being of societies, especially that of developing countries (Malhotra & Mehra, 1999).

While these were groundbreaking advances in reproductive health, some 20 years after the Cairo commitment the world still battles with staggering levels of reproductive ill health, especially among women in developing countries. This has led some to argue that perhaps discussions beyond Cairo have been insufficient. They particularly argue that the intellectual communities thus far have failed to provide adequate frameworks to advance reproductive health beyond Cairo, and researchers have not empirically exhausted all possible causal structures that may influence reproductive health (DeJong, 2006; GPRG, 2005).

Consequently, the basis for the following literature review was twofold: first, to delineate the theoretical contributions made to the field by scholars to move the discourse forward to where it stands today, and second, to evaluate the empirical contributions to reproductive health since the paradigm shift in rhetoric and to identify gaps in empirical research.

2.2 Review of the Theoretical Literature

The Cairo definition of reproductive health sparked theoretical discussions globally on the topic of whether to advance the movement or contest it. Some scholars viewed this new definition as a political agenda to move forward a new perspective. It was argued that this new agenda was devised to alter: (1) grounds in which sexual and reproductive need are defined, (2) the dynamics under which gendered relations of power are carried out, and (3) subjective views of reproduction and women's choices over them (Corea, 1997). Yet others question whether any fundamental changes were achieved, asking whether the approach was merely "co-opting feminists and their ideas to legitimate old-style population policies" (Petchesky, 2003, p. 2), or the idea of 'old wine in new bottles" (Rao, 2004, p. 203). Hodgson and Watkins (1997) state that Cairo was a carefully crafted "feminist population policy" in which "feminist objectives were congruent with the interest of the neo-Malthusian movement" (p. 503).

Above concerns aside, many scholars saw Cairo as an attempt at a merger of two different perspectives of thought: on the one hand northern feminists concerned over women's right to choose and the other hand, southern concern in "global economic structures and their material effect" (Petchesky, 1995, p. 152). Thus, scholars argue that it reflected colliding views from both north and south and created what some called a fault line (Petchesky, 1995). Historically the northern hemispheres' development issues have been subordinated to human rights and in the southern hemisphere, human rights have been subordinated to economic and poverty elevation efforts (Petchesky, 2003). This is one of the key points of contest among scholarly discourse on reproductive health beyond Cairo, dividing the northern scholars from

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southern and their southern sympathizers. It is a debate by and large based on the language and where to place emphasis (Petchesky & Judd, 2001).

Scholars from the north have focused on the Cairo discourse's statements on reproductive rights of women, with the key focus being on rights and gender. They emphasize the importance of women's right to control their bodies with regards to reproductive decision making (Petchesky & Judd, 2001). Freedom of choice to them is a fundamental reproductive right of women. Like Dixon-Mueller (1993), many northern scholars have argued that reproductive freedom lies at the core of "individual self-determination" (p. 12). Thus, northern scholars view reproductive rights as the all-encompassing umbrella that covers reproductive health of women.

Mann (1996, 1997a, 1997b), for instance, suggests that human rights are the key encompassing element of connecting social factors that influence health. He proposes human rights–based societal analysis for health overall. He reasons that a human rights perspective to health is important for three reasons: (1) Health policies have human rights implications, (2) Human rights violations have health effects, and (3) Promoting and protecting human rights is intricately connected to promoting and protecting health (Mann, 1997a, p. 9-10). Citing examples from HIV-vulnerable women, his view is that societal conditions can be advanced. However, he argues that if women do not have the freedom, power, and control over their own lives, no substantial changes will result. Consequently, Mann argues that people cannot be fully healthy if they do not have human rights and he calls for the advancement of human rights in civil, political, social, cultural, and economic spheres (Gostin, 2001). However, he does strongly acknowledge the importance of "societal factors" as major determinants of health status in societies (Mann, 1997a, p. 8–9). Given the vast numbers of influencing factors, to go beyond the compartmentalization trap, he proposes a perspective to prioritize human rights (Mann, 1996, 1997a, 1997b; Gostin 2001).

Southern scholars, on the other hand, for the most part have maintained that individual rights are pointless if the realities of individuals, especially women, and the circumstances in which they exercise freedoms are not taken into consideration (Corea, 1994; Petchesky, & Judd, 2001; Rao, 2004). Corea (1994) argues that for women outside the Western world, having the rights and the circumstances under which these rights are exercised could be two different elements. She makes an argument that for women across the world, considerations on reproductive health matters may have nothing to do with rights and gender at the individual level of practice. In relation to abortion Corea (1994) elaborates:

> Women may or may not construe their decisions…as having nothing to do with gender relations or rights…. A woman's decision represents a balancing of her own, her family's, and sometimes her community needs. This decision…represents critical markers of a woman's reproductive autonomy and her right to health. (p. 69)

She continues by stating that it is more important for women in developing countries to have rights that are exercised rather than the mere idea of having rights or gender considerations.

Other southern scholars and their sympathizers have also pointed out the influence of gendered power dynamics of the larger structures (Qadeer, 1998; Pillai & Sunil, 2002a, 2000b; Petchesky & Judd, 2001). Qadeer (1998), for example, has stated that family power dynamics are constantly affected and encroached on by larger gendered power relations within the socioeconomic sphere. She denounces the Western human rights–based approaches, stating that it does not build upon southern women's visions of their priorities. Rather, she says, it imposes a preconceived notion of what women need and ought to do and does not take into account women's contextually bound concerns or their lager realities. Women in developing countries are already "constantly choosing between risks and adversities in their ongoing struggle for living" (Qadeer, 1998, p. 2680).

Scholars from the south argue that moving the framework into practice requires more than having a mere entitlement to rights. Many point out several obstacles—hegemonic economic structures, unsupportive political regiments, or simply lack of quality and accessible health services, may be more crucial obstacles. They argue that for the Cairo vision to be a reality it requires not only supportive laws and policies locally, but also that more systematic substantial changes must take place, targeting all layers of social structures nationally and globally (Petchesky & Judd, 2001). Additionally, scholars have directly critiqued the narrowed focus on rights statements at the exclusion of other concepts that Cairo and its Beijing Plan of Action have introduced, such as sustainable development, empowerment, capabilities, and freedoms (Malhotra, & Mehra, 1999; GPRG, 2005).

This critique has sparked a different kind of debate, namely, what constructs are most valuable to the betterment of reproductive health of women in developing countries. Given the lack of proper consensus, Mann calls the structural determiners the "black box" of "societal factors" (Mann, 1997a, p. 8). The range of influencing factors is numerous. This analysis will delve into a few of the identified influencing factors.

2.2.1 Gender Equality

Historically, women as a group have faced discrimination in the most fundamental areas of human life. From the issues of food to education to employment to violence, women have been more vulnerable to receiving the short end of the stick. Scholars have linked these unequal capabilities/freedoms with the negative well-being of women (Nussbaum, 2000). More specifically, scholars of reproductive health have argued for a negative association between gender equality and fertility. It is stated that women's empowerment directly bears on their capacity to engage in reproductive decision making, especially on family planning (Pillai & Wang, 1999). WHO (2001) has identified that the socioeconomic and cultural conditions of inequality tend to minimize women's reproductive health. In particular, the socioeconomically and politically based equality of women have been asserted to be crucial determiners of

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women's empowerment, contributing directly to their reproductive well-being (Dixon-Mueller, 1993; Hartmann, 1995; Nussbaum; 2000; Petchesky, 2000; Pillai & Wang, 1999; Sen, 1994; Wang, 2007). G. Sen (1994) has argued that these existing structures tend to be biased against women by creating obstacles for women to advance in society, thus creating dependency on men. This dependency renders women powerless to exercise their free will in matters of reproductive decision making within the family and in general. Consequently, societies that promote the social, economic, and political equality of women are associated with better reproductive health levels (Wang, 2007). The importance of gender equality was reiterated by the Millennium Development Summit (2001), which advocated an approach to gender equality–based poverty alleviation in order to address millennium goals.

2.2.2 Political Development

Some scholars equate political development to democratization, thus identifying political development as the transition from authoritarian regimes to democracies (Sen, 1999a; Wang, 2004, 2007). It is argued that political development in the form of democracy can be used as a tool to prevent socially created oppression, provide opportunities for people to voice their concerns, and prompt governments to take steps to address identified problems (Alexander, 2008; Sen 1999a), thus working as a vehicle to safeguard and promote human rights (Pillai & Gupta, 2006). Feminists argue that the best setting to achieve women's agencies and capacities are in democratic governments and that democracy is an essential ingredient for gender equality (Pillai & Gupta, 2006; Sen, 1999a; Squires, 2005). Political development in the form of democracy is associated with reproductive well-being to the extent that democracy allows women to voice their reproductive concerns and forces governments to take action to enable the implementation of social policies that enhance women's reproductive health (Pillai & Gupta, 2006).

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2.2.3 Social Development

Social development is a concept with values and goals that have a direct bearing on the reproductive health of women in developing countries. While there is a consensus on the importance of social development to reproductive health, social development itself is a concept that is viewed from different perspectives. One line of thought suggests that social development can operate effectively only if development efforts harmonize social and economic endeavors (Midgley, 1995). Midgley (1995), suggests that social development refers to material improvement as well as personal and group fulfillment. He argues that social development is a process that initiates a complete or partial reorganization of society according to some overall plan (planned intervention) that harmonizes economic and social endeavors. He postulates that the two (efforts toward improvement in economic and in social development) cannot be separated to bring about meaningful development in societies (Midgley, 1995). Thus he promotes policies that generate the following results:

Productive employment and self-employment; promoting labor intensive industries; promoting agricultural techniques that absorb labor and maximize self-employment; adopting economic policies that introduce inexpensive, appropriate technologies; and judicious application of various fiscal and other techniques that direct resources toward needed social programs are all such methods that generate employment and productivity increases and expansion in social welfare. (Midgley, 1995; pp.158–159)

Yet, others believe that social development is what neutralizes some of the undesirable outcomes of economic development, such as social and economic inequality and social disintegration (Zuvekas, 1979). Sen (1999a; 2007) himself sees development as multifaceted, but separates social aspects of development from economic aspects of development and postulates that social development as more important to health than purely economic efforts. This line of thought emphasizes the importance of social enhancement facilities as opposed to

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economic opulence–based efforts (see the discussion on economic development and growth for further clarity).

Some scholars on the other hand argue that social development itself is multifaceted (Elliott & Mayadas, 1996; Elliott & Mayadas, 2000; Mohan, 2007; Sanders, 1982; 1994). Elliott and Mayadas (2000) argue that to effectively promote social development must place equal emphasis to social investment, economic participation, political empowerment and human investment. Sanders (1994) argued that social development is people centered. He defined social development as "quality of life; education; adequate income; improved health services; and people's participation and conservation of natural resources" (p. 56). Mohan (2007) states that a function of social development is the broadening of the people's vectors of opportunity (Mohan, 2007). Scholars from this line of thinking believe that the expansion of human opportunities and choices that people enjoy is a complex process requiring social, structural, and institutional changes, far exceeding efforts at mere economic growth (Haq, 1995; Zuvekas, 1979).

Despite theoretical variations, social development efforts in general are identified as consistent with values of "social work practice; social justice; cooperation; planned intervention and development; institutional changes; empowerment; consciousness; human dignity and worth; growth change; participation; individual and societal growth; human investment; democracy, and peace" (Elliott & Mayadas, 1996; p. 61). Today all scholars agree on the importance of women's education for reproductive health. Pillai and Wang (1999) argue that women's education affects reproductive health in three ways: (1) by helping women postpone marriage or providing them the option of nonmarriage; (2) by expanding their options, including seeking employment opportunities outside of marriage; and (3) through acquiring knowledge of health matters, especially awareness of contraceptive methods. Beyond education, the existence of well-developed social arrangements and efficient communication methods is associated with higher levels of well-being in general (Ruger, 2004a, 2004b, 2004c).

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2.2.4 Economic Development and Economic Growth

It is commonly reported that developed countries with high economic levels also have high levels of reproductive health outcomes (Wang, 2007). However, the extent of the contribution of these high economic levels to reproductive health is to some degree debated. This controversy is facilitated by the question of what encompasses "economics." Economics has never been viewed from just one practice model (Anand & Sen, 1994). One theory of economic development asserts that it is a process involving the rapid growth of technologies (Wang, 2007). Traditionally, economic development and poverty were defined purely in terms of commodity-based income growth models (Todaro, 1996). More recently, the definition of economic development has expanded; in addition to the traditional income-based growth, to include social and nonmaterial indicators (Hall & Midgley, 2004; Mathbor & Khan, 2002). Consequently, economic development has been referred to as progressive advancement in the socioeconomic arrangements of societies (Economics for Development, n.d.; Todaro, 1996). Viewed in this light, economic development is closely linked to the definition of social development as advanced by some developmentalists (Midgley, 1995). This view of economic development has been positively associated with reproductive health in developing countries (Kaufman, 2005; Qadeer, 2005).

Today, however, this view of economic development is separated from the concept of economic growth. Economic growth is referred to merely as "wealth maximization" (Anand & Sen, 1994 p. 3; Economics for Development, n.d, p. 1). Economic growth is commonly measured through increases in income levels and/or income commodity expenditure. Thus, from this perspective development is approached purely in relation to economic growth (Anand & Sen, 1994; Hall & Midgley, 2004). The importance of economic growth is highlighted to the extent that countries with a high GDP/GNP also have high reproductive health outcomes (Pillai & Gupta, 2006). Additionally, many developing countries face poor economic growth, which

effects their overall developmental levels, including human development (Fukuda-Parr, 2005). Nevertheless, economic growth is a point of controversy.

It is here that many scholars contest weighing the influence of income growth on human well-being, including reproductive health. It is a debate based on how much emphasis should be given different aspects of development. Theorists such as Midgley (1995) argue that the only way for nations and communities to progress without falling into the trap of social inequality is to harmonize income-generating efforts with social development efforts, giving equal weight to both economic and social development endeavors. On the other hand, some scholars have strongly argued for the precedence of social development efforts over economy-based efforts, especially for health-related advancement. Notable among them is the Nobel Prize–winning economist Amartya Sen (1999a; 2007), who has theorized that social development endeavors yield better overall health results than economy-based efforts. Gita Sen (1994), another noteworthy scholar, cautioned that developmental approaches that are aimed at macro-level economic policies and strategies targeted to elevate the overall gross national product but ignore or worsen the majority's income were likely to fail. She observed that approaches based on social development aimed at improving health, education, and other such basic necessities improve not only economic equality and growth but reproductive health as well.

Other scholars have pointed out that "growth-centered models" of development that look at macroeconomic and official employment-based outputs have an innate bias against women because they leave out women's nonmonetary and informal input in the labor force. Many have pointed out that the Western methods of capitalistic economic markets and progress toward structural adjustments are not compatible with the needs of developing countries (Hartcourt, 1994; Petchesky, 2003). However, scholars have not reached a consensus, and the debate continues. The more recent U.N.-led commitment to the Millennium Development Goals has added to this controversy. The Millennium Development Summit (2001), which focused on

reproduction-related issues in three of its eight developmental goals, emphasized poverty eradication as its primary developmental approach. The question now is whether the reproductive health policies based on poverty eradication highlight social development endeavors or economic endeavors, or equally harmonize both aspects.

2.2.5 Human Development as Freedom/Capability

While the debate continues, more recently a few scholars have attempted to theoretically link human freedom and capability to the advancement of reproductive health (DeJong, 2006; Robeyns, 2002; Sen, 2007). Transcending previous scholarly debates on human rights, approaches to economic, social, and human development view development as an enhancement to freedom and capability. Thus, from this perspective, developmental components are weighed in view of their contributions to human freedom and capability (for further discussion on the capability/freedom approach, see chapter 3), and human rights becomes one component of human freedom and capability that affects reproductive health. This is a very important dynamic that needs to be further advanced by scholars, warranting theoretical and empirical attention.

This brings us to the importance of empirical research on advancing movements. Fathalla (1991), for instance, argued that research is a key element of health advancement. Consequently, the next section of this chapter reviews the contribution of the researchers to the theoretical debates. It is an analysis of the existing quantitative empirical literature in which the overall reproductive health of women in developing countries were studied in order to identify the aspects of structural influences that were studied and what impact they had.

2.3 Review of the Empirical Literature

Despite the recognition of the importance of the study of reproductive health and the many theoretical discussions on the topic, empirical research on reproductive health is insufficient (McDaniel, 2000; Wang, 2004; Wang & Pillai, 2001a). This is more so in developing countries. The majority of the research on women's reproductive health tends to be descriptive

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or tend to focus on behavioral and/or service sector associations (Matthews, Riber, & Wilhelm, 1997; Parker, 2000, 2001; Qadeer, 1998). Very few studies have looked at the effect of larger structural variables on reproductive health (Clark, 2006; Pillai & Gupta, 2006; Swatzyna, 2004; Wang, 2007; Wang & Pillai, 2001b).

Jacobson (2000) notes that one obstacle preventing research is the lack of conceptual and operational clarity as to what encompass reproductive health. It is argued that this lack of consensus on standard indicators hinders the progress of reproductive health (Jacobson, 2000; Wang & Pillai, 2001a). The measurement and operationalization of reproductive health is a much-debated area (Jacobson, 2000). In the past many efforts have been made to try to identify what encompasses reproductive health without reaching agreement from the mainstream reproductive health scholars (Graham, 1998). Over the years different international bodies have identified over 150 causally related indicators of reproductive health. They fall under the following categories: (1) family planning, (2) safe motherhood (general, prenatal care, intrapartum care, essential obstetric care, postnatal care), (3) maternal nutrition, (4) newborn health and breast feeding, (5) STD/HIV/AIDS, (6) abortion care, (7) adolescent reproductive health, (8) female genital mutilation, (9) violence against women, (10) reproductive tract cancers, and (11) infertility (WHO, 2006).

In a progressive attempt to conceptualize reproductive health of women in developing countries, Wang and Pillai (2001a) created an empirical scale of reproductive health. This is a departure from many of the previous attempts, for this was a more empirically rigorous extensive attempt at creation of a standardized scale of reproductive health of women, using data from developing countries. This scale is composed of 9 indicators taken from the WHO (1998) issued list of 15 indicators. These include: (1) total fertility rate, (2) contraceptive prevalence for women ages 15–44, (3) maternal mortality rate, (4) percentage of births attended by trained attendants, (5) percentage of low birth-weight infants, (6) estimates of HIV-1 and HIV-2 seroprevalence for pregnant women, (7) percentage of pregnant women immunized against

tetanus, (8) infant mortality rate, and (10) births per 1,000 women ages 15–19 (Wang & Pillai, 2001a).

One of the serious limitations of this scale is that it does not fully cover the scope of the Cairo definition of reproductive health, nor does it include all 11 categories previously identified by various international bodies. For example, female genital mutilation, violence against women, and maternal nutrition are important aspects that are missing. However, this was still a substantial effort, for it paved the way to address empirically all the different elements of reproductive health. Fathalla (1991) noted that various aspects of reproductive health are strongly interrelated and improvement of one facilitates improvements in the others. This observation forms the basis for the following empirical assessments of the literature.

The goal as previously stated was to identify empirical studies that explored the association of the larger macro-level structural elements that included reproductive rights on overall reproductive health of women in developing countries. This analysis included (1) an explanation of the literature review method, (2) sources of data, (3) how reproductive health is measured, (4) how structural constructs were tested and measured, (7) conclusions as well as limitations and research gaps, and (8) results and implications for future studies.

The research review for the study used several methods. Research findings on this subject matter were obtained primarily through The University of Texas at Arlington (UTA) online catalog search engines. Search engines from several academic fields were used. These engines include Academic Search Complete, Contemporary Women's Issues, CQ Researcher Plus Archive, Criminal Justice Periodicals, Criminology, Current Index to Statistics Education, Environment Sciences & Pollution Management, Health and Psychosocial Instruments (HaPI), Health and Wellness Collection, Health Reference Center Academic, Health Science, Health Source Nursing, Inter-University Consortium for Political and Social Search, JSTOR, MEDLINE, MEDLINE with MeSH, Nursing Collection, OneSearch, Oxford Journals, PAIS International, Periodicals Archive Online, Population Index, Proquest Dissertations & Theses Database

(PQDT), SIRS Researcher, Social Sciences Citation Index, Social Services Abstracts, Social Work Abstracts and Sociological Abstracts. Additionally, Google.com and Google Scholar searches were also conducted. Research papers were also selected from article references and journals. Access to some books and articles were obtained through the UTA library and the UTA interlibrary loan system.

Reference key words used to find articles include "reproductive health," "reproductive health of women," "reproductive health of women in developing countries," "reproductive healt*," "reproduction," "reproduct*," "develop*," "reproduct* and dev*," "response to reproductive health in developing*," "response to reproductive health," "factors influencing reproductive health*," "maternal mortality in developing countries*," "developing countries and HIV," "response to reproductive health and developing countries," Sen and reproductive*," "freedom and reproductive health," "capabilities and reproductive health," "reproductive health and structural influences," "macro approaches to reproductive health," "test of reproductive*," "rape and reproductive*." "sexual violence and reproductive*," "sustainable development and reproduct*," and "social development and reproductive*," "economic development and reproducti*," "gender equality and reprod*," "fertility," "war and reproductive health," "causal influences and reproducti*," and "reproductive health and empirical studies."

The search continued until November 4, 2008, for published journal articles, books, and unpublished dissertations that included at least one structural influence on reproductive health. This process continued until all avenues were exhausted and no new articles could be found. All available relevant research after 1994 was included. This period was chosen specifically because it is during the 1990s that the importance of structural factors on reproductive health was brought to forefront.

Studies must meet four criteria to be included in the current review.

1. A minimum of three elements of the reproductive health of women needs to be addressed. The purpose of this study is to understand reproductive health as an overall

phenomenon. Reproductive health is a multifaceted phenomenon; therefore, an observation of one aspect of reproductive health, such as maternal mortality, does not give a comprehensive picture of its diverse dimensions. It is well known that as the number of theoretically based factors that indicate an underlying dimension such as reproductive health increases, the validity of the measure is also likely to increase. Stevens (1992) reports that it is extremely difficult to get a good measure of an attribute with just one criterion variable. He argues that multiple measures with common characteristics are far better at providing a more holistic picture of a phenomenon. For practical use, three indicators represent the minimum number recommended by scholars (Ho, 2006). Therefore, this study limits the minimum number of indicators to three.

2. These elements must fall under either the 11 categories previously identified by WHO or must be aspects of Wang and Pillai's (2001a) scale or a replication of it. Normal patterns of scale development use existing definitions of concepts to be measured and tested (Wang & Pillai, 2001a). Today 11 dimensions of reproductive health are identified (WHO, 2006). Within these 11 dimensions, over 150 indicators have been recognized. This criterion allows the expansion of the scope of this review to search for a variety of aspects of reproductive health. One of the goals of the study is to identify whether a common measurement scale for reproductive health has been established by researchers. Therefore, as an additional criterion, this analysis also looks at whether any studies attempted to replicate Wang and Pillai's scale.

3. Studies must focus on the reproductive health of women cross-nationally in developing countries or must focus on an individual developing country. As mentioned earlier, the focus of this study is the reproductive health of women in developing countries. While there is much to learn from the reproductive health patterns of the developed countries, for the current dissertation, the purpose of the review is to identify the empirical contributions or the lack thereof that researchers have made to the reproductive health of women in developing countries since the 1994 Cairo conference. Therefore, this review is limited to developing countries cross-nationally or individually.

4. At least one influencing structural element must be studied at the macro level. This study is a macro-level cross-national analysis. Its purpose is to investigate and improve the construct validity of macro-level causal models of the reproductive health of women in developing countries. Therefore, only studies that measured macro-level causal associations among reproductive health determinants have been chosen and thus no qualitative studies are included.

Only five peer-reviewed journal articles and one unpublished dissertation met the above criteria. The dates of publication ranged from 2001 to 2007. Several other studies that were initially identified had to be rejected because they did not meet all four criteria. (A summary of the studies is included in table A.1, Appendix A.)

2.3.1 Unit of Analysis and Sources of Data

The unit of analyses chosen for the studies was developing countries as identified by the WHO. The number of countries included ranged from 125 to 136. The sources of data all came from cross-nationally collected international sources. (For a list of sources see table 1, Appendix A). Thus, all 6 studies identified depended on secondary data for their analyses. One glaring problem with this dependency on secondary sources of data is that they come from different bodies and sometimes with varying years. Therefore, data for different indicators sometimes were analyzed using information from a collection of different years. Thus, the results tested might speak past each other. This poses a critical validity threat of analyzed results, and cultural definitions could vary from country to country. Also, perhaps different methods were used to collect data in different countries, yielding different results. However, these are common threats faced by cross-national data collections. One additional problem was that data were not available for all indicators from all countries. To address this, one of the researchers chose to limit the number of measures in a scale, while others used hot deck or mean-substitution methods, which posed serious threats to the validity of results.

2.3.2 Operationalization of Reproductive Health

Reproductive health is operationalized using a combination of variables. The number of items used in the reproductive health measurement scales for individual studies varied from 3 to 9. Overall, however, studies used a combination from 21 different reproductive health indicators. These include: Total fertility rate, maternal mortality rate, maternal mortality ratio, percent births attendant with trained attendants, percent low birth-weight infants, percentage of children under 5 low weight, percentage of pregnant women immunized against tetanus, infant mortality rate, births per 1,000 women aged 15–19, teen birth rate, percent antenatal care coverage, percentage of women who received prenatal care, percent children under 5 immunized for measles, percent children immunized (under 1), prevalence of anemia among women, percent contraceptive usage, contraceptive prevalence, estimates of HIV-1 and HIV-2 seroprevalence for pregnant women, percentage adults living with HIV, percentage of women with HIV, and HIV prevalence in country (see table A.2, Appendix A).

At times studies approached the same phenomena from different perspectives. For example, maternal mortality was measured both on aggregate levels and as ratio levels. HIV/AIDS was measured as estimates of HIV-1 and HIV-2 seroprevalence for pregnant women, adults living with HIV, and women living with HIV and HIV prevalence in the country. Contraceptive prevalence was measured in rates and percentages and teen pregnancy was as births per 1,000 women aged 15–19 and as teen birth rate.

Findings revealed that no two studies listed all of the measures of reproductive health. Not all categories of reproductive health as identified by previous international bodies were included, and no study entirely duplicated Wang and Pillai's (2001a) reproductive health scale. This may be due to the fact that research studies were analyzed in different years, using different data sources coming from those years. Also, two studies looked at total HIV rate divergently—one, total HIV prevalence rates, and the other, total prevalence rates for adults. Using total HIV rates would have biased the studies since it would have included male HIV rates

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as well. One other study used HIV prevalence among women. This might have included women past their reproductive years, with no direct effect on reproductive health; therefore, once again the conclusions would have been skewed.

All studies, however, validated their measures of reproductive health with positive outcomes. Four of the studies used confirmatory factor analysis to validate their scales (Pillai & Gupta, 2006; Swatzyna, 2004; Wang, 2007, 2004), while two studies used simple factor scores to do the same (Clark, 2006; Wang & Pillai, 2001b).

2.3.3 Structural Constructs Tested

Research papers included the following structural constructs: economic development (Clark, 2006; Wang, 2004, 2007), social development (Swatzyna, 2004); democracy (Clark, 2006; Pillai & Gupta, 2006; Swatzyna, 2004; Wang, 2004), political development (Wang, 2007); female power (separated as women's access to political power and women's power within the family and legal power/reproductive rights) (Clark, 2006); reproductive rights (Swatzyna, 2004; Wang & Pillai, 2001b), reproductive rights separated as personal rights and abortion rights (Pillai & Gupta, 2006; Wang, 2004); gender equality (Pillai & Gupta, 2006; Swatzyna, 2004, Wang, 2007, 2004), female share of income/female status (Wang & Pillai, 2001b); income inequality (Wang & Pillai, 2001); war, separated as militarization and armed conflict (Swatzyna, 2004); and fertility (Wang & Pillai, 2001b).

2.3.3.1 Economic Development

Wang (2007, 2004) used percentage urban, percentage population with access to safe water, and real GNP per capita. Clark (2006) used only percentage urban, and GNP per capita indexes (see table A.3, appendix A).

2.3.3.2 Social Development

One researcher identified testing social development construct (Swatzyna, 2004). His indicators of social development included (1) percentage of population living in urban areas plus percentage of population with access to safe water and safe sanitation, and public expenditure

on health and education (see table A.4, Appendix A). Wang (2007, 2004) included percentage of access to safe water, and Clark (2006) and Wang (2007, 2004) included urban percentages in their economic development construct. Thus, there appears to be a lack of consensus on what constitutes economic development and what constitutes social development.

2.3.3.3 Democracy/Political Development

No clear consensus exists on the operationalization of democracy/political development construct (see table A.5, Appendix A). Political terror scale was the most commonly used indicator (Pillai & Gupta, 2006; Wang, 2007, 2004). In addition to political terror scale, Wang used democracy types (2007, 2004), and human rights rating (Wang, 2004). Pillai and Gupta (2006), in addition to political terror scale, used human rights ratings and political rights and civil liberty scale. Swatzyna (2004) used only political rights and the civil liberty scale. Clark (2006) used the voice and accountability index and government effectiveness index. It is important to note that while human rights rating and political and civil liberty are components of democracy, they also fall under the realm of human rights.

2.3.3.4 Female Power

Clark (2006) looked at three dimensions of power—women's access to political power, women's power within the family, and legal power (reproductive rights) (see table A.6 and A.7, Appendix A). Women's access to political power was measured using female empowerment measure (percentage of seats women have in the lower house of parliament, and number of years since women received the right to vote). Power within the family was measured using the difference between the mean singulate age at marriage between men and women. In addition legal power was reflected by reproductive rights (refer to the following paragraph for discussion of reproductive rights indicators).

2.3.3.5 Reproductive Rights

Clark (2006) measured reproductive rights through abortion policies, maternity leave index, emergency contraceptive marketing status, and prevalence of contraceptive use.

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Swatzyna (2004) measured human rights using right to intermarry, rights in divorce, singulate age at first marriage, days of maternal leave, and rights to abortion. Wang and Pillai (2001b) used grounds on which abortion is permitted; personal rights to interracial, interreligious or civil marriages; personal rights for equality of sexes during marriage; for divorce proceedings; and personal rights to use contraceptive devices and pills. Pillai and Gupta (2006) and Wang (2004) separated abortion rights and personal rights, and both studies measured abortion rights by grounds on which abortion is permitted and personal rights through singulate mean age at marriage for women, maternity benefits, personal rights to interracial, interreligious or civil marriages, and personal rights of equality of sexes during marriage and for divorce proceedings. There appears to be somewhat of a consensus on reproductive rights indicators, whether they separate them as abortion rights and personal rights. Two studies replicated the same measures (Pillai & Gupta, 2006; Wang 2004). Clark (2006) used contraceptive prevalence and emergency contraceptive prevalence as indicators of reproductive rights; both WHO (1997, 1999, 2004) and Wang and Pillai's (2001a) original scale of reproductive health used contraceptive prevalence as an indicator of reproductive health (see table A.8, Appendix A).

2.3.3.6 Gender Equality

Researchers who tested gender equality used a combination of 13 different variables (see table A.9, Appendix A). Despite the variations in indicators, authors looked at a combination of gender inequalities—education, income, political, socio economic. Gender inequality was measured by using the following variables: Wang (2007) used indicators— percentage female adult literacy (15 years or older), combined primary, secondary, and tertiary gross enrollment rate for females, and estimated female earned income. Pillai and Gupta (2006) and Wang (2004) used the same measures plus percentage of women's share of second-level school enrollment, percentage of seats held by women in national parliament, political and legal equality for women, and social and economic equality for women. Swatzyna (2004) used the measure of gender equality including ratio of primary school–aged girls, ratio of secondary

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school–aged girls, percentage of women in ministerial level, percentage of women in sub-ministerial level, and percentage of women in adult labor force. Wang and Pillai (2001b) did not name their construct "gender inequality," instead calling it "female share of income." They looked at percentage female-headed households, and percentage of female share of income.

Authors did not exhaust all possible avenues when operationalizing the gender inequality measures. Replication once again was not consistent; however; once again, this could be due to lack of available data.

2.3.3.7 Income Inequality

Only one study tested income inequality as an influencing construct (Wang & Pillai, 2001b). They measured income inequality in general using only the Gini index (Wang & Pillai, 2001b) (see table A.10, appendix A).

2.3.3.8 War

Swatzyna (2004) measured the effect of war. He looked at two dimensions, level of militarization and extent of armed conflict. Militarization was operationalized using three indicators—number of soldiers, military expenditure per capita, and military expenditure percentage of Gross Domestic Product (GDP). Armed conflict was operationalized using two indicators—total numbers affected in war and total numbers of refugees (see tables A.11 and A.12, appendix A). Additional studies need to be done on this topic to identify whether all possible indicators were exhausted.

2.3.3.9 Fertility

Wang and Pillai (2001b) looked at fertility as an independent factor affecting reproductive health. They looked at total fertility rates. Despite using fertility as an independent variable here, in their measure of reproductive health scale (Wang & Pillai, 2001a), they identified fertility as an indicator of reproductive health. WHO (1997; 1999; 2004) also throughout has identified fertility as an indicator of reproductive health (see table A.13, appendix A).

In summary, authors have used a variety of measures, some of which overlap, in constructs and their operationalization, yet others looked at different aspects of the same constructs. It is clear that for constructs not all possible indicators have yet been identified. Same measures have not been replicated even by the same authors, perhaps because they have had to depend on external data when conducting cross-national analyses.

All studies validated their scales using confirmatory factor analysis (Pillai & Gupta, 2006; Swatzyna, 2004; Wang, 2007, 2004) or factor analysis (Clark, 2006; Wang & Pillai, 2001b). One serious issue is that some indicators of one construct are used as indicators in another construct. This spillover even touches independent and dependent variables (e.g., where fertility is a concept used both as an indicator of independent variables as well as a dependent variable). Additionally, data for the variables came from different sources and different years, some with year differences as long as 9 years apart. Consequently, despite authors validating their scales of constructs, this poses a serious threat to validity of constructs tested.

2.3.4 Construct Paths Tested

While structural components tested by the articles were limited in the number of constructs they included, the six articles under study attempted to test empirically the effect of different combinations of association on reproductive health. Therefore, the research goal of each study and the subsequent constructs they chose to test differed for each study. The following section is a discussion of the conceptual frameworks proposed by the researchers, the methodology used, and their results.

Wang and Pillai (2001b) proposed to test the effect of reproductive rights and women's economic status/females share of income, income inequality, and fertility. Their goal was to test two past explanations of reproductive health—rights verses structural factors. They proposed that reproductive rights act as an intervening mechanism among the three identified structural variables and reproductive health. Path analysis was used to test their model. Tests found

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reproductive rights to have a significant positive effect on reproductive health. Women's economic status and fertility were found to significantly affect both reproductive health and reproductive rights. However, income inequality, tested by Gini index, was found not to have a significant effect on either reproductive health or reproductive rights.

Swatzyna (2004) looked at the effect of war on reproductive health. He examined two dimensions of war: militarization and armed conflict. He also controlled for social development, democratization, reproductive rights, and gender equality. Structural equation was used to test the position. His entire model constructs significantly affected reproductive health. Social development was found to have the strongest effect on reproductive health, followed by armed conflict. One important finding is that militarization was found to have a positive significant effect on reproductive health. (He proposes three possible explanations: militarization improves infrastructure of countries, militarization may help improve education levels of countries, and through induction of soldiers to military the resulting male/female separation can contribute to decrease in fertility levels). As with Wang and Pillai (2001b), reproductive rights were found to have a significant effect on reproductive health.

Wang (2004) explored the effect of economic and democratic development on reproductive health with gender equality and reproductive rights as intervening variables. Wang looked at the differential effect of personal reproductive rights and abortion rights on reproductive health. Structural equation modeling was used to test results. Results indicated that personal rights have a positive significant effect on reproductive health, while abortion rights do not. Additionally, gender equality was also found to have a significant effect on reproductive health (both components), and democracy was found to have a significant effect on gender equality but not on reproductive health. The study results also found economic development to have a positive significant effect on reproductive health. Furthermore, economic development was also found to significantly associate with gender equality.

Pillai and Gupta (2006) proposed that reproductive rights positively affect reproductive health, and are a function of gender equality, with democracy as a background construct that positively affects gender equality. They, like Wang (2004), argued that reproductive rights have two components—abortion rights and personal rights—and tested the effect of these components separately. They used a structural equation model to test their proposition. Their results found personal rights to have a positive significant effect on reproductive health, but abortion rights were not found to significantly affect reproductive health. These results mirror Wang's (2004) findings. Gender equality once again in this study was found to have a significant direct effect on reproductive health. Gender equality in this study was also found to significantly affect personal rights, but contrary to Wang's (2004) findings, gender equality did not significantly affect abortion rights. This may be due to the influence of the indirect effect of economic development on gender equality. Consistent with Wang (2004), democracy was found to significantly affect gender equality.

Clark (2006) explored the empirical significance of three levels of women's power on reproductive health of women in developing countries: (1) legal rights or state-authorized reproductive rights of women, (2) political power, and (3) women's power within the family. The method of analysis used is least square regression. In addition to power, the study controlled for economic development and strong democracy. Results found that except for democracy, all other factors were significantly associated with reproductive health. Consistent with past studies, reproductive rights (Wang & Pillai, 2001b) and economic development (Wang, 2004) were found significant, while democracy, once again consistent with Wang's study (2004) did not find a direct significant effect on reproductive health. One confusing finding was that women in power negatively associated with reproductive health. Clark hypothesized that this could be due to its possible association with other variables.

Wang (2007) tested the effect of gender equality on women's reproductive health in developing countries with economic and political development as background constructs. She

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tested both direct and indirect effects of economic and political development factors on reproductive health. She used the structural equation method to test her conceptual argument. Consistent with past tests, her results found that gender equality has a significant positive effect on reproductive health (Pillai & Gupta, 2006; Swatzyna, 2004; Wang, 2004). In addition, once again consistent with past studies, economic development was found to have a positive significant effect on both reproductive health (Clark, 2006; Wang, 2004) and gender equality constructs (Wang, 2004). Once again, consistent with her 2004 study, political development was not found to significantly affect either reproductive health or gender equality.

2.3.5 Conclusions

The studies found strong support for the effect of structural variables on reproductive health, except for political development/democracy, which yielded mixed results. Only one study on democracy/political development was found that addressed the direct effect on reproductive health (Swatzyna, 2004). Three other studies indicated that democracy/political development had little effect on reproductive health of women (Clark, 2006; Wang, 2004). One study did indicate that democracy has a direct effect on gender equality (Wang, 2004), whereas two other studies did just the opposite (Pillai & Gupta; Wang, 2007). These mixed results could be due to variations in measurement of political development/democracy. Additionally, gender and reproductive rights were also found to have significant effects on reproductive health. However, abortions rights were not found to be significant, and the gender effect on abortion rights yielded various results. One study found gender to have a significant effect (Wang, 2004) while the other did not (Pillai & Gupta, 2006). However, both constructs (abortion rights and gender equality) were measured in these two studies using the same measures taken from the same sources and from same years. Therefore, this variation in results can be attributed to the indirect effects of economy on gender.

2.3.6 Limitations and Research Gaps

These studies provide a very good starting point for research in the field of reproductive health in developing countries at the macro level. At the same time, they also suffer from several limitations, leaving research gaps that need to be filled.

As mentioned earlier, the studies faced several methodological problems. Some stemmed from using secondary data. Data were not available for all countries and for all variables. To address this issue, studies either limited the number of measures in a scale or used ad hoc or mean substitution methods. Both methods posed risks to the validation of their scales. Additionally, data for the indicators came from several different years. This posed a severe limitation to the validity of measures and results.

Another major methodological problem was how measures were chosen for each construct. Many areas of reproductive health (e.g., violence) were not included in their measures. Additionally, no consensus was found on what variables were to be included on each construct. Fertility for one was used both as an indicator of reproductive health as well as an independent variable. Additionally, measurement issues in economic development and social development measures are also noteworthy. The three studies that tested effect of economic development found a strong effect on reproductive health (Clark, 2006; Wang, 2007, 2004). The one study that tested social development found a very strong influence on reproductive health status (Swatzyna, 2004). Three of the four economic indicators (percentage urban, percentage of population with access to safe water, and percentage access to sanitation) were questionable in their validity as pure economic indicators. Swatzyna (2004) used the same social indicators in his measure of social development. In other words, economic growth measures separated from social development measures have not been tested. This presented a research gap to identify the effect of pure economic factors on reproductive health, isolating it from social development indicators. Tests are needed to identify their separated and combined effects.

Studies have usually focused on a limited number of possible structural influences. All approached their research from human rights–based or gender-based perspectives with structural variables as their backdrop constructs. This approach is more congruent with the northern argument toward reproductive health. However, this leaves another research gap: the southern argument that we must emphasize the conditions under which women make decisions was not tested. Southern feminist scholars have strongly argued that gender and human rights are not the deciding factors of women's reproductive decision making at the individual level. They have emphasized the importance of structural influence of relational and cultural factors (Corea, 1994; Hartmann, 1995; Qadeer, 1998). By the same token, can gender equality and human rights be explained away by other variables? Empirical studies have not pursued these dimensions.

In conclusion, it was clear that past research on reproductive health had not exhausted all possible influencing social constructs or possible causal paths influencing reproductive health, and gaps exist in the measurement of constructs. Consequently, these limitations presented a research gap in the empirical literature, which in turn, warranted further investigation, emphasizing the need to test an alternative model of reproductive health.

CHAPTER 3

CONCEPTUAL FRAMEWORK

The conceptual framework for this study was derived from economic theorist Amartya Sen's conceptual propositions on development as freedom and capabilities, and propositions on well-being/functions. In essence, this study was a test of his theory of human development on its applicability to the reproductive health of women in developing countries. Sen is a Nobel Laureate in economics whose academic contribution to human development in the developing world is considerable. He is a longstanding consultant to the WHO and was highly instrumental in promoting the human development paradigm adopted by the UNDP. The basic theme of his argument has always been that ultimately, what is important to human beings is having the freedom or capability to lead the kind of lives they want to lead. To this end, he has forcefully argued throughout his career that poverty/income is not the sole determinant of human welfare and that human well-being can be accomplished even in the most impoverished of communities through social development and human capability enhancement efforts (Sen, 2007). While the argument that economic development alone cannot enhance human well-being is not new, it is only very gradually gaining recognition in international development, and Sen is at the forefront.

Thus, Amartya Sen's discourses are on human well-being in general and are not propositions of reproductive health per se. However, health is an aspect of human well-being and reproductive health is an aspect of health overall. Therefore, his propositions have many applicable merits to reproductive health, especially in developing countries with high poverty levels and scarce economic resources, where prioritizing appropriate development efforts become crucial. Consequently, his perspectives warrant further conceptual exploration and empirical   testing.

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The following section is a more detailed analysis of his theoretical propositions and their possible implications to the reproductive health of women in developing countries. The last section of this chapter proposes hypotheses derived from the conceptual discussions presented and introduces a testable model of reproductive health.

<div align="center">3.1 Synthesis of Sen's Propositions</div>

As previously mentioned, Sen did not propose a theory of reproductive health per se. However, his perspectives on capability and development have special significance for this field. This section will discuss in detail components of his theoretical arguments—the scope, the meanings, and what they entail. It is important to note at the onset that the summary presented here is based on several of his discourses on development, capability, and inequality. At times his arguments on concepts overlap, at other times there are slight variations, and many times concepts are only vaguely specified, leaving room for different conclusions and interpretations. Thus, at the end of this section, this author took the liberty to draw extended conclusions based on meanings given by Amartya Sen.

The genius of Sen's theory of development is that it puts human well-being in the forefront of development goals, making his theory of development a theory of human development. Progress of development, he argues, should be measured through what people are capable of achieving in terms of their human well-being, and not through structural ends removed from human well-being (Sen, 1999a). Fakuda-Parr (2005) explains that "the purpose of development is to improve human lives by expanding the range of things a person can be and do, such as be healthy and well nourished, to be knowledgeable" (p. 305). In other words, having the freedom of choice.

According to Sen, development need not necessarily advance GNP, industry, or technology to be successful. For example, like Aristotle, he argues that wealth is not valuable in itself but only valuable to the extent it brings about human well-being (Sen, 2007), postulating that the focus should be on the human improvements/well-being "generated by commodities,

rather than commodities seen on their own" (Sen, 1999a, p. 74). Sen furthermore argues that while economic gain can bring about a feeling of well-being or an opportunity to enhance human well-being, it may not necessarily do so. This approach is far removed from previous models of development that measure progress purely in terms of opulence and entitlements to goods and services (Clark, 2005). Consequently, his approach to development is not based on utility or wealth or resource maximization, but based on a human development approach (Robeyns, 2005; Sen, 1999a).

Now that the reader has a brief sense of the external proximities of Sen's propositions on development, it is time to explicate more in depth the conceptual intricacies involved. First is the concept of development. His definition of development is the enhancement of human freedoms (Sen, 1999a). Freedom, according to Sen, is the ability "to achieve actual livings that one can have reason to value" (Sen, 1999a, p. 73). In other words it is "the ability to affect whatever one has reason to value" (Gasper & Steveren, 2005, p. 148). Sen's view of positive freedom is also worth mentioning here. Conventional economists have viewed freedom as a "negative freedom," that is, freedom is the absence of external constraints and interference. For example, in an economic sense, the freedom to engage in modes of production without constraints represents a negative freedom. On the other hand, positive freedom refers to the "ability to attain the desired ends" (Gasper & Staveren, 2005; p. 141). For example, a woman may be free to engage in public activity legally (no legal constraints) but is bound by family commitments and unable to attain the desired end (Gasper & Staveren, 2005). Sen's views of freedom are on the positive side of the spectrum; he believes that humans are social beings socialized by values, culture, and customs, and these social factors cannot be separated from the individual's available rights when freedom is exercised in a realistic sense (Gasper & Staveren, 2005; Sen, 1999a).

This concept of freedom, however, is also equal to Sen's concept of "capability," which he says is a type of a "substantive freedom to achieve alternative functioning combinations or

the freedom to achieve various life styles." An individual should be able choose from a set of capabilities (Sen, 1999a, p. 75). In his book *Freedom as Development*, he talks about five types of freedoms (though it is not limited to them). These include (1) political freedom, (2) economic facilities, (3) social opportunities, (4) transparency guarantees, and (5) protective security (Sen, 1999a, p. 10). Additionally, among many other freedoms, he has also identified reproductive freedom as an important freedom (Anand, & Sen, 1994).

These definitions of freedom and capability are different from what Sen calls human well-being. Later, he describes it as "a person's achievement: how well is his or her being?" (Sen, 1999b, p. 3). Well-being is equal to what he called functioning, which is "various things a person may value doing or being" and adds that well-being can be an aggregate to reflect actual achievements or "amount and extent of functionings enjoyed by a person" (Sen, 1999a, p. 75). The former (freedom/capability), is the choice or freedom to choose from a set of alternative lives one would wish to lead. It is a difference of freedom to choose well-being versus extent of achievement of well-being. Sen further explains that one person may not eat because he may choose not to eat, while another may not eat because he does not have food, while in both instances he argues that the end result is the same—hunger—the options leading to that end are different (Sen, 1999a). In discussing the causal connection between the two, he reports that well-being can be seen as one set of living or doing, from a varied combination of options, or it may be a direct result of an option itself. Thus, in this circumstance, having the option is well-being, and freedom/capability could be the means to an end or an end in itself (e.g., contraceptive prevalence could be seen as freedom or desired well-being) (Sen, 1992).

This ability to convert freedoms and capabilities to desired functionings and well-being, he argues, is affected by a multiplicity of interpersonal factors. For example, two people may have the same amount of external freedoms or capabilities presented to them, but their utility value may differ based on capabilities such as "differences in age, gender, special talents, disability, proneness to illness, and so on" (Sen, 1999a, p. 69). Alexander (2008) provides the

example that within a family, especially if the family system is patriarchicaly based, the opportunities males receive differ from those females receive. To avoid empirical confusion and for practical purposes, Sen (1992) proposes that we take into consideration the more important differences and disregard some of the less important divergences. However, Sen has only hinted what those important divergences may be, and has not provided clear procedures by which to prioritize these interpersonal divergences and in what context (Alexander, 2008).

This brings us to the connection between freedom/capability, functionings/well-being, and development. According to Sen (1999a), the evaluative criterion of development is freedom/capability. That is, has the progress in development enhanced people's freedoms and capabilities to function? He is opposed to strict evaluation of development through functionings or well-being. An evaluation of well-being, he said, should take into account "counterfactual choice"; that is, what one could achieve given the options (Sen, 1992, p. 67).

Once development is identified as expansion of freedom or capability, Sen (1999a) notes that social arrangements should be targeted to enhance freedoms and capability. Sen argues that opportunities to a large extent depend on "what institutions exist and how they function" (Sen, 1993a, p. 8). He argues that institutions contribute to our freedoms, and they can therefore be evaluated in terms of their contributions to our freedom. By the same token, however, individual freedom or what he calls "human agency" is also greatly constrained by social arrangements such as economic, social, and political institutions. If a certain social arrangement or a person's position in a certain social arrangement disables a person from achieving full freedom, it is a social problem (Sen, 1992). He sees deprivation, destitution, oppression, violence, inequality, and so on as such conditions or problems that prevent achievement of full freedoms. He calls these problems "unfreedoms." Overcoming these problems is a central "par," while expanding "freedoms" (Sen, 1999a).

Additionally, in this approach, development is viewed as a process that expands a person's freedoms or capacity to perform various functions. Development, according to Sen

(1999a), is both constitutive and instrumental in bringing about capabilities/freedom. Thus it is not just an expansion of "GNP per capita, or in consumption, health and education measures alone" (Alkire, 2002, p. 184), instead it is the expansion of varied capabilities. This process, on one hand affects people's freedom and what they can positively achieve by institutional arrangements such as "economic opportunities, political liberties, social powers, and the enabling conditions of good health, basic education, and the encouragement and cultivation of initiatives." On the other hand, these institutional arrangements are also influenced by "how people exercise freedom" (Sen, 1999a, p. 5). To him, these interconnections are very important to development as freedom.

From this perspective, social, economic, and political aspects then become a few aspects— "constituent components"—of development overall (Sen, 1999a, p. 5). Thus, some components may be more instrumental in bringing about human freedoms than others. He argues that these components are best viewed as mutually complementary and causally correlated (Sen, 1999a), and must be viewed together to understand what they can and cannot do (Sen, 1993b).

However, in the hierarchy of importance, he argues that social development efforts, by way of creation of social opportunities, directly benefit human capabilities/freedom and well-being, more than other more indirect efforts. He justifies that there is ample evidence to prove that even in the most impoverished of societies, investment in education and health care allows for better quality of life in the people (Sen, 1993b). Focusing more specifically on the topic of health, he makes a case for social development by comparing life expectancy rates and infant mortality of Kerala, a state in India, to China. He reports that Kerala has a life expectancy rate of around 75 years and an infant mortality rate of about 12 per 1,000. On the other hand, China has life expectancy rates of around 72 years and infant mortality rates of around 28 per 1,000. He argues that this contrast merits attention, comparing the fact that Kerala is still very much an economically backward state and China has the world's largest economic growth rate, making

phenomenal economic development over the years. Sen's careful analysis of the two systems led him to claim that this difference is largely due to social policy efforts; Kerala has universal health coverage, making health care accessible to everybody in Kerala, while China more recently privatized their health system. His observations of the two systems leads him to claim that human health or well-being can thrive even in worse economic levels if appropriate social development efforts are in place. Thus, he makes a compelling case that social development is perhaps more important to human well-being, including health, than economic development (Sen, 2007).

Thus, he contests the Western view that human development is a kind of extravagance that countries can afford only when they have high economic growth. Instead, he remonstrates that nations can engage in human development efforts before breaking free from economic poverty. For example, reflecting on Japanese and East Asian development policies, he reveals that these nations began massive social development efforts to bring about social change, such as expansion of education, broadening of entitlements, and increasing the capacities to engage economic transactions long before their economies reached growth. He argues, for instance, that Japan began its priority in education and human development long before reaching high economic development levels. In 1913, while Japan was still very much economically underdeveloped, it became the largest producer of books in the world (Sen, 1993b).

Answering how developing countries can afford to spend on massive social development efforts before reaching high development levels, he points out that developing countries (unlike the developed countries) have relatively modest labor costs with lower wages. Since social development efforts such as health care and education are also extremely labor-intensive, he argues that such efforts can be initiated at far less cost. Thus, he claims that developing countries with far less money to spare on public services also need far less money to facilitate the same (Sen, 1993b).

Viewed in this light, then, economic growth is no longer seen as the most pivotal component of human development. In fact, in this logic social development with its inherent direct focus on human betterment is more likely to enhance human well-being and human freedom than economic development. The latter may or may not necessarily enhance human well-being or human freedom. However, he does identify economic growth as an important condition to human betterment. He strongly argues, however, that economic growth is not important in itself for human freedom, but only when it acts as an instrument or vehicle to make human lives better (Sen, 2007). He noted that the extent of economic development's contribution to human well-being depends on its financial contribution to "social policies, including the building up of facilities of education, health care, social insurance, and social work, and cultivation of social relations between different people within society and across the world" (Sen, 2007, p. 3).

This brings us to his views on political development. Sen is a strong proponent of democracy. According to Sen (1993b), human beings have reason to value freedom of political expression. He argues that the denial of the right to political participation and civil liberties are human deprivations by themselves. In addition to this intrinsic value, political development is important to human development because responsible governments have an obligation to respond to their citizens' needs and problems. It is the role of the governments to facilitate social policies that both promote and secure the well-being of their citizens. He has often cited welfare policies that are universal in nature as more beneficial to human agency, such as free education and universal health care (Sen, 2007, 1999a). He argues that democratic governments by design are the best political mechanisms to yield this end. According to Sen, governments need political incentives to address their citizens' needs. In democracies, rulers must listen to their constituents' needs to obtain their support in elections. Thus, governments that have fair elections, strong opposition parties, and political transparency are best suited to meet their people's needs. To this end he has argued that no substantial famine has ever taken

place in an independent democratic country with a fairly free press. He proposes that this is so because democratic governments are forced to act on their citizens' needs. Thus he has argued that democracies that promote universal welfare systems are more beneficial than democracies that promote privatization of welfare benefits (Sen, 1993b).

3.2 Extended Conclusions of Sen's Theory

If unfreedom is an identified element or process that curtails human agency or individual choice, then freedom is human agency-enabling. This study argues that freedom and unfreedom can be viewed in a continuum, one end of the continuum being unfreedom and the other end being freedom. Stated another way, if problems are caused by social arrangements and human beings' relative positioning in them, their relative position can be either freedom-generating or freedom-curtailing. Thus, equality and inequality are two sides of the spectrum.

Furthermore, he notes that the extent of economic development's contribution to human well-being depends on "social policies, including the building up of facilities of education, health care, social insurance, and social work, and cultivation of social relations between different people within society and across the world" (Sen, 2007, p. 3). Therefore, his argument would lead us to conclude that economic development's causal contribution to human well-being or freedom is through its effect on social development. If we are to make an extended conclusion, it can be argued that pure economic development, if it has only economic growth value, will not have a direct effect on human freedom and well-being as Sen has defined. This same argument can be made about political development as well. The extent of the value of political development depends on how far governments promote social welfare policies and what mechanisms are in place to safeguard citizens from varied predicaments. Thus, once again, the causal contribution beyond political freedom to human well-being is through social development.

One additional conclusion should be made on the scope of capability/freedom. This study, like Robeyns (2002), suggests that while capability/freedom has an individualistic

approach because it looks at individual enhancements ontologically to improve capabilities, this approach must also address human relations, culture, and so on. Thus, it deals with humans and their interactions. It also goes beyond mere institutional structures, and includes relational and cultural structures (Dejong, 2006; GPRG, 2005; Robeyns, 2002). One implication of this is rights. Rights refer to individual entitlements. Entitlement can also be argued as a freedom. If all this is true, then, rights are only one aspect of this concept of "freedom/capability."

The question now becomes, how does this proposal link to the causal model of reproductive health? The next section presents the theoretical implications for and causal linkages of Sen's theory of development to reproductive health.

3.3 Implications for Reproductive Health

3.3.1 Reproductive Health

If well-being is seen as a desired achievement, we can make the case that reproductive health is an aspect of well-being—a desired end and a state "a person may value doing or being" (Sen, 1999b, p. 75). This approach to reproductive health is a very similar to Cairo's (1994) definition of reproductive health, which defines reproductive health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes" (Chapter VII a).

3.3.2 Freedom/Capability

The human development approach is concerned with the capability and freedom to lead worthwhile lives. Anand and Sen (1994) argue that this focus on freedom includes reproductive freedom as well. Cairo's (1994) definition is that "people [should be able to have] a satisfying and safe sex life and. . .have the capability to reproduce and the freedom to decide if, when and how often to do so" (VII.a) In translation, these reproductive capabilities and freedoms have been reduced to merely their reproductive rights; the United Nations itself emphasized the reproductive rights aspects of this definition, adding, "Implicit in this last

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condition is the right of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of family planning of their choice for regulation of fertility" (U.N., 1994, chapter VII.a) However, if we are to draw conclusions based on Sen's definition of freedom and capability, then this freedom of entitlement is only one aspect of reproductive freedoms and capabilities. These freedoms can be either positive or negative just as rights entitlements can be positive or negative. Additionally, inequality and violence has unfreedoms that would fall on the same continuum of freedoms.

3.3.3 Development

Because of the focus of this paper, only social, economic and political developments will be discussed. As stated previously, social, economic and political developments are only three of many constituent components of development. Sen (1999a) proposes that measurements of development depend on the extent to which each component enhances human freedoms and capabilities. Hence, in this situation, it is freedom and capabilities related to reproduction. As this study argued earlier, this analysis also proposes that development increases reproductive well-being or functions (reproductive health). Based on Sen's proposition, this study proposes that social development has direct effects on reproductive capacity/freedom and reproductive health. However, development components (e.g., economic and political) affect reproductive health through their ability to influence social development efforts. Therefore, this study proposes that of the three components of development that this study focuses on, social development is the most significant influencing factor having direct effect on reproductive health and indirect effect though freedom.

Based on the above conceptual framework, this study presented a causal model of reproductive health (see figure B.1, and table B.1 in appendix B), and posed the following five hypotheses:

Hypothesis 1. Economic development has a significant positive effect on social development in developing countries, controlling for political development.

Hypothesis 2. Political development has a significant positive effect on social development in developing countries, controlling for economic development

Hypothesis 3. Social development has a significant positive effect on freedom/human capabilities in developing countries, controlling for economic and political development.

Hypothesis 4. Social development has a significant negative effect on women's reproductive ill-health in developing countries, controlling for economic development and political development.

Hypothesis 5. Human freedom/human capabilities have a significant negative effect on reproductive ill-health in developing countries, controlling for social, economic and political development.

In conclusion, this approach to reproductive health was different from earlier approaches for three different reasons:

1. Development was viewed as a process that helps human freedoms and capabilities. This is argued to be the ultimate evaluative criterion of development. Therefore, social development was proposed to be more effective to this end than economic or political development. In fact, it was argued that the extent of economic or political contributions depends on how they affect social development efforts or human development efforts.

2. It took the discourse away from human rights—"freedom to do or be what one values." This made "rights" only one component of this perspective.

3. Additionally, inequality, poverty, violence and other such human deprivations were viewed as unfreedoms and placed in the opposite end of the same continuum of freedoms.

The philosophical foundations for this study came from Sen's many discourses and excursions on development, capability, and inequality. One of the biggest drawbacks of this approach is that concepts are underspecified, and the scope and range is not explicated in its entirety. However, as Sen (1993a) notes, there is a positive side to an incomplete theory, in that it can be "consistent and combinable with several different substantive theories" allowing it to be

completed with "reasoned agreement" (p. 48). Further limitations of the study are discussed in more detail in chapter 6, under limitations of the study.

CHAPTER 4

METHODOLOGY

As mentioned in the previous chapters, the purpose of this study was to provide an alternative empirical model of reproductive health to address the criticism of scholars from the south and fill the gap left by the researchers to test alternative models of reproductive health. Thus, Sen's developmental perspectives were presented to address the criticisms of reproductive health scholars and practitioners. This chapter presents the methodological format used to test the proposed empirical model and is divided into four sections: (1) sample description and sources of data, (2) operationalization of endogenous and exogenous variables, (3) description of data analysis methods, and (4) methodological limitations.

4.1 Sample and Sources of Data

This analysis was conducted using secondary data. The sample for this study came from developing countries as identified by the World Bank. The latest definition of the World Bank includes all nations with a gross national income per capita (GNI) of less than 11, 455 US dollars in 2007 (World Bank, 2009a). One hundred forty-four countries from the regions of Latin America and the Caribbean (29), East Asia and the Pacific (23), Europe and Central Asia (24), Middle East and North Africa (13), South Asia (8), and Sub-Saharan Africa (47) are included in this criteria (World Bank, 2009b). Hundred and forty two countries out of these 144 developing countries contained data and are included in this study. Therefore, the unit of analysis is the aforementioned developing countries. Data collection comes from several sources (see appendix C for references to these sources and list of countries included).

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4.2 Operationalization of Variables

4.2.1 Endogenous Variable Reproductive Health

In this study, reproductive health is defined within the framework of Sen's theory of functioning and capability. The concepts of reproductive functioning and well-being offer useful suggestions for selecting the indicators relative to these concepts. As mentioned in the earlier chapter, Sen (1999b) defines functioning in two senses: (1) as a "vector of capabilities" (i.e., a "desired state of living from possible states of living") and (2) as an achieved state of "being" or "doing," subsequently stated in his own words more comprehensively:

A functioning is an achievement of a person: what he or she manages to do or be. It reflects, as it were, part of the "state" of that person. It has to be distinguished from the commodities which are used to achieve that functioning. It must also be distinguished from the happiness generated by the functioning. (p. 7).

Sen himself has argued that, when operationalizing variables for research purposes, functioning/well-being be viewed as a state of achievement (as cited in DeJong, 2006). This view of functioning allows separating functioning/well-being from capability/freedom without running into tautological measurement errors. Therefore, in this study, reproductive health is viewed as a desired state of the achieved "being" or "doing."

Nevertheless, the general guidelines for the procedures of scale development call for using existing definitions of concepts to be measured and tested (Wang & Pillai, 2001). Following this tradition, for the operationalization of the concept of "reproductive health," this study also incorporated the ICPD (1994) definition of reproductive health. However, as the ICPD (1994) definition of "reproductive health" includes a reproductive capability/freedom dimension, and since Sen (1999b) separates well-being from capability/freedom, the operational definition of reproductive health was limited to:

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Reproductive health is a state of complete mental, physical, and social well-being and not merely the absence of disease or infirmity in all matters relating to the reproductive system and its functions and processes. (U.N., 1994, Chapter VII.a)

Following this definition, the selection of items for the reproductive health scale was based on Wang and Pillai's (2001) scale of reproductive health and on the availability of data. This scale used the ICPD (1994) definition and used items from a list of 15 reproductive health indicators developed by the WHO (1998). Due to the lack of availability of data, the scale used only 9 of the 15 indicators recommended by WHO (for the list of indicators, refer to page 25). This study further narrowed the number of indicators to include only items that fall within Sen's definition of functioning/well-being. Therefore, women's reproductive health is specified by (1) births per 1,000 women ages 15–19 (Birthwo), (2) estimates of HIV among women (%) (HIVW), (3) infant mortality rate (per 1,000 live births) (Infant), (4) maternal mortality rate (per 100,000) (Matmort), (5) total fertility rate (TFR), and (6) percentage of children stunted under the age of 5 (Stuntnew). The indicators, contraceptive prevalence (Contra), the percentage of pregnant women immunized against tetanus (Teta) and the percentage of births with skilled attendance (Skillper) from Wang and Pillai's (2001) scale were excluded from this study as indicators of reproductive health. The exclusion of these variables limits the likelihood of several antecedents associated with reproductive capability/freedom that are grouped according to such outcome states as maternal and infant mortality.

4.2.2 Endogenous Variable Freedom/Capability

To date there is no validated scale for measuring reproductive capability/freedom. Sen himself does not believe in providing a fixed list of capabilities/freedoms. He acknowledges the potentially broad variations in the importance of capabilities across cultural contexts and leaves room for researchers to develop and identify these capabilities based on their own value judgments (Alkire, 2002; Clark, 2005; De Jong, 2006; Robeyns, 2002). While, one line of scholars emphasis that this facilitates a considerable amount of flexibility and accommodates a

variety of approaches to developing measures of capability (Clark, 2005); others such as Robeyns (2002), is critical of this openness, warning about the biases researchers bring to the subjective interpretation and creation of capability sets.

In describing the scope of the concept of reproductive capability/freedom, Anand and Sen (1994) argue that reproductive health "can be sought through expanding the options that people have…." (p. 6). In addition, the ICPD (1994) definition of reproductive health affirms the importance of reproductive capability and freedom. Declaration states "…people are able to have a satisfying and safe sex life and that they have the capacity to reproduce and the freedom to decide if, when, and how often to do so" (United Nations, 1994; Chapter VII.a). Sen (1999a) states that these options may be achieved in two ways: (1) Institutional arrangements can bring about individual freedom, and (2) individuals themselves can enhance their freedoms and capacities "through liberty to participate in social choice and in making public decisions and impel the progress of these opportunities" (p. 5). Therefore, this study will take into consideration both aspects of capability/freedom.

The operationalization of the concept of "reproductive capability/freedom" in this study also focused on one other important element: the separation of development from freedom. While Sen argues development should be constitutive of freedom, he also argues that the primary purpose of development is the enhancement of capability/freedom (Sen, 1999**a**). Sen (1999a) explains in his book Development as Freedom that development is "…a process of freedom expanding the real freedoms that people enjoy" (p. 3). Furthermore, he argues that the evaluative criteria of development should be based on viewing freedom as the primary end of development. For measurement purposes, this approach suggests then the separation of development measures from reproductive capability/freedom measures. Within these conceptual boundaries, this study used the following eight variables to indicate reproductive capability/freedom: (1) deliveries attended by skilled attendants (Skillper), (2) pregnant women who receive prenatal care (Precare), (3) 1-year-olds fully immunized (Immun1), (4)

contraceptive prevalence rate (Contra), (5) emergency contraceptive marketing status (EC), (6) abortion policies (Abopol), (7) percentage of girls married before age 18 (Bmage18), and (8) sexual assault rate (SAR).

Further clarification of why these indicators were chosen is needed, as no prior study has operationalized reproductive capability/freedom. Foremost, it is important to note that item selection was curtailed by availability of data. Thus, variables selected while justified may not be the best indicators reflecting reproductive capability/freedom. The variables deliveries attended by skilled attendants, pregnant women who receive prenatal care, and 1-year-olds fully immunized were chosen because they provide the freedom and capability to achieve reproductive well-being/functioning, specifically to reduce maternal mortality, infant mortality, percentage of low birth-weight infants, and fertility rate. Contraceptive prevalence rate (%), emergency contraceptive marketing status, and abortion policies have all been used as indicators of reproductive rights, while contraceptive prevalence has alternatively been used as an indicator of reproductive health as well. This study argues that high contraceptive prevalence and the availability of better contraceptive methods and abortion policies are channels of women's reproductive capabilities and freedom to provide the "the freedom to decide if, when, and how often to" to have children (United Nations, 1994; Chapter VIIa). Therefore, this allows choosing the alternative reproductive well-being/functioning "a person may value doing or being" (Sen, 1999a, p. 75).

Percent girls married before age 18 variable was chosen because entering marriage at a young age reflects women's lack of power. In many developing countries, especially in Asia, marriage at a young age reflects the presence and strength of patriarchal structures that often control women's entry into marriage. Asian countries are known for their child marriage practices. The ability to marry late provides greater capability and freedom to carry out reproductive decision making within the family. This has a direct bearing on births per 1,000 women aged 15 to 19, infant mortality rate (per 1,000 live births), maternal mortality rate (per

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100,000), total fertility rate, and percentage of low-birth-weight infants. Therefore, it is treated as an indicator of reproductive capability/freedom.

While sexual assault rate can be argued as an indicator of reproductive well-being/functioning, this study argues that sexual assault is a reproductive unfreedom. Furthermore, the capability or freedom to live free of sexual assault enhances one's reproductive opportunities and provides access to achieve alternative reproductive well-being/functioning. This could have a direct bearing on estimates of HIV prevalence among women, births per 1,000 women aged 15 to 19, infant mortality rate (per 1,000 live births), maternal mortality rate (per 100,000), and total fertility rate.

Two of the variables identified need clarification of measurement level. Abortion policies are measured according to the following criteria: Available on request 5; Permitted on broad social and health grounds, 4; Permitted on limited health grounds, 3; Permitted only for special cases (such on cases of rape or incest), 2; and Illegal or permitted only to save a woman's life is coded 1. Emergency contraception marketing status (EC) is coded as follows: 1 = if no EC available 2 = if doctors' prescription is needed to get EC; 3 = available from the pharmacist; and 4 = available at the counter.

4.2.3 Exogenous Variable Social Development

As mentioned earlier, according to Sen, development is not only an instrument of freedom but also a constituent of freedom. Even though social development is treated here as constitutive of freedom, it is also considered instrumental to attain reproductive freedom. Anand and Sen (1994) suggest that human development can contribute to solving reproductive matters. Social development in this study is then defined as the extent of a society's advances in terms of caring for communities and its use of resources justly for this end (Sen, 2007). He identified these progressive efforts as "social policies, including the building up of facilities of education, health care, social insurance, social work, and cultivation of social relations between different people within society and across the world" (p. 3). Based on this definition, and due to

availability of data, "social development" is indicated by the following seven variables: (1) adult literacy rate (% ages 15 and above) (Adultlit), (2) total public expenditure as a percent of health expenditure (Pubex), (3) social security expenditure as percent of public expenditure on health (Socialsec), (4) Community and traditional health workers density (per 10,000 population) (Sociopub), (5) population without access to water sources (Water1), (6) telephone and Internet users per 10,000 population (Tele), and (7) Gini-index (Gini).

As data for the study was collected cross-nationally, clarifications of the scope of some of the indicators are necessary. Social security expenditure is referred to here as social security expenditure on health made by social security institutions. They include "direct outlay to medical care providers and suppliers of medical goods as well as reimbursements to households and the supply of services in kind to enrollees" (WHO, 2009, p. 1). Community and traditional health workers includes, "community health officers, community health education workers, community health aide, family workers, lady health visitors, health extension package workers, traditional and complementary medicine practitioners, community midwives, traditional birth attendants and associated occupations" (WHO, 2009b, p. 1). Public expenditure or general government expenditure refers to "consolidated outlays of all levels of governments" (WHO, 2009, p. 1).

4.2.4 Exogenous Variable Political Development

Political development is used here as a synonym for democratization. Sen (1999a, 2007) identified democracy as an important vehicle to enhance individuals' capabilities. According to him, democracy represents political participation and public discussions and reasoning (Sen, 1999a; Srinivasan, 2007). Public discussions, which are promoted by democratically based governments, can play a major role in creating social forums that can lead to important social policy making (Sen, 2007). Therefore, for measurement purposes the definition of democracy or political development is conceptualized as a governing system that gives people the capacity to draw attention to their needs and demand appropriate public attention (Sen, 1999a; p. 150). This study combines several commonly used indexes of political

development, which is presented here by the following three indicators: (1) the Economists Intelligence Unit's Index of Democracy (Demindex), and two of the indicators of the Vanhanen Scale of democratization, (2) the percentage share of the smaller parties and independents of the votes cast in parliamentary elections or seats in the parliament (Compete) and (3) the percentage of the population that voted in the previous election (Partici) (Vanhanen, 2002, p. 53). The Demindex is based on "the electoral process; pluralism; civil liberties; the functioning of the government; political participation; and political culture" (Kekic, 2008, p. 2).

4.2.5 Exogenous Variable Economic Growth

Economic growth has long been identified with the promotion of reproductive health. The logic was that economic growth promotes industrialization and urbanization, which in turn leads to increased well-being and opportunities. This was presumed to encourage later marriages, creating incentives for fewer children and a lower fertility rate (Anand & Sen, 1994). However, from a human development perspective, while wealth and affluence can be important contributions to human well-being/functioning, insofar as the approach to economic growth neglects efforts to improve social development policy, the approach to pure opulence is defective and incomplete (Anand & Sen, 1994). In addition, according to Sen (2007) the extent of economic development's contribution to human well-being depends on how much it contributes to human development policies. According to Anand and Sen (1994), "economics" cannot be limited to one tradition. Their definition of economics includes "commodity production, opulence, and financial success" or, in other words, "wealth maximization" (p. 3). Economic growth, or wealth maximization, can be tested at different levels. Measures of economic growth include the per capita gross domestic product (GDP), the real growth of GDP per year, balance of trade, balance of payments, balance of the national budget, gross investments (GDP), foreign direct investments, taxes, inflation rate, and the import levy on goods (EuroStat European Commission, 2007, p. 1). Due to the unavailability of data, this study used only the per capita

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GDP parity (GDP) to indicate economic growth. It is important to note here, however, that per capita GDP is one of the single most common methods of aggregating economic growth.

<div align="center">4.3 Data Analysis Method</div>

This study used several multivariate data analysis methods to test the proposed empirical model of reproductive health of women in developing countries. Statistical software packages, SPSS version 16.0 and AMOS 16.0, were used to conduct relevant empirical analyses. Prior to conducting analyses, data were first screened for missing values. Analysis then ran univariate analyses to present descriptive measures such as mean, mode, median, and standard deviation. This study conducted diagnostic tests to detect violations of the assumptions of multivariate models, namely, homoscedasticity, linearity, muliticollinearity and lack of presence of significant outliers.

In cross-national data where the unit of analysis is nations with different economic, social, and cultural characteristics, the likelihood of the violation of homoscedasticity increases. To test for presence of heteroscedasticity, this study used the residual plot method (Mertler & Vannatta, 2002). To measure for normality, measures of skewness and kurtosis were obtained (Mertler & Vannatta, 2002). Multicollinearity exists when two or more independent variables are highly correlated (Vogt, 1999, p 180). To test for multicollinearity, bivariate correlations were run between independent variables of the composite measures. Outliers are cases with one "unusual or extreme values at one or both end of the sample distribution" (Mertler & Vannatta, 2002, pg 27). Cooks distance (D) was run to detect outliers (Norusis, 2003).

The analysis of the study took place in several steps. The first step involved the measurement of the latent constructs. The current model used four latent constructs; reproductive health, reproductive capabilities/freedom, social development, and democracy. The suitability of the chosen indicators was examined using several validity and reliability tests. Factor analysis method was used as a preliminary approach toward assessing the construct validity of the unobserved variables. Factor analysis is a commonly used measurement method

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to determine construct validity of underlying structures. It is a process that reduces the number of observed variables by determining which variables cluster together based on some common construct (Mertler & Vannatta, 2002). This analysis used principal component analysis with varimax rotation. The factorability of the input correlation matrix for analysis was determined using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test (Field, 2000).

Once construct validity was established, it was necessary to establish factorial validity of the latent constructs. CFA techniques are commonly used methods for assessing factorial validity of latent constructs/measurement scales (Brown, 2006). CFA was performed individually on latent variables. Different fit indices are reported to assess model fit. Hu and Bentler (1999) suggest the use of at least two model fit indicators to assess goodness of fit of the model. In this study four commonly used indices; low Chi-Square values, Goodness of Fit Index (GFI), Comparative Fit Index (CFA), and Adjusted Goodness of Fit Index (AGFI) (Joreskog & Sorbom, 1994), are used. The indices are chi-square based. The desired value range for GFI, CFA, and AGFI are from .90 to 1.00 (Byrne, 2001; Joreskog & Sorbom, 1994; Steiger, 1990).

Once factorial validity was established, the indicators of the latent constructs were then tested for reliability. This study used Cronbach's alpha to test for reliability. Cronbach's alpha is a very commonly used technique to test for reliability of measures (Morgan, Leech, Gloeckner, & Barrett, 2004).

Following measurement assessment, causal modeling techniques were used to determine if the causal effects of variables in the model were impacting in the manner of the researcher's underlying theoretical argument (Aron & Aron, 1997; Mertler & Vannatta, 2002). An initial attempt at testing causal model was made using path analysis technique. Path analysis is one of the two techniques of causal modeling, SEM being the other (Mertler & Vannatta, 2002). Thus, path analysis helps ascertain which and how many of the hypothesized causal paths are supported empirically. Prior to running path analysis, composite variables of the latent

constructs were created using the previously mentioned factor score scaling technique. One shortcoming of path analysis is that the composite factor scores from principal component analysis contain the measurement errors in variables. Therefore, path analysis cannot account for the measurement error of the variables (Byrne, 2001).

Following path analysis, this study then ran SEM on the proposed model. SEM is a regression method using a factorial analysis model. SEM has two components: the measurement model and the structural model. Therefore, this method allows assessment of factorial validity of latent constructs/scales, while testing the goodness of fit of the proposed model, all at the same time. Additionally, SEM, unlike simpler models of regression, allows the estimation of measurement error in variables (Byrne, 2001). Thus, SEM offered an excellent opportunity to evaluate the validity of the model as a whole.

One additional note on sample size is critical for the current study, requiring justification. This has to do with sample size and SEM. In general there is no definitive consensus on minimum number of sample size required to run SEM. Generally, Monte Carlo studies that obtain parameters from several hundreds of structural equations models with varying number of latent dimensions have been used to assess sample size requirements of structural equation models (Schumacher & Lomax, 2004). The estimates for these studies suggest that a sample size of nearly 100 is adequate for structural equation models with about four to five factors (Hachter, 1994; Loehlin, 1992). Since structural equation models are essentially regression models, several SEM modelers such as Bentler and Chou (1987) have attempted to assess the applicability of the conventional rule of 10 to 15 cases per variable. Their studies conclude that about 4 to 5 cases per parameter may be more than adequate. Their rule is applied to the initially proposed model. The initial proposed model contained 24 error variances, 20 factor loadings, and 5 regression parameters. There were thus at least 49 parameters to be estimated. If the Bentler and Chou (1987) rule was applied (that is, about 4 cases per parameter) a sample size of about 196 would be needed. However, Lohlin (1992),

who has conducted several hundreds of stimulated models, also recommends that a sample size of 100 is sufficient to conduct SEM with four to five factors. This analysis sample size of 142 falls between the usually predicted sample size of 100 to 208. Thus, the sample size was justified by both Monte Calo studies as well as Lohin's recommendations. Further, methodological questions are discussed in detail in chapter 6, under limitations of the study.

CHAPTER 5

ANALYSIS AND RESULTS

This chapter presents the empirical analysis and results of the proposed model of reproductive health of women in developing countries. The chapter is divided into four sections. The first section presents a general description of all the concepts and the variables used to measure the current model of reproductive health presented in this study. The second section discusses the data screening and preparation for analysis. The third section discusses the measurement of scales. The fourth and the final section presents the results of the analysis using both path analysis and the structural equation method (SEM).

5.1 Description of Concepts

The reproductive health of women in developing countries is in a sad state, as indicated by the present data. On average, women in developing countries tend to have about 3 or 4 children. For every 1,000 girls between the ages of 15 and 19, about 80 girls get pregnant. For every 10,000 live births, about 393 women die from pregnancy-related causes. For every 1,000 live births, about 53 infants die, and about 31% of the children under the age of 5 are stunted in growth for their age. The average HIV rate among women in developing countries is about 4.2% of the female population of their respective countries.

Concomitant with this poor state of reproductive health is the distressing states of reproductive freedoms and development levels. On average about 27% of the girls in the total population get married before the age of 18 in developing countries and abortion is only permitted on limited health grounds or permitted only for special cases (such as cases of rape or incest). Eighty-three percent of the countries reported that emergency contraception is available in pharmacies. However, the average contraceptive prevalence rate was less than 50%. On average only about 74% of pregnant women get prenatal care and about 63% of the

births are attended by skilled workers. About 85% of the children are immunized before the age of 1. Only one country, Chile, reported sexual assault rates; therefore average sexual assault rates for developing countries could not be reported.

Development indicators also reflect an overall need for further development. On average, about 23% of the adults over the age of 15 are illiterate in developing countries and about 22% of those populations don't have sustainable access to clean drinking water. Only 18% of the population in developing countries has full access to the use of a telephone. There are only about four community and traditional health workers for every 10,000 people. On average about 29% of the government expenditures on health is spent on social security in developing countries. About 54% of the health expenditure is spent on government outlays or public expenditure. Developing countries tend to have high inequality with a Gini-index score of 43%. The economic growth rate is low with an average GDP (PPP) in U.S. dollars of 4.90. The political development indicators show that developing countries have a very low rate of political participation, with a political participation vote rate of 35% of the total population, and with the largest competing party not receiving 37% of its candidates' votes. Additionally, the Economists Intelligence Unit's Index of Democracy scores are low, with an average score of 4.9, reflecting low democratic conditions.

Now that the reader has a sense of the concepts of the social conditions identified in this study, it is time to describe how the study was analyzed. The first step is an explanation of how the data were screened and prepared for analysis.

<u>5.2 Screening and Transformation of Variables</u>

Analysis of the data took place in several stages. The initial stage involved screening the variables for their distributional properties and implementing appropriate transformations necessary to correct for deviations from a normal distribution. Initial descriptive properties examined included: mean, median, mode, standard deviation, skewness, and kurtosis.

As the initial step of screening and preparation of data for analysis, the data set was modified to include only developing countries. The initial data set contained 180 countries, which included developed countries. Thus, for analysis convenience, a second data set was created to retain only 142 developing countries as identified by the World Bank (2009).

The next step involved screening the data for missing values, an important step. It is argued that while missing or incomplete data is almost inevitable in social science research, the data may be missing because of systematic errors or may be missing at random. It is likely that cross-national data collection may involve both systematic and randomly missing data. However, despite their causes for missingness it is imperative to address them (Byrne, 2001). As a preliminary step toward this end, frequency statistics were run on data to identify incomplete variables.

Of the 25 variables identified for the analysis, 22 variables had missing data in them. These included the following variables: Adultlit, Birthwo, Bmage18, Compete, Contra, Demindex, GDP, Gini, HIVW, Immun1, Matmort, Partici, Prenacar, Pubexp, SAR, Skillper, Socialsec, Sociopub, Stuntnew, Tele, TFR, and Water1.

 The third step in preparation of the data set for analysis involved deciding which incomplete variables to drop from the analysis and which to keep and treat. A decision was made to drop all variables that had more than 40% of its values missing in them. SAR (sexual assault) was only reported by 1 country out of the 142 developing countries identified. Therefore, a decision was made to drop the variable SAR from the analysis, but retain and treat all other incomplete variables.

Although there are several methods of treatment of missing data, the most common ad hoc approaches to handle missing data involve listwise deletion, pairwise deletion, and mean imputation methods. Both listwise and pairwise deletion methods involve deletion of data that have missing values in them (Byrne, 2001).

Most statistical procedures for handling missing data assume that the data are missing at random. Under this assumption, no one region is expected to have a high proportion of missing data. Given this hypothesis, the proportion of missing data for any of the selected variables in this study is expected to be same. This hypothesis of independence between region and missing data was tested by conducting a chi square test of independence between region and missing data. For each variable, all the 142 countries were placed in two categories, one with data and the other with missing data for each of the six regions. The chi squares were significant at the .05 level for nearly 50 percent of the variables and insignificant for the rest. In general, it may not be reasonable to adapt a procedure for treating missing data assuming that cases are missing at random. An imputation method that takes into account each of the separate regions is suggested by the chi square test. The mean imputation by region accomplishes this objective as it takes into consideration each of the regions separately.

Therefore, a decision was made to use the mean imputation method as it allows us to retain the missing values. The mean imputation method involves calculating the means of individual variables and replacing missing values with the relevant means (Byrne, 2001).

Additionally, to account for regional variations in missing values, means will be calculated separately for each variable by region. Six regions and their respective countries were identified based on World Bank regional categorization (World Bank, 2009b). For each variable, separate regional means were calculated and then regional means were substituted for each missing value based on the region it belonged to (See Table D.1 in appendix D for means after variables were treated with mean imputation). A once initial descriptive were run a decision was made to omit EC from the analysis due to extremely low variability.

The next step of the data preparation involved screening the univariate data for violations of the assumptions of regression, namely testing the data for normality of univariate data. Distributional properties of the variables were assessed using skewness and kurtosis statistics. Skewness measures the degree of normal distribution around the mean, while

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kurtosis measures the degree of peakness (Mertler & Vannatta, 2002). A perfect distribution has skewness and kurtois values of zero (Mertler & Vannatta, 2002; Morgan et al., 2004). Normally values between 1 to -1 are accepted within the acceptable range of skewness (Morgan et al., 2004). However, it is argued that in larger samples, values may have to deviate considerably for them to affect the analysis (Mertler & Vannatta, 2002). Therefore, in the current analysis, attention was given only to values that deviate considerably from 0.

The results of the skewness and kurtois statistics are presented in table D.1 of appendix D. As table D.1 indicates, the kurtois values for Sociopub (17.60) and HIVW (8.91) were considerably high. Therefore a decision was made to transform the variables to address the violation of normality. This led to the natural log transformation of these two variables. The new log transformed variables were called Lsociopub and LHIVW. Skewness and kurtois were obtained run on the two new variables. The kurtois values of the new variables are within the range suggested for normal distributions.

5.3 Measurement of scales

The next stage in statistical procedure involved construction of scales for measuring the concepts involved in the proposed model of reproductive health. As an initial step, factor analysis was used to create the scales. Factor analysis was conducted to identify if the theoretical structures identified were supported by the empirical data or if any other underlying structures exist for each of the constructs identified (Mertler & Vannatta, 2002). Additionally, as factor analysis is often used to reduce data by grouping them into common constructs, factor analysis also allowed creating new variables based on factor structures identified. Factor analysis was run for each construct separately using their theoretically identified variables. Composite scales for each construct were obtained using the factors obtained from factor analysis methods.

Kaiser-Meyer-Olkin (KMO) and Bartlett's test helps identify if the data are suitable to run for factor analysis. KMO tests check for partial correlation matrix in scores. Scores over .50

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indicate strong partial correlation and that data are suitable for running (Field, 2000). Bartlett's test is another test of correlation that tests the null hypothesis that variables in the data are uncorrelated. A significant score below .05 rejects the null hypothesis and indicates that there is a strong correlation among the variables (Field, 2000).

This analysis used the principal component analysis using both unrotated and rotated methods. Orthogonal rotation Varimax method is used in this study to rotate the data. Commonly, factor analysis uses four criteria to determine the appropriate number of variables to retain components: Eigenvalue, Percentage of Variance explained, Scree Plots, and Residuals. This analysis uses two of the four methods: (1) Eigenvalue: values over 1 are retained. (2) Variance: retains values that explain at least 70% of the variance (Mertler & Vannatta, 2002).

5.3.1 Reproductive Health

Variables Birthwo, HIVW, Infant, Matmort, TFR, and Stuntnew, which are theoretical indicators of reproductive health, were factor analyzed. The theoretical factor structure of reproductive health is supported by data. KMO test score was .83, and Batlett's test was .00, indicating that variables were correlated and suitable for running. The Principal component analysis produced a two-component solution. The initial component accounted for 62.39% of the variance and the second component accounted for 16.73% of the variance. Table D.2 of appendix D presents the loadings for each component. Component one consists of Birthwo, Infant, Matmort, TFR, and Stuntnew. All variables loaded positively on this factor as expected. The second component included the variable LHIVW, which loaded positively on the factor.

As the variable LHIVW loaded on a different dimension, the rest of the variables were factor analyzed excluding LHIVW. As expected, the principal component analysis produced one component solution. Only one component had eigenvalue scores exceeding 1. This component explained 74.77% of the variance. All variables loaded positively on the component. The loadings are reflected in table D.3 of appendix D. The solution could not be rotated as only one component was identified. This variable was named reproductive health factor (RHF).

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5.3.2 Capabilities/Freedom

Variables Abopol, Bmage18, Contra, Immu1, Prenacar, and Skillper, which are theoretical indicators of "freedom," were factor analyzed. The theoretical factor structure of capability/freedom is supported by data. The KMO test score was .81, and Batlett's test was .00, indicating that variables were correlated and suitable for running. As theoretically argued, the principal component analysis produced a one-component solution. Only one eigenvalue component had values over 1. This component, however, explained only 55.94% of the total variance. The component loadings are presented in table D.4 of appendix D. The solution could not be rotated as only one component was identified. Variables Contra, Immune1, Prenacar, Skillper loaded positively as expected. Variables abopol and bmage18 loaded negatively as expected.

5.3.3 Social Development

Variables Gini, Tele, Water1, Socialsec, Sociapub, Adultlit, Pubexp, which are theoretical indicators of "social development," were factor analyzed. The theoretical factor structure of "social development" is supported by data. KMO test score was .77, and Batlett's test was .00, indicating that data were correlated and suitable for running. The Principal component analysis produced a two-component solution. The initial component accounted for 43. 07% of the variance and the second component accounted for 17.29% of the variance. The total variance explained by the two components is 60.37%. Table D.5 of appendix D presents the loadings for each component. Component one consists of Pubexp, Tele, Socialsec, Water1 and Adultlit. All variables loaded positively on the factor as expected. The second component included the variables Gini and Sociopub, which loaded positively on the factor. As Gini and Sociopub loaded on a different dimension, data were rerun, this time excluding these two variables. As expected, the principal component analysis produced a one-component solution. Only one component had eigen value scores exceeding 1. However, this component explained only 58.57% of the variance. All variables loaded positively on the component. The loading are

reflected in Table D.6 of appendix D. The solution could not be rotated as only one component was identified. This variable was named social development factor (Socdevf).

5.3.4 Political Development

Variables Partici, Compete, and Demindex, which are theoretical indicators of "political development," were factor analyzed. The theoretical factor structure of "political development" is supported by data. KMO test score was .51 and Batlett's test was .00, indicating that data were correlated and suitable for running. As theoretically argued, the principal component analysis produced a one-component solution. Only one eigenvalue component had values over 1. This component, however, explained only 56.98% of the total variance. The component loading are presented in table D.7 of appendix D. The solution could not be rotated as only one component was identified. All variables loaded positively as expected. This construct was named political development factor (Poldevf).

Once constructs were tested through factor analysis, the constructs were then tested using confirmatory factor analysis (CFA). CFA is another method to test if the proposed observed variables load on the unobserved constructs as proposed, in other words, the factorial validity of the constructs. As mentioned in the previous chapter, one advantage of using CFA over factor analysis is that it allows for measurement error in variance. Testing the scales using CFA will provide additional support for the validity of the scales. All constructs proposed are first-order models. The goodness of fit of measurement models are tested using the following fit indexes: chi-square value, goodness of fit index (GFI), the comparative fit index (CFI), and adjusted goodness of fit index (AGFI).

5.3.5 Reproductive Health

Figure D.1 in appendix D presents the measurement model for reproductive health. Consistent with factor analysis, all variables except LHIVW loaded significantly on the measurement model at .001 significance level. LHIVW did not load significantly on the construct. Only two of the indexes were found to have a good model fit. The chi square scores

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were 40.97 (*df* = 9), GFI (.92), and CFI (.94), and AGFI (.81). Therefore, it was concluded that the model was not a good fit. The measurement model was then revised, taking out LHIVW (see D.2 of appendix D). The revised measurement found all factor loadings statistically significant and highly associated to theorized latent construct of reproductive health. All standardized regression weights were significant at .001 significance level. However, once again only two goodness of fit indexes were found significant: chi square score 39.23 (*df* = 5), GFI (.91), CFI (.93), and AGFI (.73). The model was then revised again correlating error terms e1 and e6. Once again all standardized regression weights were significant at .001 significance level. The model fit improved considerably: Chi square scores fell to 24.77 (*df* = 4), GFI (.94), CFI (.96), and AGFI (.78). As three out of the four indicators reflected a good fit, no further modifications were undertaken.

5.3.6 Reproductive Capability/Freedom

Figure D.3 in appendix D presents the measurement model for reproductive capability/freedom. Consistent with factor analysis, all variables loaded significantly and were highly associated to theorized latent construct of reproductive capability/freedom. All standardized regression weights were significant at .001 significance level (see table 7). Chi square scores were 23.97 (*df* = 9), GFI (.95), and CFI (.96), and AGFI (.87). As three out of the four indicators reflected good fit, no further modifications were conducted.

5.3.7 Social Development

Figure D.4 in appendix D presents the measurement model for social development. Consistent with factor analysis variables Adultlit, Pubexp, Socialsec, Tele, Water1 loaded significantly with the latent dimension social development at .001 significance level. However, inconsistent with factor analysis, Gini also loaded significantly with the latent dimension, however, at .05 significance level. In agreement with theoretical argument, Gini loaded negatively with the underlying dimension. Once again Sociopub was not found to significantly load on the measurement model. The initial measurement fit index scores were: chi square

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34.27 (*df* = 14), GFI (.93), CFI (.92), and AGFI (.87). The measurement model was then revised, taking out Sociopub (see figure D.5 in appendix D). The revised measurement found all factor loadings statistically significant. Once again Gini was significant at .05 significance level. Except Gini, all other variables were highly associated to theorized latent construct of social development. Gini association was weak with a standardized regression weight of (-.206). However, three out of the four goodness of fit indexes showed good model fit, as indicated by chi square values of 25.38 (*df* = 9), GFI (.94), CFI (.94), and AGFI (.87). Nevertheless as factor analysis found Gini to load well to another dimension, a decision was made to take Gini out and rerun the model once again. As hypothesized, all variables loaded well on the construct. The model fit increased considerably, as reflected by chi square values of 10.85 (*df* = 5), GFI (.97), CFI (.98), and AGFI (.91). As all model indexes found good model fit, a decision was made to retain the current revised measurement model.

5.3.8 Political Development

Figure D.6 in appendix D presents the measurement model for political development. Consistent with factor analysis, all variables loaded significantly. However, Compete loaded at .01 significance level. Demindex was highly associated to theorized latent construct of political development (2.55). Standardized regression weights were weak for Compete (.22) and Partici (.08). However, the overall model was a good fit as indicated by chi square 7.52 (*df* = 2), GFI (.99), CFI (.97), and AGFI (.92).

Once measures of constructs were tested for factorial validity, the measures were then tested for their internal constituency reliability using Cronbach's alpha. Cronbach's alpha greater than .07 is considered as having good support for internal consistency reliability (Morgan et al., 2004). As the measures were already tested for validity and scales were already modified to find stronger factorial validity, reliability tests were run on the modified scales for reproductive health and social development. Cronbach's alpha scores for reproductive freedom (.83) and social development (.81) were above .07, indicating good internal scale reliability. However,

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Cronbach's alpha scores for reproductive health (.34) and political development (.29) indicated poor reliability of scales. A decision was made to retain these two measures; however, it is acknowledged that this study's findings may have been affected by the lack of reliability of the two measures.

5.4 Path Analysis

Once the data were tested for validity and reliability, the next stage of the analysis involved the actual test of the proposed model of reproductive health. As mentioned in previous chapters, this study used both path analysis and structural equation method to test the hypotheses paths and overall model fit. The model was first tested using path analysis method.

Path analysis procedures are well suited for empirically testing several of the proposed theoretical relationships among various concepts in the proposed reproductive health model. The proposed model and the hypothesized research paths were evaluated using structural equation methods for path analysis. Path analysis models are regression models based on the assumption that residuals are homoscedastic and normally distributed. It is also assumed that variables in the model lack multicollinerity and that there are no significant outliers.

In cross-national studies, the likelihood of the violation of this assumption of homoscedasticity is high (Pillai & Gupta, 2006). It is therefore necessary to test for the violation of the assumption of homoscedasticity. Homoscedasticity assumption was tested running residual plots. Homoscedasticity refers to the "assumption that the variability in scores for one continuous variable is roughly the same at all values at all values of another continuous variable" (Mertler & Vannatta, 2002, p. 34). To test for violations of assumption of homoscedasticity, standardized residual plots were run against the standardized predicted variable. The bivariate plots did not show any patterns, leading to the conclusion that the variables in the model did not suffer from violations of the assumptions of homoscedasticity. No further tests were conducted.

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Multicollinearity exists when the association between two or more of the independent variables is high. This renders it difficult to access the independent influence of each variable's effect on the dependent variable (Vogt, 1999). Presence of multicollinearity in this study is evaluated by examining the magnitude of intercorrelations among all the factors in the path models. It is commonly understood that interrelation scores above .80 among independent variables are considered to pose concern. None of the bivariate correlations among the independent variables were above .08 suggesting that the assumption of multicollinearity is not violated.

In addition, presence of significantly influencing outliers may introduce bias in the estimates of the path coefficients obtained from path analysis. The Cook's distance (D) is one of the most commonly used measures of test of outliers. D measures the influence of individual cases by measuring the amount of change in the regression coefficients when a particular case is excluded from analysis. D values larger than 1 are considered possible outliers (Norusis, 2003). This study used the measure D to detect the presence of outliers. No values greater than 1 were identified. Therefore, it is concluded this study does not suffer from significantly influencing outliers.

Once the variables were tested for major assumptions of regression, composite measures were created out of each scale using the factor analysis method. Figure D.7 in appendix D presents the path model for reproductive health of women for developing countries. All hypotheses of the model were empirically supported. The proposed model suggested that economic growth (beta = 0.53, p < .001), and political development (beta =.38, p < .001) are essential for enhancing social development in developing countries. Furthermore, social development was found to have a direct effect on reproductive capability/freedom (beta = .84, p?<.001) and reproductive health (beta =.-.41, p < .001), indicating that, as social development levels improve, reproductive capability/freedom increases and reproductive ill health levels decrease. Reproductive capability/freedom was found to have a direct effect on reproductive

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health (beta = -.53, *p* < .001), indicating that as levels of reproductive capability/freedom increase, reproductive ill health levels decrease. The path model provided an excellent fit for the observed variance-covariance matrix as indicated by very low chi square values 1.27 (*df* = 4), and high scores on GFI (1.00), CFI (1.00), and AGFI (.99). Thus, all hypothesized paths were empirically validated and the overall theoretical model was empirically validated by path analysis. Therefore, path analysis supported all hypothesized paths as well as the overall model.

<u>5.5 Structural Equation Modeling (SEM)</u>

SEM takes a confirmatory approach to theory testing. One advantage of including SEM to the present study in addition to path analysis is that path analysis cannot "assess or correct for measurement error," whereas SEM does (Byrne, 2001, p. 3). Thus, once the proposed model was evaluated using structural equation methods for path analysis, the model was then tested using SEM. Figure D.8 in appendix D presents the structural model for reproductive health of women for developing countries. Unlike with the path analysis model, not all hypotheses of the model were empirically supported. SEM empirical findings once again highlighted the importance of economic growth (beta = .63, p < .001) and political development (beta = .35) on social development. Social development was found to have a strong effect on reproductive capability/freedom (beta = 95, *p* < .001) and reproductive capability/freedom was found to have significant effect on reproductive health (beta = -.68, *p* < .05). However, social development was not found to have a significant direct effect on reproductive health (beta = -30, *p* > .05). The goodness fit of the overall model was inadequate; all four fit statistics did not find support for the overall model as indicated by high chi square value 587.33 (*df* = 168), GFI (.72), CFI (.80), and AGFI (.65). Subsequent model modification did not yield any substantial changes in the overall model fit or in the path structures. In conclusion, SEM did not support all hypothesized paths; the study did not find social development to have a direct effect on reproductive health. Furthermore, overall model fit was not supported.

CHAPTER 6

DISCUSSION AND IMPLICATIONS

This chapter is divided into three major sections: a discussion of the general summary of findings, leading to the limitations of the study, followed by discussion of the implications for social work and reproductive health and research.

Reproductive health of women affects human lives from conception to old age. The WHO and the U.N. define it as a state of "complete well-being" that involves "mental, physical, and social aspects of life and not merely the absence of illness…" (U.N., 1994, Chapter VIIa). Improvements in reproductive health enable women to experience successful childbearing, live freer of disease and risks related to reproductive health, and survive beyond their reproductive years (Wang & Pillai, 2001b). However historically, in many parts of the world, especially in developing countries there was and still remains a blatant disregard and neglect of women's reproductive health (Merali, 2000; Middleberg, 2003).

In the past researchers have used eclectic theoretical models of reproductive health, without strong theoretical backing, combining different aspects of development or value-based systems to form empirical models of reproductive health (Clark, 2006; Pillai & Gupta, 2006; Pillai & Wang, 2001; Swatzyna, 2004; Wang, 2004, 2007). Sen's (1992, 1993a, 1993b, 1999, 1999b, 2007) theory of human development advances these research models in several aspects. First, Sen provides strong explanations of the sequence of development paths and provides in-depth causal explanation of each path structure in light of the total model of human development. Second, his theory advances and broadens the theoretical and empirical models of reproductive health by adding a choice or capability/freedom component to past developmental and value-based models of reproductive health of women in developing countries. Third, it is a theoretical and empirical model that is more congruent with the values of

developing countries, emphasizing human development; a majority of developing countries emphasize community and social empowerment over individual rights. Thus, it is a model that advances past human rights–based models of reproductive health of women in developing countries to a social justice–based model of reproductive health of these women.

6.1 Summary of Results

To recap Sen' s theory of human development as it was related to reproductive health of women in developing countries: Sen argued that the purpose of development is human freedom or capability expansion, which in term will enhance human well-being or functioning. This current study observed freedom as reproductive capability or freedom and reproductive health as well-being or functioning. Sen's theory also proposed that in terms of weighting importance of different components of development, social development should be given priority over other development components such as economic growth and political development. More specifically, according to Sen's propositions, the development effect of economic growth and political development on freedom (reproductive freedom) and well-being (reproductive health) is indirect, their effect mediated by social development. Additionally, Sen's theory holds that social development has both a direct and indirect effect on well-being (reproductive health), its effect mediated by capability/freedom (reproductive capability/freedom).

This study provides some support for Amartya Sen's theory of human development. The study found mixed results in terms of the two statistical methodologies used. The path analysis method found strong support for all hypothesized model paths and the overall model fit. However, the structural equation method, a more advanced research method correcting for measurement error of the model, only found partial support of the empirical model. The SEM results validated all hypothesized paths except the direct effect of social development on reproductive health, which was not empirically supported.

Therefore, this study found support through both path analysis and SEM that economic growth and political development have direct effect on social development, implying that as overall GDP level increases, aspects of social development as indicated by adult literacy, amount of public expenditure and social security expenditure spent from total health expenditure, total communication capacity in terms of telephone use, and access to basic amenities such as clean water, improves. Additionally, as countries become more politically developed, or, as reflected in this study, when the people participate in elections and strong opposition parties improve and become more democratized, aspects of social development (as specified by this study) advances.

This study also found strong support for a social development effect on reproductive freedom, and a reproductive freedom effect on reproductive health. Thus, as was measured by this study, when social development improves, aspects of reproductive capability/freedom increases; that is, it leads to more choice-based abortion policies, higher prevalence of contraceptive availability, fewer girls being forced into marriage at younger ages, better capacity to have prenatal care during the course of their pregnancy, more frequently giving birth under the care of skilled workers, and increased capability to immunize their children.

In turn, these reproductive freedoms improve aspects of reproductive health; namely, it decreases total fertility rates, reduces the number of babies born to females between 15 and 19, lowers maternal mortality and infant mortality levels, and improves the conditions of children's growth under the age of 5.

Contrary to path analysis findings, SEM did not find social development to have a direct effect on reproductive health. Therefore, according to SEM analysis, advances in adult literacy, amount of public expenditure and social security expenditure spent from total health expenditure, total communication capacity in terms of telephone use, and access to basic amenities such as clean water, did not directly decrease reproductive health of total fertility rates, the number of babies born to females between 15 and 19, maternal mortality and infant

mortality levels, and rates of children stunted in growth under age 5. This anomaly in findings may be due to number of different factors. First, SEM is a more advanced statistical procedure than path analysis that takes into account measurement error. The assumption that no measurement error is present in variables is not adequately supported. It is also likely that given the low N for SEM, path structure suffered from type one error, that is, it rejected a true null hypothesis due to low N.

SEM does suggest an indirect effect on reproductive health, with reproductive freedom mediating the social development effect on reproductive health. It indicates that in the current model, advances in adult literacy, increases in public expenditure and social security expenditure spent from total health expenditure, improvements to total communication capacity in terms of telephone use, and access to basic amenities such as clean water, reduces total fertility rates, the number of babies born to females between 15 and 19, maternal mortality and infant mortality levels, and rates of children stunted in growth under age 5, by influencing abortion policies, contraceptive prevalence levels, female age at marriage, capacity to have services needed such as access to prenatal care during the course of the pregnancy, presence of skilled workers at delivery, and the capability to immunize their children. These findings may be indicative of why Sen argues that the most important evaluative criterion of development is freedom and capability (Sen, 1999).

While path analysis found overall good fit of the model, SEM results did not find good model fit of the overall empirical model of the reproductive health of women in developing countries. This may have resulted for several reasons. The model used secondary data; therefore the likelihood of measurement error is heightened. Although the validity of scales was measured using both factor analysis and CFA and reliability using Cronbach's alpha, not all measures were found to have strong validity and reliability, especially the measure reproductive health suffered from validity and reliability issues, despite using reproductive measures that are widely accepted. Additionally, the variables chosen for individual scales were forced into factors,

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and it is likely there are other measures that would better reflect the constructs and those that yield better internal consistency. Additionally, total *N* of the sample was 142; it is likely that low *N* affected the model paths and the overall model fit.

6.2 Limitations of the Study

As with any research study, this dissertation suffers from several limitations. Some of them are due to theoretical problems, while other limitations are methodological. With reference to theoretical limitations, Sen's theory is a very humanistic perspective, with a lot of potential for fields of social sciences. Nevertheless, the way the theory stands today, it poses several challenges for empirical validation. One of the biggest criticisms of Sen's theory relevant to this study is that, as many have argued, it is an incomplete theory (Alexander, 2008, Alkire, 2002). In Sen's attempt to maintain the theory's holistic and multidimensional objective, he has refused to provide a specific set of capability sets, or provided specific guidelines to evaluate and prioritize capabilities. He admits that capabilities should be chosen from a value base and common agreement but refrains from providing more specific guidelines fearing that the theory will fall into the traps of overspecification and being too prescriptive (Alkire, 2002).

While Sen argues that there is a positive element to an incomplete theory as it gives opportunity to theory integration and expansion based on common agreements, this however, opens it to a major threat from researchers (Alkire, 2002). Given the broadness of the theory's concepts and dimensions, it leaves a lot of room for researchers to interpret concepts in the theory. Empirical decisions of the researchers are, however, affected by their own values and personal backgrounds (Dejong, 2006; Robeyns, 2002). It is likely from personal preferences that researchers may choose one set of variables over others to reflect their constructs. This is a threat to theoretical objectivity, validity, and generalizability of constructs. By the same token an underspecified theory is also not very user friendly as would be a parsimonious theory and therefore may lead to misinterpretation of the theory and its true applicability. As Nussbaum (2003) stated, "…they give us a general sense of what societies ought to be striving to achieve,

but because of Sen's reluctance to make commitment to substance…, even the guidance remains but an outline" (p. 35).

In addition to underspecification, Sen is also criticized for taking existing concepts such as freedom and capability and modifying or changing their meanings, and also interchangeably using different concepts. For example, the term "capability" refers to attainable options and not skills. It is argued that he has downgraded the concept "capability" in more recent times to mean or to be equal to "freedom" to target wider audiences (Gasper & Staveren, 2005). In so doing Sen has combined ontologically different concepts, with capability sliding more toward individual choices and freedom leaning more to larger structural/societal choices. This also provides a difficulty when operationalizing variables.

Theoretical limitations in Sen's theory presented above posed threats to validity of the operationalization of variables in the current study. The items chosen were based on the researcher's interpretation of Sen's theory. To minimize selection bias based on misinterpretation of theoretical constructs, whenever possible variables were chosen from an existing list of items. Thus for reproductive health, economic growth, social development, and political development, past operationalization of these constructs were placed within Sen's definitions of concepts. However, as reproductive capability/freedom was not measured before, item selection for reproductive capability/freedom depended on interpretation and value judgments of the researcher. This may have biased the operationalization of reproductive capability/freedom construct. However, to minimize measurement bias, all identified scales of the model were validated using both factor analysis and confirmatory factor analysis. Factors analysis also led to the deselection of several variables initially identified. Both Gini index and number of social and public health workers fell into a different dimension from the main social development dimension. It is likely they may represent different aspects of social development or a different construct. However, a decision was made by this researcher to take these two items out as the social inequality may be more indicative of social freedom than social

development, or it may stand as a construct with values of it own. The decision to take out these items may have hurt the overall validity of the study. It may be a reflection of operationalization errors.

In addition to theory-related operationalization issues, because of this study's reliance on secondary data, this analysis also falls victim to many of the methodological shortcomings of the previous studies conducted on reproductive health. Like previous studies, data were not available for all countries and for all variables. To address this issue, this analysis limits the number of factors in a scale. Additionally, data were not available to measure a number of key indicators. This prevents the present analysis from including many areas of measures (e.g., economic growth measured by only one variable, no data on domestic violence). The variable sexual assault, while initially identified, was taken out due to lack of sufficient data. Furthermore, data for the indicators came from several different years. This also imposes a severe limitation on the validity of measures and results.

In the conclusion to the theoretical and empirical limitations of this study, it may be appropriate to conclude that this study faced threats from ambiguity of clarity of theoretical constructs on a conceptual level, which may have lead to judgment bias from the researcher in selection of indicators along with the fact that there were limitations in availability of data. It is very likely that all these factors may have compromised the presentation of multidimensionality of constructs and the applicability of the measurement scales developed in this study across cultures. All of which very likely may have influenced the results of the study.

However, this is a first attempt at empirically testing the influence of Sen's perspectives of capability/freedom and social development on reproductive health. While this study found only partial support for Sen's theory, it has utility for both the field of international social work and for the area of reproductive health. A theory may be useful at the practice level, even when it is not fully developed empirically, or when it has not been tested fully, for it can lead to debates which in turn may lead to improvement or modification of the theory.

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6.3 Implications for Social Work and Reproductive Health

In the United States, social work practice has a well-established set of theories that guide practice. However, at the level of international social work, globally accepted theories of social work are limited. It is often argued that the Western model of micro practice–based, individual rights–focused approach to social work is incompatible with many developing countries' values, which promote interdependence over individualism (Midgley, 1981; Payne, 1997). However, both the National Association of Social Workers, as well as the International Federation of Social Workers, explicitly specifies that their primary mission is the enhancement of human well-being. The National Association of Social Workers' mission's code of ethics preamble begins, "The primary mission of the social work profession is to enhance human well-being and help meet basic human needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty" (National Association of Social Workers, 1996, p.1). The International Federation of Social Workers mission statement reads:

> Professional social workers are dedicated to service for the welfare and self-fulfillment of human beings; to the development and disciplined use of scientific knowledge regarding human behavior and society; to the development of resources to meet individual, group, national and international needs and aspirations; to the enhancement and improvement of the quality of life of people; and to the achievement of social justice. (International Federation of Social Workers, 2005, p. 1)

Therefore, it is clear that a theory that is applicable at the international level must not only place human well-being as its priority mission, it must target individuals and societies at the same time and incorporate values of social justice. One theory that is compatible with these social work missions and goals is the human development theory as developed by Amartya Sen. International social work focuses on "enabling people to develop their full potential" (Supplement of International Social Work, n.d.), and the human development approach focuses

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on improving human choices to function as they wish. Thus, concepts such as human relationships, opportunities, empowerment, and social justice are crucial to social work. These are all concepts that encompass Sen's conceptualization of freedom and capability (Sen, 1999a; 1999b).

In addition to compatibility with social work's values and mission, according to Payne (1997) a good social work theory must have three elements: (1) elements of models, which prescribe specific principals and guidelines to activity, to give consistency in practice; (2) elements of perspectives, which provide approaches to view complex human behavior, in other words provides world views to phenomena; (3) and an explanatory element, which provides causal explanation as to why something happens and in what order. A theory can be useful even when its practical applicability is limited.

Although Sen is unclear in specifying the empirical boundaries of constructs presented in the theory, his perspectives and explanations on human development from both structural aspects to more individualistic human freedom and capability level are very clear and he makes a compelling argument as to how different elements are causally related. In fact, human development theory takes us where we have not gone before, extending and integrating several social work theories and potentially acting as a meta-theory or as a paradigm for international social work practice and policy.

For example, systems and ecological perspectives place individuals within the context of their environments. It discusses how different systems are interconnected and how systemic or environmental factors affect individuals (Payne, 1997; Rogers, 2006). Although they provide a good starting point for social workers to look at issues related to clients from a broader perspective, these two perspectives do not give the order of importance of different systems nor their specific causal relationships and they do not identify how at the individual level these structures can be targeted to enhance human capacity to improve human well-being. Sen's perspective, like systems and ecological perspectives, places the individual within the context of

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social and environmental systems, yet human development goes beyond these perspectives and identifies a specific order of importance of structures and their causal explanations of how these larger structures affect individuals. Furthermore, human development theory explains how these systems affect human well-being: through capability/freedom enhancement.

Another guiding perspective that has become very popular in social work is the strength perspective. Strength perspective postulates that all human beings regardless of their position or behavior have skills and capabilities for growth and to overcome adversities. From a strength perspective, individual skills and external resources can be used to improve human conditions (Rogers, 2006; Saleeby, 1992). Once again what is lacking in the strength perspective is connection between larger structures and how these macro structures can be tapped to improve human capabilities and freedoms. Sen's human development theory is a strength and empowerment–based approach. It fully incorporates values of strength perspective, but goes beyond former perspective and links macro structures to capability-enhancing mechanisms at both micro and macro levels.

Midgley's social development theory is the most widely recognized theory of social work at the international level. It is an advanced theory of social development. His theory proposes that economic and social development efforts must be harmonized to bring about effective development (Midgley, 1995). On the aspect of social development on human well-being, Midgley's theory varies from Sen's perspective only to the extent it places importance on economic growth. Midgely's theory is more a theory of economic development, where he argues that to prevent distorted development, economic development must harmonize with social development efforts (Midgley, 1995). Sen views development as more multifaceted and multisystemic, with different development components affecting human well-being at different causal significance levels, with the social aspect of development taking a priority role (Sen, 1999).

One major advantage of Sen's theory over Midgley's is that Midgley only proposes a direct relationship between social development and human well-being (Midgley, 1995). Whereas Sen goes further, arguing that while social development can directly affect human well-being, the primary evaluative criteria of social development is human capability/freedom, or in other words, enhancement of human choice and options (Sen, 1999a). Thus not only does he propose both direct and indirect causal explanations, he introduces a new concept of human empowerment: capability/freedom. Thus, it is a more advanced theory of development. It is also important to mention here that the SEM analysis of this study found only an indirect effect of social development on reproductive health, once the capability/freedom factor was introduced to the model.

In addition to these theories, Sen's perspectives have elements of both feminist theory and conflict theories. Sen's theory acknowledges and allows for combinations of different extenuating factors such as gender, class, and race to enter into the model (Alexander, 2008; Sen, 1992). Once again, however, Sen's theory goes beyond mere concentration of these trajectories to present a more comprehensive theory of human development. Thus the human development theory is not only compatible with social work values and mission, but also integrates and expands several core social work theories and perspectives, thus acting as a meta-theory of social work.

Another element of a good social work theory is specific prescriptions or models for practice. Sen provides a strong worldview to approach human well-being and development from a social justice perspective. While the theory does not provide a specific set of guidelines to practice, Sen explains how his particular approach can benefit human well-being. Due to a lack of specification of constructs it is difficult, for example, to identify what capabilities are more important to target when working with clients. However, it is clear that development efforts that increase people's capacity to choose help improve human well-being. Our results suggest that social workers should engage in lobbing for democratization of the governments, obtaining

money for public services, improve education, and improving people's sanitary conditions and communication systems to empower them to have more choices which in turn will lead to better human well-being and functioning.

This brings us to the topic of the application of human development theory to the area of reproductive health of women in developing countries. Despite the social work field's prominent role in health issues, especially with Western preoccupation of mental health, reproductive health has never been one of the mainstream social work areas. This is more true in the developing countries. Traditionally, reproductive health issues in the developing countries have been addressed either by the field health sector, by local or international nongovernmental agencies, or by local government policies (mostly family planning).

From a developmental angle, the concept of protection and promotion of reproductive health is of recent origin, but it has gained momentum rapidly over the years (Merali, 2000). Three of the eight development goals identified by the Millennium Development Goals assembly are directly related to reproductive health; thus, the importance of reproductive health of women in developing countries is becoming more prominent. Nevertheless, the field of international social work still has not completely become aware of this new overview of reproductive health. Reproductive health of women is still not a high priority agenda of international social work in developing countries.

Despite this lack of priority focus, as mentioned earlier the central thesis of international social work is human well-being. The mission of social work states, "Enable all people to develop their full potential, enrich their lives, and prevent dysfunction." (Supplement of International Social Work, n.d., p. 5). With this focus as its mission, social work can significantly contribute to the reproductive health of women in developing countries. They can advocate for better health, raise awareness, and influence policy, and act as catalysts to connect all bodies involved to take a more unified and comprehensive approach to reproductive health. Additionally, with access to different systems and individuals at different levels, social workers

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are in the best position to promote the reproductive health of women in developing countries. Yet, this issue has not emerged as a priority field for intervention in international social work efforts in these countries.

One perspective that is compatible with social work's mission and goals that may provide a framework to align reproductive health of women in the developing countries to mainstream international social work is the human development perspective developed by Amartya Sen.

One way human development theory can help place the reproductive health of women in developing countries in the mainstream agenda is by simply helping to clarify terminology. Sen's definition of well-being/functioning is worth emphasis. Sen defines well-being as the actual achievement of various things a person values doing or being (Sen, 1999b).

Considering this definition, it is clear that the reproductive health of women is an aspect of overall human well-being. Good reproductive health of women definitely can be argued as a condition that a person values and strives to achieve. Additionally, because the reproductive health of women itself is very wide in its scope, and because it encompasses many areas of human life, we can conclude that the reproductive health of women is a very important component of human well-being. Consequently, it is central to the field of international social work. As identified by its mission, enhancing human well-being is the main purpose of international social work (Supplement of International Social Work, n.d.). Therefore, it is possible to conclude that a human development approach provides a theoretical perspective to international social work that places reproductive health in its mainstream agenda, aligning it directly with its mission statement.

The next question then is; how will this framework guide the field of international social work to approach reproductive health in developing countries? This study argues that a human development approach to reproductive health would guide international social work in developing countries to take a holistic approach. Once again, if the focus of human

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development becomes the enhancement of human capabilities and well-being, then it becomes clear that solely concentrating on one aspect of well-being or capability will not bring about desired ends. So, if the focus is the reproductive health of women, a human development approach would argue that the reproductive health of women cannot be improved if it is viewed in isolation from other human functionings. For example, if we are dealing with infant fatalities, we cannot ignore the socioeconomic conditions the people we target live in, or for that matter their mental health well-being. Thus, human development would require that international social work restrain from taking narrow, compartmentalized approaches to the reproductive health of women in developing countries. It is imperative according this perspective that efforts to improve reproductive health cannot be one-dimensional approaches, targeting only one social stratum.

Consequently, the efforts to improve well-being should be holistic with one emphasis: human freedom, as the means and end. Therefore, efforts that are directly geared towards this end will become more effective. For this reason, social development approaches may have more value with its emphasis on the social aspect, than an approach like economic development, if it is not geared toward improvement of human well-being. Additionally, as mentioned in chapter 2, while the capability/freedom approach is individualistic in terms of its focus on individual enhancement, to improve capabilities this approach must also address human interactions, their culture, and more (GPRG, 2005). Therefore, it is imperative that development efforts focus on humans and their interactions. This mean incorporating both micro and macro approaches. As a result, a human development approach to reproductive health can take the international social work away from what Elliott and Mayadas (1996) call a "deadly dichotomy" of micro and macro fields of practice (p. 61).

Yet another proposition with implications for international social work is that a human development approach places the human problems external to individuals. Social arrangements and people's place in them are seen as the locus of human problems. Therefore, inequality,

poverty, deprivation, and other such social evils are viewed to be caused by the arrangement of social structures (and not due to individual malfunctions) (Sen, 1999a: 1999b). How individuals become affected by these problems depends on their respective place in these arrangements. It is not sufficient to just replace a person's position in the structure, but it is also important to target the social arrangement itself. This is compatible with the ecological and systems theory approaches to social work of addressing human problems through their various points of interception.

This itself has several implications on how international social work can approach the reproductive health of women in developing countries. It means social workers can act like agents of change, helping restructure these social arrangements to enhance the reproductive health of individuals and communities. Additionally, as agents of change, they can also help change clients' social positions in the systems directly. Furthermore, they can help integrate different segments that are involved in reproductive health. They can also help them understand the interconnections involved and emphasize the importance of interdependence to work for the common good to overcome reproductive ill health.

To speak more specifically from the current study, social work practice can get involved in improving reproductive health of women more directly by lobbing for democratization of the governments, and advocate to improve overall economic growth to obtaining money for public services, and fight to improve education, people's sanitary conditions and communication systems to reproductively empower women to give them more choices and freedom in contraceptive usage, prenatal care, getting skilled workers to attend their deliveries, getting their children immunized, and the freedom to marry as an adult.

In conclusion of practice implications, a human development perspective is compatible with international social work values, mission, and goals. It can be used as a helpful theoretical foundation to clarify social work's mission concepts (e.g., well-being) to bring into the forefront areas of social work study that have traditionally been on the back burner (e.g., reproductive

health). With clear, helpful implications on how international social work can address the reproductive health of women in developing countries, it is a perspective well worth exploring.

On the subject of policy, once again, while the research findings are inconclusive of its support of the theory, the policy implications of this model, even beyond its applicability to reproductive health of women in developing countries, are undeniable. This study's biggest policy implication once again depends on its human development model. Where the field of social work is concerned, it can lead, especially at the international social work level, to implement developmental policies that lead to capability enhancement to improve human wellbeing, especially where reproductive well-being of women are concerned.

On a broader level, where reproductive health and international policy is concerned, Sen's theory takes us back to aspects of the U.N. (1994) definition of reproductive health that was hitherto overlooked by varied interest groups' overemphasis on human rights: freedom and capability. It is widely argued by southern scholars that human rights–based policy approaches to women's reproductive well-being in developing countries may not be the most practical method, given developing countries' group-based cultural values. The concept of capability is more congruent with developing countries' values systems It can go past individualism to include cultural and relational customs of countries. Thus, social policies that target women's reproductive well-being through their capability enhancement can go past a mere rights focus to incorporating cultural values to improve women's reproductive well-being. Without overlooking individual rights violations, a capability-based development policy model can incorporate cultural and gender relativism of countries. Thus, this model's policy implications would lead us to adopt empowerment- and justice-based policy models.

Finally, on implications for social work research, while there is a plethora of studies on various aspects of reproductive health, such as HIV/AIDS and maternal mortality, there is a dearth of empirical studies approaching the reproductive health of women in developing countries from structural-developmental and human rights perspectives. No studies have

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attempted to evaluate the effect of different development components separating economic growth from social development. Additionally, all studies approached the reproductive health of women in developing countries from a reproductive rights or gender framework with developmental variables as the backdrop. Prior to this study, no empirical studies have been conducted testing the freedom- or capability-based approaches to reproductive health of women. Thus, the efficacy of Sen's human development model of reproductive health has never been tested. Research like the current study provides helpful insight while at the same time contributing to the empirical literature on the reproductive health field.

The true feasibility of a theory can be measured only after multiple tests and validations of the theory (Payne, 1997). While the more advanced test of the theory found only partial support for its application for the reproductive health of women in developing countries, this study suffered from several shortcomings that may have affected the outcomes. The attempt to test the theory found several pitfalls in the theory itself. Before the theory can be replicated, the aforementioned shortcomings must be addressed, leading to better operationalization of the theory. According to Sen, identifying "evaluative space" or the "identification of objects of the values specifies" (Sen, 1992, p. 43) through "reasoned agreement" is the fundamental basis for completing his theory (Alkire, 2002, p 184). This study is a start, and clearly more research is needed to test this model. This study serves as a stepping stone for future researchers interested in addressing reproductive health using Sen's theory of human development.

On one last note, Sen's theory of human development, while an incomplete theory, nevertheless as mentioned before has strong implications for social work beyond the field of reproductive health, for it can act as a meta theory of social work. However, no prior studies have tested this theory by applying it to different fields of social work. But attempts to study Sen's perspectives are rapidly gaining momentum in the mainstream developmental fields (Clark, 2006), thus giving hope to validity and applicability of the theory in general.

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APPENDIX A

SUMMARY OF EMPIRICAL LITERATURE

Table A.1 Summary of Empirical Literature

The Year& Authors	Title	Unit of Analysis	Structural constructs tested	Aspects of Constructs Tested		Sources of data and Year	Design Used	Results	Strengths and Limitations
				Dependent Variable (Reproductive Health)	Independent Variables				
2007 GZ. Wang	Testing the impact of gender equality on reproductive health: An analysis o developing countries	136 "developing countries" as identified by WHO	Economic development, political development and gender equality	1.Contraceptive Prevalence 2. percentage Antenatal Care coverage 3. Percentage Skilled attendant at delivery 4. Percentage immunized against measles (I year old children) 5. Children underweight for age(% under age 5) 6. Infant mortality rate (per 1000 live births) 7. Births per, 1000 women aged 15-19. Maternal Mortality (per 100,000 live births) Percentage of adults living with HIV/AIDS	Economic Development= 1.Percentage urban 2.Percentage of population with access to safe water 3. Real GNP per Capita (PPP$) Political Development= 1. Political terror scale 2. Democracy types Gender Equality 1.Percentage female adult literacy (15 years or older) 2.Combined primary, secondary and tertiary gross enrollment rate for females Estimated female earned income(PPP $)	1.Freedom House. A survey of a global political change in the 20th century. (2000). 2.Gibney, M. & Dalton, M. The political terror scale. (2003). UN Children's Fund. The state of the world children. (2004). UN Develop-ment Pro-gramme. Human development report 2003. (2003). UN Population Fund. The state of the world population 2003. (2003). World Health Organization . The world health report. Changing history. (2004).	Structural equation	Economic development has positive significant effect on gender equality and reproductive health. Gender equality has positive significant effect on reproductive health. Political development did not have a significant effect on gender equality or reproductive health.	Cross-national, included most of aspects reproductive health UN indicators and what is included here for individual variables..(conceptualization issues)-weakness Data come from various sources and from several different years And data not available for all years. How missing data was handled not discussed.

95

Table A.1 – *Continued.*

| 2006 V.K. Pillai and R. Gupta | Cross-national analysis of a model of reproductive health in developing countries | 129 "developing countries" as identified by WHO | Democracy, equality, reproductive rights (separated as personal right and abortion rights) | 1.Infant Mortality 2.Total fertility rate 3.Births per 1000 women 15-19 4.Percentage of adults living with HIV/AIDS 5.Percentage of pregnant women who received prenatal care 6.Percentage of deliveries attended by skilled attendants 7.Maternal mortality ratio 8. Percentage of under-5 children under weight 9.Prevalence of anemia among pregnant women 10. Percentage of pregnant women immunized for tetanus | Democracy = 1.Human rights rating 2.Political rights and civil liberty 3. Political terror scale Gender Equality= 1.Percentage of women's share of second level school enrollment 2.Percentage of seats held by women in national parliament 3. political and legal equality for women 4.social and economic equality for women Reproductive Rights (Legal Abortion rights)= 1.grounds on which abortion permitted (Personal Reproductive Rights) 1.Singulate mean age at marriage for women 2. Maternity benefits 3.Personal Rights to interracial, interreligious or civil marriages 4.Personal rights of equality of sexes during marriage and for | 1.Amnesty International. Annual Report on Country Human Rights Practices.(1999). 2.Freedom House. Annual Survey of Freedom Country Scores 1998-1999. (1998). 3.Humana Charles. World Human Rights Guide (1992) 4.Population Action International. World of Difference: sexual and Reproductive Risks (2001). 5.UN Develo-pment Fund for Women. Progress of the World's Women 2000. (2001). 6. United Nations Statistics Division The World's Women 2000: Trends and Statistics (2001). 7. World Resource | Structural equation | Democracy has a positive significant effect on gender equality. Gender equality has a positive significant effect on personal rights. Personal rights have positive significant effect on reproductive health. Gender equality has a positive significant effect on reproductive health. Abortion policies did not have a significant impact on reproductive health. And gender equality did not have a significant effect on abortion policies. | Cross-national, included most of aspects reproductive health UN indicators and what is included here for individual variables..(concep tualization issues)-weakness Data come from various sources and from several different years And data not available for all years Hot deck methods. Direct impact of democracy not tested |

Table A.1 - *Continued*

					divorce proceedings	Institute. World Resources 1998-1999. (1999).			
2006 R. Clark	Three faces of women's power and their reproductive health: a cross national study	133 "developing countries" as identified by WHO	Reproductive Rights, women's power within the family and women's access to political power, economic development, and strong democracy	1.Prevalence of HIV in the country 2.Maternal mortality 3. Infant mortality rate 4. Births per 1000 women 15-19	Women's reproductive rights= 1.Abortion policies 2.Maternity leave index 3. Emergency contraceptive marketing status 4. Prevalence of contraceptive use Female power within family= 1.The difference between the mean singulate age at marriage between men and women Female access to political power= 1.Female empowerment measure (i.percentage of seats women have in the lower house of parliament, and ii. number of years since women received the right to vote	Inter-parliamentary Union (2004) Office of Population Research(2005) United Nations (2001) United Nations Development Programme (1999) United Nations Development Programme (2002) United Nations Development Programme (2004) United Nation Population fund (2004) United Nations Statistics division (2000) World Almanac and Book of Facts (2005) World Bank (2002)	Multiple regression	Women's reproductive rights, women's power in family, women in politics and economic development are significantly impacting reproductive health. However, women in politics is negatively associated. Democracy is not significantly associated with reproductive health	Less variables But adjust for missing variables Data from several years General problems with cross-national data collections Conceptualization issues

					Economic development= 1.Percentage Urban 2. GNP per capita Democratization= 1.Voice and accountability index 2. government effectiveness index				
2004 R. J. Swatzyna,	Impact of war on women's reproductive health in developing countries	128 "developing countries" as identified by WHO	Human Right Social Development Gender Equality Democracy Militarization Armed conflict	Low birth weight % of women with HIV/AIDS Total fertility rate Maternal mortality rate Teen birth rate % birth with skilled attendants % of contraceptive usage	Women's Reproductive Rights= Right to intermarry Rights in divorce Simulate age at first marriage Days of maternal leave Rights to abortion Social Development= Percentage of population living in urban areas, Percentage of population with access to safe water Percentage of population with access to safe sanitation Public expenditure on health public expenditure on education	CIA World Book (2003) Freedom House Annual Report (2002) Human Development Report (2000) OFDA/CRED International Disaster Database (2000) UNDP World Abortion Policies (1999) World Human Rights Guide 1992 World Military Expenditure and Armed Transfers (1999-2000) World Women's Trends and Statistics (2000)	Structural Equation	Social development found most significant followed by armed conflict, armed conflict has a negative effect on reproductive health, militarization has positive significant effect, Reproductive rights, democracy, and gender equality have positive significant effects	Include social development and armed conflict/military involvement Cross-national data, include most aspects of reproductive health Data come from various sources and from several different years And data not available for all years Mean substitution method for missing data

98

| | | | | | Gender Equality=
Ratio of primary
school aged girls
Ratio of
secondary school
aged girls
% of women in
mistrial level
% of women in
sub-ministerial
level
% of women in
adult labor force

Democratization=
Political rights
Civil Liberties

Militarization=
Number of
soldiers
Military
expenditure per
capita
Military
expenditure % of
GDP

Armed conflict =
Total numbers
affected in war
Total numbers of
refugees | | | | |
| 2004
GZ- Wang | Reproducti
ve Health
in the
Context of
Economic
and
Democratic
Developme
nt | 129
"developing
countries"
as identified
by WHO | Economic
Development,
Democracy,
Gender
equality
Reproductive
rights (abortion
rights and
personal rights) | 1.Infant Mortality
2.Total fertility rate
3.Births per 1000
women 15-19
4.Percentage of
adults living with
HIV/AIDS
5.Percentage of
pregnant women
who received | Economic
Development =
1.Percentage
urban
2.Percentage of
population with
access to safe
water
3. Real GNP per
Capita (PPP$) | 1 Humana
Charles. World
Human Rights
Guide
(1992)
2..Population
Action
International.
World of
Difference: | Structural
equation | Economic
development has
positive
significant
effects on
gender equality
and reproductive
health.
Democracy has
a positive | Cross-national
data, include most
aspects of
reproductive
health
Data come from
various sources
and from several
different years
And data not |

prenatal care 6.Percentage of deliveries attended by skilled attendants 7.Maternal mortality ratio 8. Percentage of under-5 children under weight 9.Prevalence of anemia among pregnant women 10. Percentage of pregnant women immunized for tetanus	Democracy= 1. Democracy types 2.Political rights and civil liberty 3. Political terror scale Gender equality= Percentage of 1.women share of 2nd level school enrollment 2.Percentage of seats held by women in national parliament 3.Political and legal equality for women 4.Social and economic equality for women Abortion rights= 1.Grounds on which abortion is permitted Personal rights= 1.Singulate mean age at marriage for women 2.Maternity benefits 3.Personal rights to interracial, interreligious or civil marriages 4.Personal rights of equality of sexes during marriage and for divorce	sexual and Reproductive Risks (2001). 3. United Nations 4.Development Fund for Women. Progress of the World's Women 2000. (2001). 5. United Nations Statistics Division The World's Women 2000: Trends and Statistics (2001). 4. World Resource Institute. World Resources 1998-1999. (1999).	significant effect on gender equality, but not on reproductive health. Gender equality has positive significant effects on abortion rights, personal rights and women's reproductive health.	available for all years Mean substitution method for missing data Impact of democracy and economic development on abortion rights and personal rights not tested. Conceptualization s issues.

proceedings

2001 GZ Wang & V. K. Pillai	Women's Reproductive Health: A Gender Sensitive Human Rights approach	125 "developing countries" as identified by WHO	Reproductive rights, fertility ,social inequality and female share of income	1.Percent birth with trained attendants Births per 1000 women 15-19 2. Infant mortality rate 3.Maternal mortality rate 4.Contraceptive prevalence rate 5. Estimates of HIV and HIV 2 seroprevalence for pregnant women	Reproductive rights= 1.Grounds on which abortion is permitted 2. Personal rights to interracial, interreligious or civil marriages 3.Personal rights for equality of sexes during marriage and for divorce proceedings Personal rights to use contraceptive devices and pills Female share = 1.Percentage female share of earned income 2.Percentage female headed households Inequality= 1.Gini Index Fertility rate= Total fertility rate	Humana, Charles(1992) International program center(1998) United Nations(1998) United Nations development program(1998) World resource institute (1998)	Path analysis	Female share and ferity rates significantly impacts both reproductive rights and reproductive health of women Gini index did not significantly effect reproductive rights or reproductive health	Not clear if female headed household is included. Few aspects of reproductive health Not clear missing data were handled Several years data are included Definitional issues Common problems related to definition issues

Table A.2 Scale Measures and Number of Indicators Applied: Reproductive Health Measures

	Variables Used/Not Used by Authors				
	Pillai & Gupta, 2006	Swatzyna, 2004	Wang, 2007	Want, 2004	Wang & Pillai, 2001
Total fertility rate	No	Yes	Yes	No	Yes
Maternal mortality rate	Yes	No	Yes	No	No
Maternal mortality ratio	No	Yes	No	No	Yes
Percent births attendant with trained attendants	No	Yes	Yes	Yes	Yes
Percent low birth weight infants	No	No	Yes	No	No
Percentage of children under 5 low eight	No	Yes	No	No	Yes
Percentage of pregnant women immunized against tetanus	No	Yes	No	No	Yes
Infant mortality rate	Yes	Yes	No	No	Yes
Births per 1000 women aged 15-19	Yes	Yes	No	No	Yes
Teen birth rate	No	No	Yes	No	No
Percent antenatal care coverage	No	No	No	No	No
Percentage of women who received prenatal care	No	Yes	No	Yes	Yes
Percent children under 5 immunized for measles	No	No	No	No	No
Percent children immunized (under 1)	No	No	No	Yes	No
Prevalence of anemia among women	No	Yes	No	No	Yes
Percent contraceptive usage	No	No	Yes	Yes	No
Contraceptive prevalence	No	No	No	No	No
Estimates of HIV-1 and HIV-2 Seroprevalence for pregnant women	No	No	No	No	No
Percentage adults living with HIV	No	Yes	No	No	Yes
Percentage of women with HIV	No	No	Yes	No	No
HIV prevalence in the country	Yes	No	No	No	No

Table A.3 Scale Measures and Number of Indicators Applied:
Economic Development Measures

Indicator Type	Variables Used/Not Used by Authors		
	Clark, 2006	Wang, 2007	Wang, 2004
% urban	Yes	Yes	Yes
% of population w/access to safe water	No	Yes	Yes
% of population w/access to sanitation	No	No	Yes
Real GNP per capita (PPP$)	Yes	Yes	Yes

Table A.4 Scale Measures and Number of Indicators Applied:
Social Development Measures

Indicator Type	Variables Used/Not Used by Authors
	Swatzyna, 2004
% of population living in urban areas	Yes
% of population w/access to safe water	Yes
% of population w/access to sanitation	Yes
Public expenditure on health	Yes
Public expenditure on education	Yes

Table A.5 Scale Measures and Number of Indicators Applied:
Democracy/political Development Measures

Indicator Type	Variables Used/Not Used by Authors				
	Clark, 2006	Pillai & Gupta, 2006	Swatzyna, 2004	Wang, 2007	Wang, 2004
Political terror scale		Yes		Yes	Yes
Democracy types				Yes	Yes
Human rights rating		Yes			
Political rights and civil liberty		Yes	Yes		Yes
Voice & accountability index	Yes				
Government effectiveness index	Yes				

Table A.6 Scale Measures and Number of Indicators Applied:
Power (Access to political power)

Indicator Type	Variables Used/Not Used by Authors
	Clark, 2006
% of seats women have in the lower house of parliament	Yes
Number of years since women received the right to vote	Yes

Table A.7 Scale Measures and Number of Indicators Applied:
Power (Power within the family)

Indicator Type	Variables Used/Not Used by Authors
	Clark, 2006
The difference between mean singulate age at marriage between men and women	Yes

Table A.8 Scale Measures and Number of Indicators Applied:
Reproductive Rights Measures

Indicator Type	Variables Used/Not Used by Authors				
	Clark, 2006	Pillai & Gupta, 2006	Swatzyna, 2004	Wang, 2007	Wang, 2004
Abortion policies	Yes	Yes	Yes	Yes	Yes
Maternity leave index	Yes	No	No	No	No
Emergency contraceptive marketing status	Yes	Yes	No	No	No
Prevalence of contraceptive use	Yes	No	No	No	No
Personal rights to use contraceptive devices and pills	No	No	No	No	Yes
Singulate mean age at marriage for women	No	Yes	Yes	Yes	No
Maternity benefits	No	Yes	No	Yes	No
Days at maternity leave	No	No	Yes	No	No
Personal rights to interracial interreligious or civil marriages	No	Yes	Yes	Yes	Yes
Personal rights of equality of sexes during marriage and for divorce proceeding	No	Yes	No	Yes	Yes
Right to divorce	No	No	Yes	No	No

Table A.9 Scale Measures and Number of Indicators Applied:
Gender Equality Measures

	Variables Used/Not Used by Authors				
	Pillai & Gupta, 2006	Swatzyna, 2004	Wang, 2007	Want, 2004	Wang & Pillai, 2001
% female adult literacy (15 + years	No	No	Yes	No	No
Combined primary, secondary and tertiary gross enrollment rate for females	No	No	Yes	No	No
% of women's share of 2nd level school enrollment	Yes	No	No	Yes	No
Ratio of primary school aged children	No	Yes	No	No	No
Ratio of secondary school aged girls	No	Yes	No	No	No
Estimated female earned income(PPP $)	No	No	Yes	No	No
% female earned income	No	No	No	No	Yes
%of seats held by women in national parliament	Yes	No	No	Yes	No
Political and legal equality for women	Yes	No	No	Yes	No
Social and economic equality for women	Yes	No	No	Yes	No
% of women in ministerial level	No	Yes	No	No	No
% of women in sub-ministerial level	No	Yes	No	No	No
% of women in adult labor force	No	Yes	No	No	No
Percentage female headed households	No	No	No	No	Yes

Table A.10 Scale Measures and Number of Indicators Applied:
Income Inequality

	Variables Used/Not Used by Authors
Indicator Type	Wang & Pillai, 2001
Gini-Index	Yes

Table A.11 Scale Measures and Number of Indicators Applied:
War (militarization)

	Variables Used/Not Used by Authors
Indicator Type	Swatzina, 2004
Militarization	Yes
Number of soldiers	Yes
Military expenditure per capita	Yes
Military expenditure % of GDP	Yes

Table A.12 Scale Measures and Number of Indicators Applied:
War (extent of armed conflict)

	Variables Used/Not Used by Authors
Indicator Type	Swatzyna, 2004
Total numbers affected in war	Yes
Total numbers of refugees	Yes

Table A.13 Scale Measures and Number of Indicators Applied: Fertility

	Variables Used/Not Used by Authors
Indicator Type	Wang & Pillai, 2001
Total fertility rate	Yes

APPENDIX B

FIGURE OF MODEL OF REPRODUCTIVE HEALTH AND TABLE OF HYPOTHESES

Economic
Development

Social
Development

Freedom/
Capabilities

Functioning
=
Reproductive
health

Political
Development
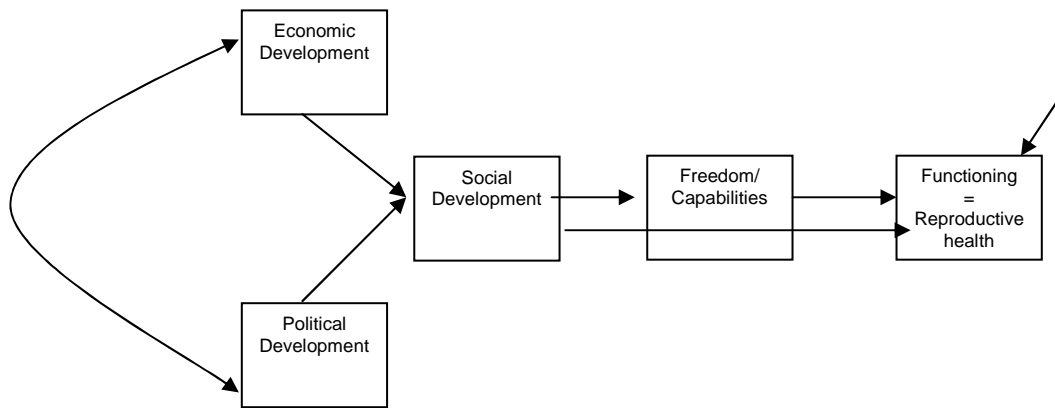
Figure B.1 Model of Reproductive Health

Table B.1 Hypotheses

	Dependent Variables		
Dependent Variables	Social Development	Freedom/ Capabilities	Reproductive Health
Social Development		+	_
Economic Growth	+		
Political Development	+		
Freedom/Capabilities			_

+ = significant positive effect
_ = significant negative effect

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APPENDIX C

LISTS OF DEVELOPING COUNTRIES AND SOURCES OF VARIABLE DATA

Developing Countries by Region

Lantin America and the Caribbean

Argentina
Barbados
Belize
Bolivia
Brazil
Chile
Colombia
Costa Rica
Cuba
Dominica
Dominican Repub
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Haiti
Honduras
Jamaica
Mexico
Nicaragua
Panama
Paraguay
Peru
Saint Kitts and
Saint Lucia
Saint Vincent a
Suriname
Trinidad and To
Uruguay
Venezuela

Pacific and East Asia

Cambodia
China
Fiji
Indonesia
Korea, Dem. Rep
Lao People's De
Malaysia
Mongolia
Myanmar
Papua New Guine
Philippines
Solomon Islands
Samoa (Western)
Thailand

Timor-Leste
Tonga
Vanuatu
Viet Nam

East Europe and Central Asia

Albania
Armenia
Azerbaijan
Belarus
Bosnia and Herz
Bulgaria
Croatia
Czech Republic
Estonia
Georgia
Hungary
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Macedonia, TFYR
Moldova, Rep. o
Poland
Romania
Russian Federat
Slovakia
Tajikistan
Turkey
Turkmenistan
Ukraine
Uzbekistan

Middle East and North Africa

Algeria
Djibouti
Egypt
Iran, Islamic R
Iraq
Jordan
Lebanon
Libyan Arab Jam
Morocco
Oman
Syrian Arab Rep
Tunisia
Yemen

South Asia

Afghanistan
Bangladesh
Bhutan
India
Maldives
Nepal
Pakistan
Sri Lanka

Sub-Saharan Africa

Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African
Chad
Comoros
Congo, Dem. Rep
Cote d'Ivoire
Equatorial Guin
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea-Bissau
Guinea
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mauritania
Mauritius
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome and Pr
Senegal
Seychelles
Sierra Leone
South Africa
Sudan
Swaziland

Tanzania, U. Re
Togo
Uganda
Zambia
Zimbabwe
Congo
Mali

Variables	Sources of Data and Year

Adultlit: Adult Literacy: United Nations.
(year)http://unstats.un.org/unsd/demographic/products/socind/literacy.htm
.
Contra: United Nations. (2007, June). Social Indicators: Indicators on contraceptive use.
2007,http://unstats.un.org/unsd/demographic/products/socind/contraceptive.htm

Prenacar: United Nations publication. (2006). The World's Women 2005: Progress in Statistics
(United Nations Publication, Sales No. E.05.XVII.17). New York, NY, United Nations Publishing
Section.

Skillper: United Nations publication. (2006). The World's Women 2005: Progress in Statistics
(United Nations Publication, Sales No. E.05.XVII.17). New York, NY, United Nations Publishing
Section.

HIVW: World Health Organization. (2007) World Health Statistics 2007. World Health
Publication, ISBN 978 92 4 156340 6). http://www.who.int/whosis/whostat2007_4riskfactors.pdf

Matmort1:United Nations publication. (2006). The World's Women 2005: Progress in Statistics
(United Nations Publication, Sales No. E.05.XVII.17). New York, NY, United Nations Publishing
Section.

Infant: United Nations Publication Department of Economic and Social Affairs. (2007). 2004
Demographic Yearbook 56th edition. (United Nations Publication, Sales No. E/F 07.XII.1). New
York, NY, United Nations Publishing Section.

Stunted: World Health Organization. (2007) World Health Statistics 2007. World Health
Publication, ISBN 978 92 4 156340 6). http://www.who.int/whosis/whostat2007_4riskfactors.pdf

Immun1 : : World Health Organization. (2007) World Health Statistics 2007. World Health
Publication, ISBN 978 92 4 156340 6). http://www.who.int/whosis/whostat2007_4riskfactors.pdf
&
http://apps.who.int/whosis/data/Search.jsp?countries=%5bLocation%5d.Members

Bmage18: Population Action International (date not provided).
http://www.populationaction.org/Publications/Reports/Measure_of_Survival/rri.shtml

Socialsec: World Health Organization Statistical Information System. (2000-2008) retrieved from
http://apps.who.int/whosis/data/Search.jsp?countries=%5bLocation%5d.Members

Socialpub: World Health Organization Statistical Information System. (2000-2006) retrieved
from http://apps.who.int/whosis/data/Search.jsp?countries=%5bLocation%5d.Members

Birthwo: United Nations. (June, 2007). Social Indicators: Indicators on child bearing. Retrieved
Date, from 17 June 2007, http://unstats.un.org/unsd/demographic/
products/socind/childbearing.htm#TECH

Matmort: :World Health Organization. (2007) World Health Statistics 2007. World Health
Publication, ISBN 978 92 4 156340 6). http://www.who.int/whosis/whostat2007_4riskfactors.pdf

EC: The emergency contraception website Office of the Population research at Princeton University. Http://ec.princeton.edu (2009).

Pubexp: World Health Organization (2007, February 22). Annex Table 2 Selected National Health Accounts Indicators: measured levels of per capita expenditure on health, 2000-2004. Retrieved Date, from 17 June 2007, http://www.who.int/nha/country/Annex%202.pdf
_____

APPENDIX D

RESULTS TABLES AND ANALYSIS FIGURES

Table D.1 Descriptive Statistics Following Mean Imputation

| | | _____Descriptive Statistics_____ | | |
Variable Name	Mean	Standard Deviation	Skewness	Kurtosis
Abopol	-02.46	01.95	-0.08	-1.52
Adultlit	77.40	21.17	-0.97	0.24
Birthwo	79.50	51.05	-0.11	-0.11
Bmage18	-26.92	15.65	-0.65	0.45
Compete	37.29	17.96	-0.30	-0.53
Contra	44.26	21.21	-0.21	-1.04
Demindex	04.92	01.88	-0.13	-1.14
EC	02.82	00.55	-3.11	12.78
GDP	04.90	03.87	1.22	1.34
GINI	43.09	09.33	0.24	-0.38
HIVW	04.22	04.71	2.75	8.91
Immun1	85.04	15.83	-1.36	1.37
Infant	53.05	39.45	0.90	0.08
Matmort	392.74	418.88	1.55	2.48
Partici	34.96	11.79	0.25	-0.04
Prenacar	73.91	21.01	-1.00	0.48
Pubex	53.93	19.93	-0.23	-0.52
Skillper	63.38	27.41	-0.20	-1.16
Socialsec	28.85	27.48	0.95	-0.18
Sociopub	04.13	06.07	3.83	17.60
Stuntnew	31.18	14.03	0.13	-0.18
Tele	18.92	20.61	1.08	0.06
TFR	03.57	01.70	0.53	-0.58
Water1	78.30	18.77	-0.86	-0.16

Table D.2 Initial Factor Component Loadings on Reproductive Health*

Variable Name	Component 1	Component 2
Birthwo	.79	
LHIVW		1.00
Infant	.88	
Matmort	.90	
Stuntnew	.81	
TFR	.92	

Varimax Rotated*

Table D.3 Factor Component Loadings on Reproductive Health*

Variable Name	Component 1
Birthwo	.79
Infant	.88
Matmort	.91
Stuntnew	.81
TFR	.92

*Unrotated

Table D.4 Factor Component Loadings on Reproductive Freedom*

Variable Name	Component 1
Abopol	.44
Bamge18	.79
Contra	.78
Imunn1	.68
Prenacar	.81
Skillper	.90

*Unrotated

Table D.5 Initial Factor Component Loadings on Social Development*

Variable Name	Component	
	1	2
Adultlit	.83	
GINI		.75
LSociopub		.70
Pubex	.47	
Socialsec	.79	
Tele	.85	
Water1	.79	

Varimax Rotated*

Table D.6 Final Factor Component Loadings on Social Development*

Variable Name	Component
	1
Adultlit	.83
Pubex	.49
Socialsec	.80
Tele	.85
Water1	.80

*Unrotated

Table D.7 Final Factor Component Loadings on Social Development*

Variable Name	Component
	1
Compete	.52
Demindex	.88
Partici	.82

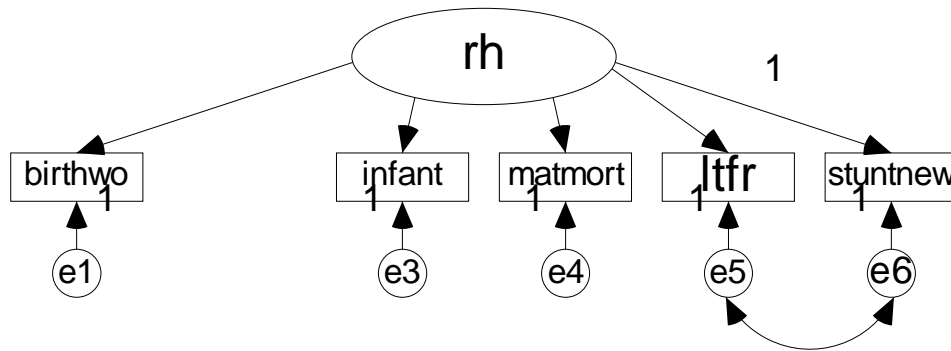*Unrotated
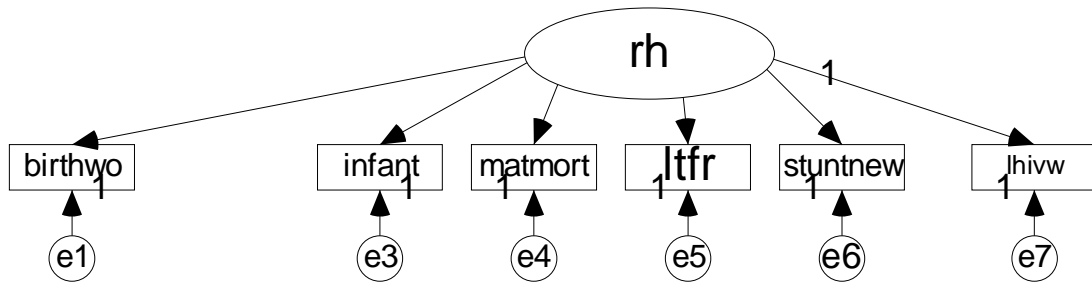
Figure D.1 Reproductive Health

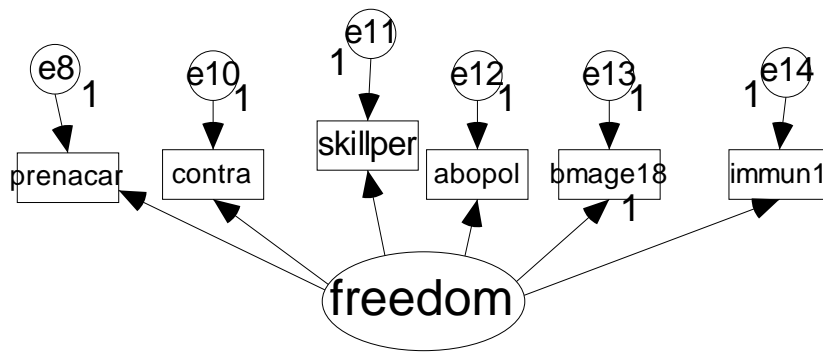Figure D.2 Reproductive Health-Modified

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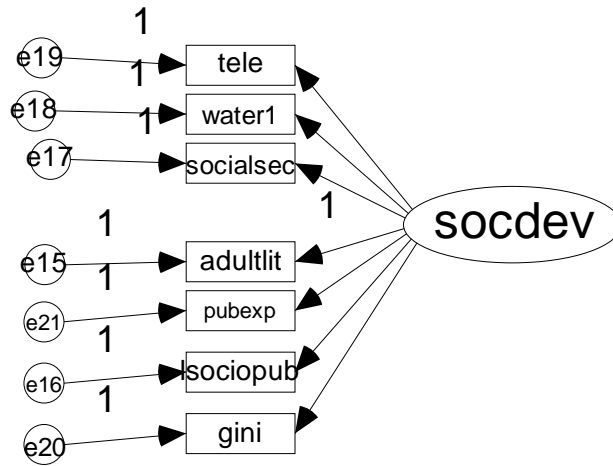Figure D.3 Reproductive Freedom
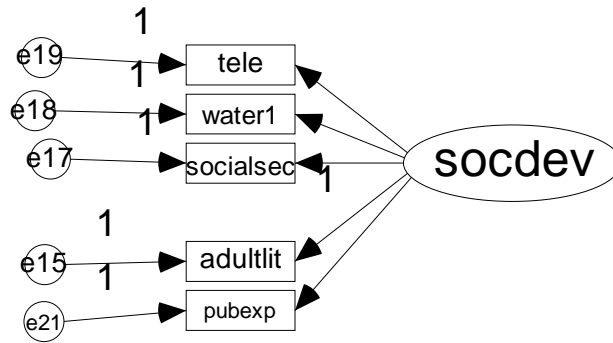
Figure D.4 Social Development
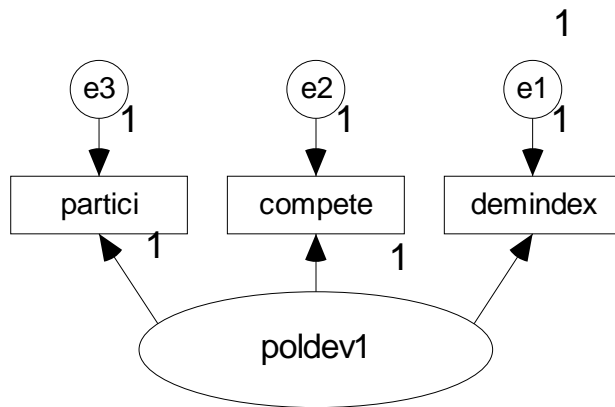

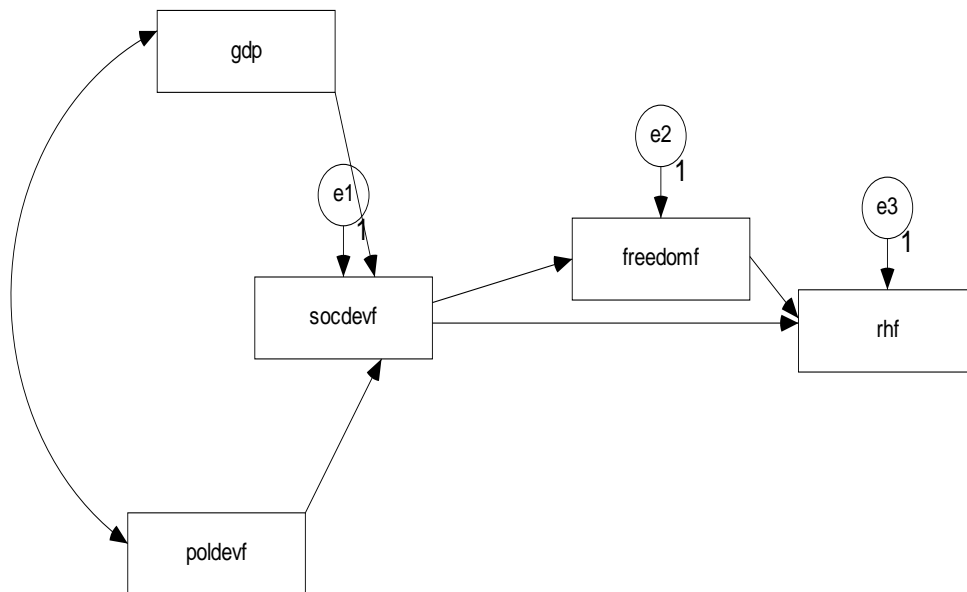Figure D.5 Social Development-Modified

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Figure D.6 Political Development
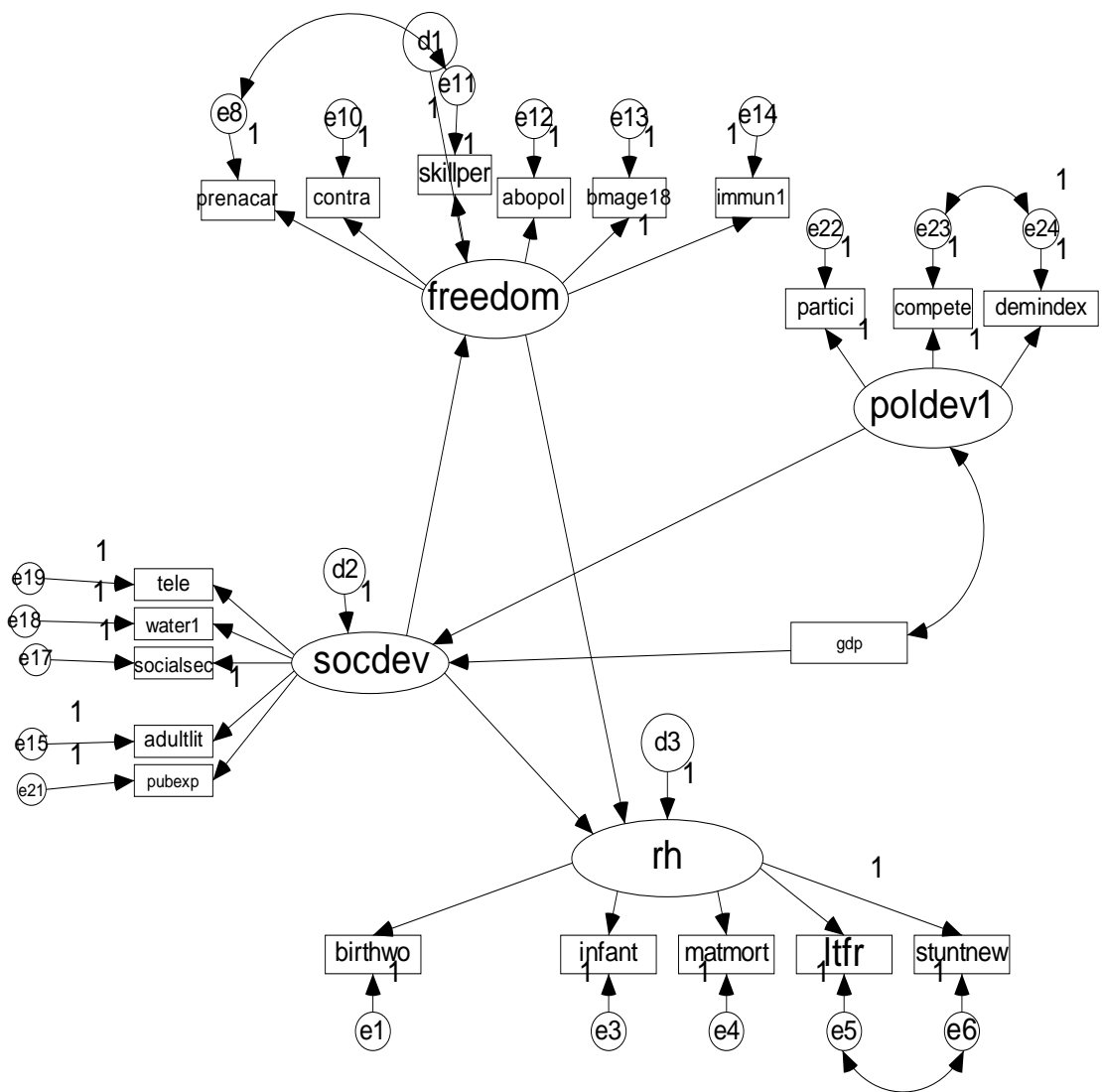
Figure D.7 Reproductive Health Model of Path Analysis

Figure D.8 Reproductive Health Model of Structural Equation

REFERENCES

Alexander, J. M. (2008). *Capabilities and social justice: The political philosophy of*
    Amartya Sen and Martha Nussbaum. Burlington. VT: Ashgate.

Alkire, S. (2002). Dimensions of human development. *World Development*, 30(2), 181-
    205.

Anand, S., & Sen, A. (1994). *Sustainable human development: Concepts and priorities.*
    Harvard Center for Population and Development Studies. Working paper
    #94.04.

    Retrieved May 20, 2008 from http://www.undp.org/hdro/oc8a.htm

Aron, A. & Aron, E. N. (1997). *Statistics for the behavioral and social sciences: A brief*
    course. Upper Saddle River, NJ: Prentice Hall.

Ashford, L. S. (2001). New population policies: Advancing women's health and rights.
    *Population Bulleti*n, 56(1), 1-44.

Benter, P. M. & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological*
    Methods and Research, 16(1), 78-117.

Berer, M. (2000). Making abortion safe: A matter of good public health policy and
    practice. *Bulletin of the World Health Organization,* 78(5), 580.

Brown, T. (2006). *Confirmatory factor analysis for applied research*. New York, NY:
    Guilford Press.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts,*
    applications and programming. Mahwah, NJ: Lawrence Erlbaum Associates.

Caroli, G., Rooney, C., & Villar, J. (2001). How effective is antenatal care in preventing
    maternal mortality and serious morbidity? An overview of the evidence.
    Pediatric and Perinatal Epidemiology, 15(1), 1-42.

128

Clark, D. A. (2005). Sen's capability approach and many spaces of human well-being. *Journal of Development Studies,* 41(8), 1339-1368.

Clark, D. A. (2005). The capability approach: Its development, critiques and recent advances (GPRG-WPS_032). *Global Poverty Research Group.* Retrieved on January 20, 2009, from www.gprg.org.

Clark, R. (2006). Three faces of women's power and their reproductive health: A cross-national study. *International Review of Modern Sociology,* 32(1), 35-52.

Correa, S. (1994). *Population and reproductive rights: Feminist perspectives from the south.* London: Zed Books.

Correa, S. (1997). From reproductive health to sexual rights: Achievements and future challenges. *Reproductive Health Matters,* 5(10), 107-116.

DeJong, J. (2006) Capabilities, reproductive health and well-being. *Journal of Developmental Studies.* 42 (7), 1158-1179.

Dixon-Mueller, R. (1990). Section on women's health: abortion policy and women's health in developing countries. *International Journal of Health Services*, 20 (2), 297-314.

Dixon-Mueller, R. (1993). *Population policy and women's rights: Transforming reproductive choice.* Westport, CT: Praeger.

Economists for Development (n.d.). *Economic development concepts and theories.* Retrieved on March 13, 2009, from http://www.economics4development.com/index.htm

Elliott, D., & Mayadas, N. S. (1996). Social development and clinical practice in social work. *Journal of Applied Social Science,* 21(1), 61-68.

Elliott, D., & Mayadas, N. S. (2000). International perspectives on social work practice. In Allen-Meares, P., & Garvin, C. (Eds). *The Handbook of social work direct practice (633-650).* Thousand Oaks, CA: Sage Publications.

Eurostat European Commission. (2007). *Europe in figures: Eurostat year book.*

129

Retrieved on January 27, 2009, from

http://epp.eurostat.ec.europa.eu/cache/ITYOFFPUB/KS-CD-06-001/EN/KS-D-

06-001-N.PDF

Fakuda-Parr, S. (2005). The human development paradigm: Operationalizing Sen's

ideas on capabilities. In B. Agarwal, J. Humphries, & I. Robeyns. (Eds.),

Amartya Sen's work and ideas: A gender perspective. New York: Routledge.

Fathalla, M.F. (1991). Reproductive health: Global overview. *The Annals of the New*

York Academy of Sciences, 626 (frontier), 1-10.

Fathalla M. F. (1994). Reproductive health in the world: Two decades of progress and

The challenge ahead. In J. Khanna, P.Van Look, P.D. Griffin (Eds.),

Reproductive health a key to a brighter future. WHO: Geneva.

Fathalla, M. F., & Fathalla, M. M. (2008). Sexual and reproductive health: Overview.

International Encyclopedia of Public Health, 695-705.

Field, A. (2000). *Discovering statistics using SPSS for windows.* Thousand Oaks, CA:

Sage.

Gasper, D., & Staveren, I. V. (2005). Development as freedom and what else? In B.

Agarwal, J. Humphries, & I. Robeyns (Eds.), *Amartya Sen's work and ideas: A*

gender perspective. New York: Routledge.

Glasier, A., Gulmezoglu, A. M., Schmid, G. P., Moreno, C. G., & Van Look, P. F.

(2006). Sexual and reproductive health: A matter of life and death. *The Lancet,*

368, 1595-1607.

Global Poverty Research Group (GPRG) (2005). *Reproductive health and well-being:*

overview. Global poverty research group. Retrieved May 17, 2008 from

http://www.gprg.org/themes/t4-soccap-pub-socsafe/publ-servs/repod-health.htm

Goldenberg, R. L., & Jobe, A. H. (2001). Prospects for research in reproductive health

and birth outcomes. *Journal of the American Medical Association,* 285(5),

633-639.

Gostin, L. O. (2001). Public health, ethics, and human rights: A tribute to the late

    Jonathan Mann. *Journal of Law, Medicine and Ethics*, 29, 121-130.

Graham, W. J. (1998). Outcomes and effectiveness in reproductive health. *Social*

    Science and Medicine, 47(12), 1925-1936.

Hall, A., & Midgley, J. (2004). Social policy for development. Thousand Oaks, CA:

    Sage. Haq, M. ul. (1995). *Reflections of human development.* Oxford University

    press, Oxford.

Hartcourt, W. (1994*). Feminist perspectives on sustainable development.* London. Zed

    Books.

Hartmann, B. (1987). *Reproductive rights and wrongs.* New York: Harper and Row.

Hatcher, L. (1994). *A step-by-step approach to using the SAS system for factor*

    analysis and structural equation modeling. Cary, NC: SAS Institute

Ho, R. (2006). *Data analysis and interpretation with SPSS.* FL: Taylor and Francis

    Group.

Hodgson, D., & Watkins, S. C. (1997), Feminists and Neo-Malthusians: Past and

    present alliances. *Population and Development Review,* 23(3), 541-569.

Hu, L.T. & Bentler P.M. (1999). Cutoff criteria for fit indexes in covariance structure

    analysis: Conventional criteria versus new alternatives. *Structural Equation*

    Modeling, 6, 1-55.

International Federation of Social Workers. (2005). *Presentation of IFSW: Introduction.*

    Retrieved on May 11, 2009 from http://www.ifsw.org/en/p38000002.html

Jacobson, J. L. (2000). Transforming family planning programs: towards a framework

    for advancing the reproductive rights agenda. *Reproductive Health Matters,*

    8(15), 21-32.

Joreskog, K. G. & Sorbom, D. (1994). *LISRAL.* Chicago: Scientific Software

    International.

Kaufmann, L. (2005). Self-in-a-vat: On John Searle's ontology of reasons for acting.

Philosophy of the Social Sciences, 35(4), 447-479.

Kekic, L. (2008). *The economist intelligence unit's index of democracy.* The world in

2007. Retrieved on Januray 30, 2009 from

http://www.economist.com/media/pdf/Democracy_Index_2007_v3.pdf

Loehlin, J. C. (1992). *Latent variable models. Hillsdale,* NJ: Lawrence Erlbaum

Publishers.

Lux, L., & Nguyen, T. (1997). STD control and primary healthcare for women:

Experience and challenges. *Outlook,* 15(2):1-8.

Malhotra, A., & Mehra, R. (1999). *Fulfilling the Cairo Commitment: Enhancing*

women's economic and social options for better reproductive health.

International Center for Research on Women.

Mann, J. (1996). Human rights and AIDS: The future of the pandemic, *The John*

Marshall Law Review, 30(2), 195–206.

Mann, J. (1997a). Medicine and public health, ethics and human rights. *The Hastings*

Center Report, 27(3), 6-13.

Mann. J. (1997b). Health and human rights: If not now, when? *Health and Human*

Rights, 2(3), 113-120.

Mann, J (1998). Public health and human rights. *Journal of the Section of Individual*

Rights and Responsibilities. 25 (4) 2-5.

Mathbor, G. M., & Khan, M. A. (2002). Interpretation of poverty in a welfare state: The

Case of Norway. *Social Development Issues*, 24(1), 25-32.

Matthews, S., Riber, S. D., & Wilhelm, M. (1997). The effects of economic conditions

And access to reproductive health services on state abortion rates and

birthrates. *Family Planning Perspectives,* 29(2), 52-60.

Mauldin, W. P., Choucri, N., Notestein, F. W., & Teitelbaum, M (1974). A report on

Bucharest: the world population conference and the population tribune,

August 1974. Studies in Family Planning, 5(12), 357-395.

McDaniel, A. (2000, August 12-16). *The demographic category as leaky gender boundary.* Paper presented at the American Sociological association, Washington D. C.

Merali, I. (2000). Advancing women's reproductive and sexual health rights: using the international human rights system. *Development in Practice,* 10(5), 609-623.

Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods* (2nd ed.). Los Angeles, CA: Pyrczak publishing.

Middleberg, M. I. (2003). *Promoting reproductive security in developing countries.* New York: Plenum.

Midgley, J. (1981). *Professional Imperialism: Social work in the third world.* London: Heinemann Educational Books.

Midgley, J. (1995). *Social development: The developmental perspective in social welfare.* Thousand Oaks, CA: Sage.

Mohan, B. (2007). Social exclusions: Challenges for new social development. *Journal of Comparative Social Welfare,* 23(1), 69-79.

Morgan, G. A., Leech, N. L., Gloeckner, G. W., & Barrett, K. C. (2004). *SPSS for introductory statistics: Use and interpretation* (2nd ed). Mahwah, NJ: Lawrence Erlbaum Associates.

National Association of Social Workers (1996). *Code of ethics.* Washington, DC: NASW.

Norusis, M. J. (2003). *SPSS 12.0 statistical procedures and companion.* Upper Saddle River, NJ: Prentice Hall Inc.

Nussbaum, M. C. (2000). *Women and human development.* Cambridge: Cambridge University Press.

Nussbaum, M. C. (2003). Capabilities as fundamental entitlements: Sen and social justice, *Feminist Economics*, 9, 33-59.

Parker, R. (2001). Sexuality, culture, and power in HIV/AIDS research. *Annual Review*

of Anthropology, 30, 163-179.

Parker, R. (2002). Global HIV/AIDS pandemic, structural inequalities and the politics of
 international health. *American Journal of Public Health*, 92(3), 343-346.

Pathfinder International (2006). *Factsheet on US policies that affect family planning in
 developing world: An overview.* Retrieved on December 1, 2008 from
 http://www.pathfind.org/site/DocServer/RHFPPolicy4.pdf?docID=5982

Payne, M. (1997). *Modern social work theory* (2nd ed). Chicago, IL: Lyceum Books Inc.

Petchesky, R. P. (1995). From population control to reproductive rights: Feminist fault
 lines. *Reproductive Health Matters*, 6, 152-161.

Petchesky, R. P. (1998). Review: negotiating reproductive rights: women's
 perspectives across countries and cultures. *Reproductive Health Matters*,
 6(11), 186-189.

Petchesky, R. P. (2000). Human rights, reproductive health and economic justice: Why
 They are indivisible? *Reproductive Health Matters,* 8(15), 12-17.

Petchesky, R. P. (2003). *Global prescriptions: Gendering health and human rights.*
 New York: Zed Books.

Petchesky, R. P., & Judd, K.(2001). *Negotiating reproductive rights: Women's
 perspectives across countries and cultures.* New York: Zen Books.

Pillai, V. K, & Gupta, R. (2006). Cross-national analysis of a model of reproductive
 health in developing countries. *Social Science Research*, 35, 210-227.

Pillai, V. K., & Johnson, L. (2007). Public health, social work and reproductive health:
 The role of reproductive rights. *Journal of Health and Development,* 3(1-2),
 95-112.

Pillai, V. K., & Sunil, T. S. (2002a). Gender inequality and reproductive decision making
 In developing countries: implications for social work. *Social Development
 Issues,* 24(2), 16-23.

Pillai, V. K., & Sunil, T. S. (2002b). Gender inequality and reproductive
134

making. In G. Ershang (Ed.), *Reproductive health, gender and development: An international perspective.* New Delhi: B R Publishers.

Pillai, V. K., & Wang, G. (1999). *Women's reproductive rights in developing countries.* Brookfield, VT: Ashgate.

Population Action International (PAI). (2001). *The world of difference: Sexual and Reproductive health and risks.* Retrieved on November 20, 2008, from: www.populationaction.org/resources/publications /worldofdifference

Qadeer, I. (1998). Reproductive health: A public health perspective. *Economic and Political Weekly,* 33(41), 2,675-2,684.

Qadeer, I. (2005). Unpacking the myths: Inequities and maternal morality in South Asia. *Development*, 48(4), 120-126.

Rao, M. (2004). *From population control to reproductive health: Malthusian arithmetic.* New Delhi: Sage.

Ravindran, T. K. S. (2008, January 11). *The international politics of sexual and reproductive health: Broken promises, emerging crises.* Presented at the National Conference on Emerging Issues in Public Health.

Robeyns, I (2002, September, 9-10). *Sen's capability approach and gender inequality.* Paper presented at the Promoting Women's Capabilities Approach, Von Hugh Institute, St. Edmund's College, Cambridge University.

Robeyns, I. (2005). Sen's capability approach and gender inequality: Selecting relevant capabilities. In B. Agarwal, J. Humphries, & I. Robeyns (Eds.), *Amartya Sen's work and ideas: A gender perspective.* New York: Routledge.

Rogers, A. T. (2006). *Human behavior in the social environment.* New York, NY: McGraw Hill Inc.

Ruger, J.P. (2004a). *Health and social justice.* Lancet, 364(9439), 1075-1080.

Ruger, J.P. (2004b). Combating HIV/AIDS in developing countries. *British Journal of Medicine,* 329, 121-122.

135

Ruger, J.P. (2004c). Millennium development goals for health: Building human

    capabilities. *Bulletin of World Health Organization*, 82, 951-952.

Saleeby, D. (1992). *The strength's perspective in social work practice.* New York:

    Longman

Sanders, D. S. (1982). The development perspectives in social work (ed). Manoa, HI:

    university of Hawaii Press.

Sanders, D. S. (1994). The role of universities in peace and social development.

    Journal of Social Development in Africa, 9(1), 51-58.

Schumacher, R. , & Lomax, R. (2004*). A beginner's guide to structural equation

    modeling* (2nd ed.). New Jersey: Lawrence Erlbaum.

Seipel, M. M. O. (1992). Promoting maternal health in developing countries. *Health and

    Social Work,* 17(3), 200-206.

Sen, A. (1992). *Inequality reexamined.* New York: Harvard University Press.

Sen, A. (1993a). Positional objectivity. *Philosophy and Public Affairs*, 22, 126-145.

Sen, A. (1993b). *Beyond the crisis: Development strategies in Asia.* India: Capital

    Publishing Company.

Sen, A. (1999a). *Development as freedom.* New York: Knopf.

Sen, A. (1999b). *Commodities and capabilities.* London: Oxford University Press.

Sen, A. (2007, July 16). *Keynote address.* Presented at the 15th symposium of the

    International Consortium for Social Development. Hong Kong.

Sen, G. (1994). Development, population and the environment: A search for balance. In

    G. Sen, A. Germain, & L. C. Chen (Eds*.), Population policies reconsidered:

    Health, empowerment, and rights.* Cambridge, MA; Harvard University.

Smyth, I. (1998). Gender analysis in family planning: beyond the feminists vs,

    population control debate. In C. Jackson, & R. Pearson (Eds.), *Feminist visions

    of development: Gender analysis and policy.* London; Routlege.

Squires, J. (2005). Is mainstreaming transformative? Theorizing mainstreaming in the

context of diversity and deliberation. Social Politics: *International Studies in Gender, State & Society,* 12(3), 366-388.

Srinivasan, S. (2007). No democracy without justice: political freedom in Amartya Sen's capability approach. *Journal of Human Development,* 8(3), 457-480.

Steiger, J. H. (1990). Stuctural model evaluation and modification: An Interval estimation approach. *Multivariate Behavior Research,* 25(2), 173-180.

Stevens, J. (1992). *Applied multivariate statistics for social sciences* (2nd ed.). Hillsdale, NJ: Lawreence Erlbaum associates.

Supplement of International Social Work (n.d.). *International definitions of the social work profession: Ethics in social work: Statement of principal, global standards for the education and training of the social work profession.* IFS & IASSW-AIETS; ISSN 0020-8728.

Swatzyna, R. J.(2004). *The impact of war on women's reproductive health in Developing countries.* Unpublished dissertation. The University of Texas Arlington, Arlington.

Thonneau, P., Matsuda, T., Goyaux, N., Djanhan, Y., Yace-Soumah, F., & Welffens, C. (2004). Determinants of maternal deaths in induced abortion complications in Ivory Coast. *Contraception*, 70, 319-326.

Todaro, M. (1996). *Economic development* (6th ed). MA: Addison Wesley Longman.

United Nations (UN). (1994). *Report of the International Conference on Population Development.* Retrieved November 2, 2008 from www.unfpa.org/icpd/reports& doc/icpdpoae.html

United Nations (UN). (1995). *Beijing Declaration and Platform of Action, adopted at the Fourth World Conference on Women.* Retrieved on November 11, 2008 from http://www.unhcr.org/refworld/docid/3dde04324.html

Vanhanen, T. (2003). *Democratization: A comparative analysis of 170 countries.* London: Rutledge.

Vogt, P., W. (1999). *Dictionary of statistics and methodology: a nontechnical guide for social sciences* (2nd ed). Thousand Oaks, CA: Sage Publications.

Wang, G. (2004). Reproductive health in the context of economic and democratic development. *Comparative Sociology,* 3(2), 135-162.

Wang, G. (2007). Testing the impact of gender equality on reproductive health: An Analysis of developing countries. *Social Science Journal,* 44, 507-524.

Wang, G., & Pillai, V. K. (2001a). Measurement of women's reproductive health and reproductive rights: An analysis of developing countries. *Social Indicator Research,* 54, 17-35.

Wang, G., & Pillai, V. K. (2001b). Women's reproductive health: A gender sensitive human rights approach. *Acta Sociologica*, 44(3), 231-242.

Weinstein, J., & Pillai, V. K. (2001). *Demography: the science of population.* Boston, MA: Allyn and Bacon.

World Bank (2009a). *Data and statistics: Country classification.* Retrieved on November

11, 2008 from http://go.worldbank.org/K2CKM78CC0.

World Bank (2009b). *Data and statistics: Country groups.* Retrieved on May 11, 2009 from http://go.worldbank.org/D7SN0B8YU0

World Health Organization (WHO). (1997). *Monitoring reproductive health: Selecting a short list of national and global indicators.* Geneva: Author.

World Health Organization (WHO). (1998).*Progress in reproduction research.* Geneva: Author.

World Health Organization (WHO). (1999), *World health report: Making a difference.* Geneva: Author.

World Health Organization (WHO). (2001). *The world health indicators for global monitoring.* Geneva: Author.

World Health Organization (WHO). (2002). *The world health report: Reducing risks,*

promoting healthy life. Geneva: Author.

World Health Organization (WHO). (2006), *World health report: working together for*

health. Geneva: Author.

World Health Organization (2009a). *National health accounts.* Retrieved on May 30th

2009, from http://www.who.int/whosis/indicators/compendium/2008/3exo/en/

World Health Organization (2009b). *Human resources for health.* Retrieved on May

30th 2009, from

http://www.who.int/whosis/indicators/compendium/2008/3hwo/en/

Zuvekas, C. Jr. (1979). *Economic development.* New York: St. Martins.

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