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## Women's Empowerment and Infant and Child Mortality: Incorporating Social Institutions and Context

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THE FLORIDA STATE UNIVERSITY  
COLLEGE OF SOCIAL SCIENCES AND PUBLIC POLICY

WOMEN'S EMPOWERMENT AND INFANT AND CHILD MORTALITY:  
INCORPORATING SOCIAL INSTITUTIONS AND CONTEXT

By

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## **ABSTRACT**

Over the past several decades, research investigating the relationship between women's empowerment and demographic outcomes has grown. Despite the increase in empowerment research, findings on the relationship between empowerment and demographic indicators are inconsistent. Particularly in the health and mortality literature, this inconsistency is due to several factors, including differing definitions, measures, and social contexts of empowerment. The inclusion of social networks and social institutions may better inform the definitions and measurement of empowerment. Data for this study comes from the 2004 Malawi Demographic and Health Survey from 5,982 mothers with 8,286 infants and children. Multivariate logistic hazard models, conducted separately for infants and children, investigate how demographic, socioeconomic, proximate, and empowerment measures are related to child mortality. Results show that household wealth is an important factor related to both infant and child mortality. For children, this relationship is mediated by other demographic factors. For both infants and children, being born to a mother who is divorced increases the odds of death (although this is mediated by birth characteristics for infants). For infants, a mother's control over mobility (decision-making about visiting family or friends and control over contact with family) is an important factor related to mortality. For children, if the final say about health care decisions are made by the husband (or someone else), the likelihood of mortality increases. However, despite these significant findings, the majority of empowerment measures are not significantly related to both infant and child mortality. Possible alternative measures of women's empowerment are discussed.

# CHAPTER ONE

## Introduction

Over the past two decades, research investigating the relationship between women's empowerment and demographic outcomes has grown (Eswaran, 2002; Samman & Santos 2009; Williams, 2010). The 1994 International Conference on Population and Development in Cairo highlighted the importance of women's empowerment and "empowerment of women was legitimated as a social goal and enshrined as a necessary condition for population stabilization" (Hodgson & Watkins, 1997). As a consequence, there has been an increasing amount of survey data that include measures such as education, employment, decision-making power, domestic abuse, and other indicators that researchers conceptualize as empowerment. While the empowerment literature originally focused on fertility outcomes, other demographic outcomes have been recently considered, including women's and children's health (e.g. Bloom, Wypij & das Gupta, 2001).

Despite the increase in empowerment research, findings on the relationship between empowerment and demographic indicators are inconsistent. Particularly in the health and mortality literature, this inconsistency is due to several factors, including differing definitions, measures, and social contexts of empowerment. The setting of the research, the way researchers define and operationalize empowerment, and specific analytic techniques used all impact estimates of the relationship between empowerment and demographic outcomes. Some researchers use "life-event" empowerment variables, such as age at first marriage and educational attainment. Others have recently begun to use "attitudinal" empowerment variables in addition to life-event empowerment variables, such as those on the Demographic and Health Surveys that ask about attitudes concerning the final say on decision-making as well as attitudes about domestic violence between the husband and wife. Exploring the relationship between empowerment and infant and child mortality is important to better understand areas with high mortality and recommend policies and practices to decrease mortality.

This dissertation will explore women's empowerment to better define and measure it, as well as to provide a framework for the study of empowerment and demographic outcomes. I use the specific example of infant and child mortality in Malawi, Africa to examine how this framework may better inform empowerment research. The three main research questions I ask in this dissertation are as follows:



1. How are demographic and life-event empowerment variables related to child mortality in Malawi?
2. Do women's attitudinal empowerment variables provide additional explanatory power in this relationship?
3. Does accounting for proximate determinants provide significant explanatory power when included in the relationship between demographic, socioeconomic, and empowerment variables and child mortality?

Lastly, I also discuss the possible omitted variables in the Malawi DHS of women's empowerment using the social institutional framework I will outline. This may inform research relating to empowerment by providing measures that may be related to mortality, but not measured on current surveys in Malawi, or possibly other countries.

To motivate this dissertation, I first discuss previous mortality research and the importance of child mortality. I then discuss research linking women's empowerment to demographic health outcomes, with a focus on child health and mortality. Chapter 2 provides previous definitions and measures of empowerment, as well as the framework I will use for the inclusion of empowerment variables in my analyses. I show how past research may not adequately conceptualize, define, and measure empowerment. I then discuss how the inclusion of social networks and social institutions better informs the definitions and measurement of empowerment, with application to infant and child mortality. Chapter 3 describes the social context in Malawi, data and methods I use with relation to the proposed framework. Results from the models are presented in Chapter 4. Chapter 5 discusses findings, limitations, and contributions of this research.

### **Infant and Child Mortality**

The issue of infant and child mortality, henceforth called child mortality for simplicity, is important for several reasons. The international health community uses child mortality as one indicator of development. As one out of their eight Millennium Development Goals, the United Nations wants to reduce the under-five mortality rate by two-thirds between 1990 and 2015 (United Nations, 2011).

Child mortality rates have also been regarded as a measure of the effectiveness of a country's health policy. Numerous policies over the past several decades have sought to improve child mortality. These include programs to increase maternal education, which has been found to

have a large positive effect on reducing child mortality (Caldwell, 1986). Additionally, increasing access and availability of health services, particularly to rural communities, improves child and infant mortality (Victoria, Wagstaff, Schellenberg, Gwatkin, Cleason, & Habich, 2003).

### **Proximate and Socioeconomic Determinants**

Mosley and Chen's influential work on child mortality provides a framework for the proximate and socioeconomic determinants of child mortality (1984). The five proximate determinants include maternal characteristics, environmental factors, nutrient deficiency, injury and personal illness control. Maternal factors include age at birth of child, parity, and birth interval. Younger and older mothers may have increased risks for child mortality due to medical complications during the early and later years of reproduction. Research shows that this relationship is J-shaped, such that having a child during the teenage years as well as the late 30s and 40s increases the risk for child mortality (Hobcraft, McDonald, & Rutstein, 1985; Singh & Yu, 1996). Similarly, parity and birth interval are related to child mortality—short and extended previous birth intervals and higher parity are associated with higher mortality for infant and children (Kembo & Van Ginneken, 2009). Shorter birth intervals may decrease time spent by the mother caring for children, while extremely long birth intervals may indicate biological issues. Also, children of higher birth orders may be born into families with limited resources due to the addition of more children (Manda, 1999). Gender and the size of the infant at birth (or birth weight if it is available) are associated with child mortality as well. Male infants tend to have a higher risk of death than females, particularly during the neonatal period (Sullivan, Rutstein, & Bicego, 1994). Birth weight has a curvilinear relationship with mortality such that lighter and heavier babies tend to have a higher risk of mortality (Solis, Pullum & Frisbie, 2000). Lastly, particularly in Africa, children with mothers who have AIDS have significantly lower chances of survival (Newell, Brahmbhatt, & Ghys 2004).

Environmental contamination in the home or surrounding area may lead to pollutants influencing air, food and water quality, and pathogens through insects (Mosley & Chen, 1984). Nutrient deficiency may come from limited resources in the home for adequate nutrition. Injuries may lead to health complications, influencing the risk of mortality. Finally, illness control may be influenced by education through knowledge of healthy practices, as well as access to adequate health services.

In addition to proximate determinants, socioeconomic determinants also influence child mortality at the individual- and household-level. These socioeconomic determinants not only operate in addition to proximate determinants, but operate through the proximate determinants. At the individual-level, these factors may include education, occupation, and power relationships within the household, as well as traditions and attitudes. Education of a child's parents, and particularly of the mother, has been found to be one of the strongest predictors of child mortality, (Caldwell and McDonald 1982; Caldwell 1986; Ware 1984). A mother's education level "can affect child survival by influencing her choices and increasing her skills in health care practices related to contraception, nutrition, hygiene, preventive care, and disease treatment" (Mosley & Chen, 1984: 35), showing that education mainly operates through proximate determinants such as nutrition and health choices. Education of mothers may also change power relationships in the household such that women have more say in decisions which influence child survival (Caldwell, 1979).

Work status is also an important individual-level factor. Higher status occupations for children's fathers are associated with lower child mortality (Vella, Tomkins, Borghesi, Migliori, Adriko, & Crevatin, 1992). This relationship may be more complex for women in the developing world, however. A mother's outside work may result in decreased time spent caring for her children, which may be detrimental to children's health particularly in poorer families (Farah & Preston, 1982).

At the household level, income and wealth, marital status, and ethnicity influence mortality as well. Having the means to buy healthy food, clean drinking water, clothing/bedding, shelter, and other materials is important for child survival. Additionally, finding transportation to health facilities may also be easier in households with more resources (Gwatkin, 2001). Marital status has also been found to influence child mortality. Unmarried women tend to have a lower socioeconomic status, fewer available resources, and be younger in age than married women, and thus have a higher risk for child mortality (Balk, Pullum, Storeygard, Greenwell, & Neuman, 2003). Ethnicity is associated with child mortality and varies across societies. This may be due to different cultural beliefs and practices that result in different child survival chances. Often, ethnicity may be tied with socioeconomic status such that a particular group, on the whole, tends to have lower education, income and wealth and thus a higher risk for child mortality. For example, some ethnic groups in Nigeria experience higher child mortality levels due to

differences in maternal education levels, childbearing age, and birth spacing, as well as prenatal care (Antai, 2011).

### **Community-level Variables**

Several variations of community-level context have been considered in child mortality research, including regional variation, urban compared to rural residence, and new clustering techniques as varying community-levels.

Regional variations in child mortality have been found across both developed and developing countries. For example, northern areas of India experience higher child mortality than southern areas (Dyson & Moore, 1983). The researchers attribute this difference primarily to regional variation in female autonomy and socioeconomic status. However, regional variation is not always tied to socioeconomic status. In Malawi, the central and northern regions have lower child mortality than the southern region (Kandala & Ghilagaber, 2006), but the individuals living in the southern region report higher incomes than those in the central region.

Residence in urban or rural areas is also associated with child mortality such that individuals residing in more urban areas have a lower risk for infant or child mortality than rural areas. Convenience of and access to medical care may play a role in that rural areas tend to have fewer hospitals and individuals may not have available or reliable transportation (Balk et al., 2003). Thus, the place of birth may be tied to area of residence through available locations for where a child is to be born. In addition, health outcomes within urban areas can often be different depending on the location of residence. Characteristics such as income and environmental conditions can vary depending on where a family lives in an urban area, subsequently influencing children's health outcomes (Timaeus & Lush, 1995).

Recently, there has been increased interest in community or contextual variables beyond the individual in relation to child mortality using multi-level modeling techniques. These have included attempts to address community clustering variables, household/mother clustering, and aggregate measures of education and wealth. The results as to whether the community variables influence mortality above and beyond individual-level measures are mixed. A study in India found that community-level education significantly influenced child mortality above and beyond individual mother's education (Kravdal, 2004). On the other hand, a study in Malawi found that family and mother effects were much more important than community-level effects (Bolstad & Manda, 2001). However, there are few studies that incorporate neighborhood/cluster level effects

when studying child mortality (e.g., Bolstad & Manda, 2001; Desai & Alva, 1998; Sastry, 1995). Thus, relatively new research and methods are being refined to include these multi-level measures (e.g. Balk et al., 2003; Kravda, 2004; Misselhorn & Harttgen, 2006).

### **Empowerment and Infant and Child Mortality**

In addition to the above proximate and socioeconomic determinants and community variables, women's empowerment has recently become an important set of measures to include in child mortality analyses. The care that children receive, particularly young children, is a result of their household circumstances. In many societies, "a child's mother is the person most likely to notice problems with a child's health because her role as the primary [caregiver], and she is therefore likely to be in the best position to make health care choices" (cited in Caldwell, Reddy, & Caldwell, 1983; cited in [Griffiths, Hinde & Matthews, 2001: 608]). Also, a mother's health care before, during, and after pregnancy directly and indirectly influences her child's health (Caldwell, 1986; Mosley & Chen, 1984), particularly in the early stages of life for children. A mother's care for her children and her own health may be determined by the extent to which a mother has access and control over resources through kinship ties, political prestige, education, and various other factors, which may influence child survival. Furthermore, policies attempting to address child mortality may be better informed when considering women's empowerment.

In general, research shows that higher levels of women's empowerment correlate with better health and chances of survival for children. For example, areas in northern India, where women have typically lower autonomy (based on kinship structure) than southern India, there is significantly higher child mortality. Additionally, a higher percentage of female compared to male infants and children died in northern India (Dyson & Moore, 1983). Similarly, children in households where mothers have high household autonomy and authority, measured as indices of mobility and decision-making power, have a lower risk of post-neonatal child mortality, and greater household authority lowers the risk of child mortality in Bangladesh (Hossain, Phillips, & Pence, 2007). In Jordan, children living in households where the mother's autonomy is higher have better nutritional outcomes, including (Miles-Doan & Bisharat, 1990). Furthermore, as a proximate determinant to children's health and mortality (Mosley & Chen, 1984), utilization of maternal health care services was more common among women with greater mobility (Bloom, Wypij, & das Gupta, 2001).

Other research shows that some indicators of women's empowerment are not related, or negatively related in some cases, to the risk of child mortality. For children between ages 0 and 35 months in northern Kenya, women's autonomy (measured as an 11 item index of decision-making about resources and medical care) was not related to health status measured by weight to height z-scores (Brunson, Shell-Duncan & Steele, 2009). Also, Ghuman uses several empowerment indicators, including an index of freedom of movement, and index of control over earned income, an index relating to decisions over economic matters (working outside of the home and making purchases), attitude about violence by a husband, and decision-making related to the care of sick children. It was hypothesized that women's empowerment would be lower in the Muslim counties and thus at least partially explain the variation in child mortality; however, empowerment indicators were weakly related to child mortality and varied across Muslim and non-Muslim countries (2003).

The above studies show that there is inconsistency in the literature as to which dimensions of women's empowerment are positively, negatively, and neutrally related to child mortality, perhaps because of the different operationalization of empowerment and health outcomes. While some studies use indices of women's empowerment, others use single measures or a combination of both. Since women's empowerment is based on societal context, adequately explaining the social landscape of a society may better explain why some empowerment measures work better for some societies and not for others. Also, an association between empowerment and child health and mortality may or may not indicate a causal relationship. An underlying factor, such as household wealth, may tend to influence empowerment and mortality. Due to these inconsistencies in the literature, a review and critique of the definitions of empowerment used and operationalization of empowerment follows.

## CHAPTER TWO

This chapter deals with definitions and operationalizations of power and empowerment. Specifically, it examines the association between women's empowerment and infant and child mortality in the context of social institutions. Because of the inconclusive research relating women's empowerment measures to infant and child mortality, women's empowerment measures may need to be better defined and operationalized in empowerment research. This includes how power is distributed within, across and among social institutions and how it varies within these social institutions by social context. To describe societies in context of social institutions, I define social institutions, social networks, the relationships between the two, and how social institutions may be differentiated from each other. This chapter concludes with specific empowerment variables in several key social institutions, including the household/family, education, politics, religion, and the economy.

### **Previous Definitions of Empowerment**

Previous research and definitions of empowerment include women's empowerment, women's status and autonomy. While some researchers use these terms interchangeably, I argue that they have distinct definitions and should be used more carefully in this research, as using empowerment, status and autonomy synonymously contributes to confusion and inconsistent findings.

Women's status and autonomy are both components of empowerment. Women's status is a relative term, defined by the relative position of individuals in social contexts (usually women compared to men, but also the position of women compared to each other). Status "implies standing within the community or prestige as is conferred upon individuals through birth, long life, economic standing, or through conformity to expected modes of behavior" (Brunson, Shell-Duncan, & Steele, 2009). Thus, although status may not directly concern the control over resources (Mason, 1986), it includes social prestige that may confer access to and control over resources. Autonomy primarily refers to decision-making power in multiple domains, such as household purchases, health care, and contraception, as well as mobility. Also, some researchers include women's economic situation, such as work outside of the home and earned income in their definition of autonomy (Takyi & Broughton, 2006).

Empowerment as a concept is multi-faceted and multi-leveled (Mason, 1984, 1987) and is "more than simply opening up access to decision-making; it must also include the processes

that lead people to perceive themselves as able and entitled to occupy that decision-making space...” (Rowlands, 1995: 102). Taking autonomy and status together as components of empowerment, empowerment is an individual’s relative social position and individual access to and control over resources. Resources may come in human, material, and intangible forms. A human resource is one that may pertain to labor, education, or skills of particular individuals. For example, human labor may include slaves, paid or unpaid workers, or members of a household over whom a person has control. Material resources include many items that are necessary to live, such as food and water. These resources may also include land and money in most societies. Intangible resources include political influence, information, and contacts through social networks (Kabeer & Subrahmanian, 1996: 27), as well as “a sense of not being alone” (Kabeer, 1994: 246).

Empowerment has been described as a verb as “social action that promotes participation of people, organization, and communities in gaining control over their lives [and resources] in their community and larger society” (Wallerstein & Bernstein, 1988). Empowerment as a process "must also include the processes that lead people to perceive themselves as able to and entitled to make decisions" (Csazar, 2005: 145). For Kabeer, empowerment is a process bound with disempowerment because it “refers to the processes by which those who have been denied the ability to make choices acquire such an ability” (Kabeer, 1999: 437). It is therefore “important to measure all the components of empowerment, as different dimensions are relevant to different development indices” (Malthotra, Schuler & Boender, 2002).

### **Previous Measurements of Empowerment**

Over the past several decades, sociologists, demographers, economists and other researchers have begun to use measures of women’s empowerment as outcome and predictor variables. From the 1970s to the early 1990s, researchers relied on status as indicators of empowerment, such as formal education, employment status, and age at first marriage (Mason, 1986). Aided by discussion at the 1994 United Nations International Conference on Population and Development held in Cairo, Egypt, researchers began to develop more direct measures of empowerment, such as household decision-making and mobility measures.

As one of the pioneers of operationalizing empowerment, the Demographic and Health Surveys (DHS) were one of the first groups of surveys to collect empowerment data on nationally representative samples of women across numerous countries. Beginning in 1999, the



DHS included a module of empowerment questions labeled as the “women’s status” module. Countries that include this module may choose to omit, add, or change questions. The standard module includes questions on four measures of empowerment: decision-making power in the household, attitudes toward violence in the household, freedom of movement, and the use of money for household purchases. Decision-making is assessed through questions relating to household purchases and food preparation, health care and contraception, and the ability to visit friends and family. These decisions can be made jointly (husband and wife), alone, husband only, or someone else (such as a mother-in-law). Questions relating to attitudes toward violence ask the respondent if a husband is justified in beating his wife if she performs or omits a particular act, such as neglecting children or arguing with him. Freedom of movement questions relate to required permission to go to the market, health center or friends’ homes. Finally, women are asked about economic decisions, such as controlling money to buy food and working for money (Demographic and Health Surveys, 2005a).

Another important module that has questions related to empowerment that some of the DHSs include is the domestic violence module. Although many of these questions relate to the violence questions in the women’s status module, the domestic violence module asks more in-depth questions about the husband’s role in relation to the female respondent. Also, the domestic violence questions record events that may have happened to the respondent, whereas the violence questions in the status module ask attitudes about violence. Topics include physical violence in relation to trust and control issues relating to money, freedom of movement, and sexual assault (Demographic and Health Survey 2005b).

Taken together, the women’s status and domestic violence modules provide a set of questions that attempt to operationalize women’s empowerment. Empowerment questions are now available for over eighty countries with DHS data. These questions about women’s empowerment go beyond the previously used status measures, such as education and employment.

However, researchers have pointed to some problems with these measures. First, these indicators may not necessarily measure empowerment, but rather the potential outcomes of empowerment. Since empowerment is a process (Rowlands, 1995), reporting at one point in time in cross-sectional surveys may not capture the empowerment process or the cumulative impact of empowerment on demographic outcomes. In these surveys, researchers do not know the answers

to empowerment questions at points in the past, when they may have influenced important demographic events. While longitudinal data may provide researchers with a more comprehensive assessment of empowerment, this data is not yet available for many countries.

Additionally, these indicators do not include some institutional dimensions of empowerment, such as politics and religion. Since the vast majority of empowerment indicators are individual-level measures, there is little attention paid to the social institutional context in which individuals are located, beyond their roles within a particular household. This creates a disconnect between survey questions and social context. Thus, surveys may be missing possible resources, such as the ability to create laws and moral authority, which are conferred to people with political and religious power, respectively.

Also, the questions on the DHS were created by a group of experts related to Asian countries. As a result, questions used to indicate levels of empowerment may not apply as well (or at all) to other contexts, although they are often presented as universal indicators that lack cultural considerations (Schatz & Williams, 2011). When answering questions that are supposed to be indicators of empowerment, women “interpret [the questions] in reference to their social contexts...[which] are affected by the nature of and magnitude of their identification implicit in the social context framed within the indicators” (Singh, 2010: 179). For example, questions regarding household decision-making may be particularly important to a certain country in Africa, while marital violence may not. A decision can only be made when there are choices among alternatives and an individual can make a calculated decision regarding those choices. In some institutional contexts, there may be assumptions about social relations such that there is no decision to be made.

Furthermore, how the question is worded and the choices amongst possible categories of the answer may make a difference in response. For example, the DHS asks who ‘usually has the final say’ about household decisions, whereas other surveys may ask who has the ‘most say’ or the ‘normative say’ in household decisions. Also, the ‘don’t know’ option on some surveys, including the DHS, may not be clear to many respondents and potentially impact data analyses (Yount, Halim, & Head, 2011).

Also, access to education may be important, but these questions are not asked as the empowerment module (only educational attainment is available in the DHS). The ability and

right to pursue education, or any other activity, is an important indicator of the social context that influences individuals' decisions and the extent to which each individual is empowered.

Despite these shortcomings, there are several advantages to using the DHS empowerment data and other data using similar indicators of empowerment. Advantages include cross-country comparisons, multiple survey years in particular countries, and nationally representative sets of women. Comparing women's empowerment across countries may give researchers a better idea of the relative status of women in particular contexts and how political, social, and economic issues impact women in each country. The use of data from multiple years in a particular country gives researchers the ability to investigate the change of empowerment levels across periods and cohorts, albeit with different samples that are nationally representative. Lastly, DHS data is available for countries that may not have other nationally representative data sets of women. In some countries, the DHS is the only relatively current nationally representative data set.

In summary, the definition of empowerment as outlined in research above does not necessarily map onto the measurement of empowerment in previous research. In addition, previous measures of empowerment may not measure empowerment itself, as operationalized as status and decision-making. However, this does not mean that researchers cannot use data, such as the DHS, to explore women's empowerment. A conceptual framework that provides a multi-dimensional theoretical basis for the definition and measurement of empowerment is needed. As described below, I argue that utilizing literature on social networks and institutions better connects the definition and measurement of empowerment.

## **Social Institutions and Networks**

### **Overview**

Social networks link individuals or groups of individuals through patterned relationships. These relationships connect individuals based on familial ties, economic exchanges, friendships, and other relationships between individuals within a particular society (Fischer, 1982: 3-6). The contacts within a social network may confer individual power through the amount of information gained from contacts, social prestige of particular contacts, and other aspects of individuals within the network. When relationships within a social network begin to be formal, taking on roles external to the individual, then an organization is created. Organizations can become institutions when they gain legitimacy for a long period of time while externalizing leadership. Without these roles that are external to the individual, a set of relationships is an informal social

network rather than a social institution. In social institutions, patterns of relationships can survive regardless of the person occupying a particular role. Therefore, while all social institutions are social networks, not all social networks are bound within social institutions.

Social institutions are “patterned sets of activities organized around the meeting of specific needs in accordance with certain rules of conduct and practice” (Hodgson, 1988). Social institutions organize individuals in a given society for social order and cooperation. They enforce rules and regulations through societal norms which are “constructed around clusters of procedures for assuring their maintenance...and around procedures for modifying them” (March & Olsen, 1989: 24).

Social institutions ‘institutionalize’ an individual’s social position through abstract social categories that convey power into individuals’ lives. Roles defined within each social institution, such as father or mother, president, or cleric, confer power to social roles rather than the specific individuals who occupy these roles. Thus, it does not matter specifically who occupies a role, but rather the norms associated with that role that may confer power to the individual. Rules, regulations and societal norms within institutions define access to and control over resources for particular individuals and groups who hold institutionalized roles conferring power. Thus, within each social institution there “are sites of rules and resources, production and allocation distribution and power relations ...[that] determine the ability of different categories of people to achieve the goals of survival, security and autonomy” (Kabeer & Subrahmanian, 1996: 32).

### **Social Institutions, Social Networks and Differentiation**

Social networks that link individuals within and across social institutions may act as mechanisms that influence access to and control over resources. The degree of overlap between networks and institutions, as well as overlap of different institutions and networks with themselves, differ for specific societies. For example, an individual’s economic status, household/kinship position and religious identity are intertwined in a specific societal context. A woman who is empowered within the household/family context may therefore also be empowered in the economic and religious contexts by being a matriarchal figure in a powerful lineage group. In other societies, these may be distinct institutions that do not depend on each other. A woman may be empowered within the household/kinship context through accumulating authority with age, but not empowered in other institutions such as the economy or political system.

The greater the number of possible memberships in social networks and institutions, the greater number of distinct positions an individual can hold in society. When a particular position is held in a social network that confers power to an individual regardless of the characteristics of that individual, then a social institution is formed. “Crosscutting social differences put individuals at the intersection of a web of group affiliations that exert diverse and often counteracting pressures, weakening the hold any one group [or institution] has on its members, widening the options of individuals, and increasing their freedom” (Blau & Schwartz, 1984: 83-84). For example, an individual’s workplace social network may be comprised of different people than his or her family. Similarly, the formal educational system may be separate from the religious activities. Thus, the degree to which social networks overlap with multiple social institutions is determined by “multiple overlapping and intersecting sociospatial networks of power” (Mann, 1986:1).

### **Increasing Institutional Differentiation**

Institutional and network differentiation is based on the history of groups of individuals initially forming through family ties, and then further forming larger units of individuals based on lineage and kinship, such as clans and tribes. “In pre-capitalist societies, kinship was the key idiom of social interaction, organizing economic, cultural and political activities as well as sexual and reproductive practice...” (Kabeer, 1994: 57). While kinship ties may be less important in some areas of the world, these ties continue to remain important in other areas, such as some areas of the developing world. As groups of people become larger and as the resources distributed among them become more plentiful, “locality or kin—or a combination of both—could offer organizational frameworks for denser, role-specialized social networks” (Mann, 1986: 44). Forming autopoietically, social institutions and the networks that eventually overlapped these institutions contained individuals who did not recognize that they were necessarily members of these continually changing networks and institutions (Varela, Maturana, & Uribe, 1974). The continual interactions of individuals contributed to the formation of social institutions and networks capable of generating societal norms.

As exchanges became more formalized through communication across kin groups, tribes, clans, and other groups, social institutions formed. Religion weaved through this history by providing sacred norms, rules and regulations that integrated individuals, but also by creating

networks of individuals (Mann, 1986: 22-24). For some societies, religion coincided with a kinship group, so an individual was attached to a particular religion through kinship ties.

Similarly, education was initially conducted within the family, and then in some social contexts by organized religion, but has now become more separated from other institutions in some societies. More recently, education is conducted by the state, but it also always has been controlled to some extent by the holders of economic power as a way to reinforce and protect their control of knowledge as a resource.

Kin groups in some societies, with the idea of private property, began to accumulate wealth. Accumulating resources can generate increasingly more inequality and hierarchy among groups (Mayhew & Levinger, 1976). According to some writers, this accumulation of wealth and resources changed gender relations in the family, partially through the distribution of labor in the household (Engels, 2004 [1884]).

Because of the increasing size of these groups, organization was needed to control and distribute resources. Economic and political systems developed to further organize access to and control over resources (Mann, 1986: 44-47). According to Weber, the evolution of the modern state and political system was based on feudal struggle for power. Due to the struggle for power over resources, there was an emergence of legal-rational authority within the modern state political system. Legal-rational authority within the modern state justifies the “use of force as essential to [the state] as its character of compulsory jurisdiction and of continuous operation” (Weber, 1978 [1922]: 56).

Durkheim describes the transition to institutionalized forms of relationships using a comparison between ‘primitive’ and ‘advanced’ societies. During the time of primitive societies, mechanical solidarity bound individuals together through a collective conscience in which social institutions and networks were relatively homogenous. With increasing division of labor in society, the transition to an advanced, industrial society led to more differentiation of social institutions and networks, particularly within the household/kinship and economic spheres (Durkheim, 1933). Thus, the differentiation of institutions and networks led to differing spheres of empowerment.

With the increasing number of individuals in society and resulting social institutions and networks and volume of resources produced and controlled by larger institutionalized networks, in some societies, the distribution of resources and control over them became less about kinship

influence and more about other institutions, such as economic relations and political power of individuals. The extent to which each institution influences the distribution of power, and thus the control over and access to resources, differs in each society.

### **Definitions of Power**

Power is embedded in social institutions and networks and influences access to and control over resources, but how is this power defined and distributed? The most fitting definition of power should include social relationships, institutional influence, and consideration for cultural context. It should address how and why particular individuals or groups of individuals gain access to and control over resources, including human, intangible and material resources.

In the field of political science, Lukes (1974) gives an example of power as: "A exercises power over B when A affects B in a manner contrary to B's interests" (34). While Lukes recognizes that power is social, he sees power primarily on the individual-level. Also, this definition of power does not assume whether interests are positive or negative. More clearly, B's interests may be destructive, so A's power to affect B may be in the interests of both parties. While this definition addresses that people may be controlled by others through power relationships, it does not address the nature of the process by which power is used or exerted and the origin of the power that an individual exercises. Additionally, Lukes' definition does not refer to power over material objects or control of intangible resources.

Foucault, a sociologist, defines power as "reach[ing] into the very grain of individuals, through their bodies and inserts itself into their very actions and attitudes, their discourses, learning processes, and everyday lives" (1980: 39). Foucault recognizes the impact of structural forces of power on the individual and how this changes behavior and attitudes, mainly through politics and political force. However, Foucault spends little time detailing how culture may be an important factor in the way that institutional power may influence the individual.

Karl Marx thought that society has an underlying structure that was formed by economic relations. For Marx, then, the definition of power inevitably was based on economic relations. Those who hold power are the individuals who control the means of production. This economic power then is linked to other social institutions, especially politics. Political power rests in the hands of individuals who have economic power (Tucker 1978). Power from these dimensions may even define who has access and control over resources. However, Marx gives a definition of

power that is both structural and tied to social relations, albeit focusing on economic relationships.

The most comprehensive definition of power comes from Max Weber. Weber provides a definition of power as "the chance an individual in a social relationship can achieve his or her own will, even when faced with the resistance of others" (Ritzer, 1999: 180). A social relationship is a key term in that it implies two or more entities interacting, be it individuals, groups, and organizations. While Marx recognizes the structural aspect of power in social institutions, Weber recognizes that an individual's position within the economic sphere may not hold as much power as an individual's position in other social institutions. For example, religious power or familial power may not be related to economic power, but rather may be founded on societal norms that do not include economic relations. Weber further defines power as either legitimate or illegitimate. Legitimate power is called authority and is accepted by people as right and just. Illegitimate power, on the other hand, is called coercion and not accepted as right or just. Authority can come in many forms, including laws, norms in relationships, and traditional leaders, which are all derived from institutional settings. Although Weber discusses authority primarily in politics and the economy, authority occurs in all social institutions (Ritzer, 1999).

There are three types of authority, according to Weber. These are traditional, legal-rational, and charismatic. I will focus on traditional and legal-rational types of authority, because charismatic is unpredictable and a quality of the individual. Charismatic authority figures, according to Weber, are endowed with superhuman power that is legitimated by their followers. It cannot be measured, defined, or predicted based on empirical evidence. Thus, this type of power and authority is irrelevant for attempts to understand and predict the social determinants of power and women's empowerment.

Traditional authority mainly operates in institutions such as religion and family structures, but it can also be present in other institutions such as education and the economy. Ritzer describes traditional authority as "based on a claim by the leaders, and a belief on the part of the followers, that there is virtue in the sanctity of age-old rules and powers" (1999: 132). Authority figures in this context may form due to old age, religious belief systems, or family ties.

Legal-rational authority stems from claims to legitimate power from something other than tradition, such as a political system that claims legitimacy to govern for the greater good of the people within that society. This authority usually operates on a utilitarian basis such that an



action (relating to power) is taken if the moral worth of that action results in a positive outcome/utility. The important issue to consider in this realm of authority is who has the ability to become one of those with power, including the power to define what constitutes utility and what does not, as well as who realizes that ability through competitive election, succession, usurpation, or other processes.

Providing the most comprehensive definition of power, Weber lays the groundwork for relating power to empowerment. Weber shows that social institutions are essential for the conceptualization of power because institutions are where traditional and legal-rational power and authority operate. Social institutions organize individuals in a society and enforce rules and regulations through societal norms, which then dictate access and making decisions about resources. Power is embedded in social institutions, which “constrain individual behavior by rendering some choices unviable, precluding particular courses of action, and restraining certain patterns of resource allocation” (DiMaggio & Powell, 1985). The position of an individual within social institutions determines the extent to which he or she has and can exercise power, which is then tied to the extent to which he or she is empowered.

The distribution of types of power in a society also determines the extent to which individuals have access to and make decisions about resources. The discussion of whether power is zero-sum, which is particular to the type of power in question, gives a better indication of how power operates in social institutions.

Some scholars have argued that empowerment, deriving from power relations, is a zero-sum game (meaning that when someone gains power someone else must lose power). This is often examined in the context of the power of men over women, in which the consequence of increasing the power of women through empowerment necessarily decreases the power of men. However, when examining power relations, this may not be the case depending on the type of power in question. Types of power include ‘power over,’ ‘power from within,’ ‘power with,’ and ‘power to.’ All of these types of power can be linked back to the social institutional context.

‘Power over’ is the most commonly written and thought about form of power in most contexts. This is the power that individuals have to influence or control others, as well as access to and control over resources. This is also the most common type of power in the gender relations literature (Rowlands, 1995). It can be in the form of violence and aggression, or it can be more subtle through limiting access to information. Power over something, then, is zero-sum

in that the more control someone has over something, the less another has over it (Rowlands, 1997). With regards to social institutions, power over is the power of organizations or individuals to influence access to and control over resources. For example, it can come in the form of government/state power over individuals through laws and sanctions. In the family/kinship social institution, it can come in the form of a husband's control over economic and social resources and the decisions that are made about them in the household. Also, it can be in the form of direct control of persons and their actions, perhaps as men's control over women and children's labor in the household.

The other types of power, on the other hand, are not zero-sum. 'Power from within,' for example, stems from within an individual to realize the possible ways in which he or she is disempowered, and act on this knowledge. In the empowerment literature, some researchers resist using 'power over' as the main way of empowerment, and turn to power from within to recognize "...the capacity of women to increase their own self-reliance and internal strength" (Moser, 1989: 108). While researchers realize that 'power over' may dis-empower women from outside forces, power from within is a more internal concept in that "women have to realize both what they can do and what is holding them down and back" (Townsend, Zapata, Rowlands, Alberti, & Mercado, 1999:30). Although this type of power and the subsequent definition given seem to be on the responsibility of the individual to realize his or her internal power, individuals are shaped and molded by social institutions. 'Power within' is influenced by social context; experiences in life (particularly in early life) influence personal characteristics, which then influence the degree to which individuals realize 'power within.' This type of power depends on the life experiences of individuals, which are partially based on the social position of individuals in social institutions. The ability to realize one's 'power from within' is based on personal history and social position, which then is translated to perception and action of this power. Because 'power from within' comes from within the individual, and is not granted to him or her from someone else, this type of power may not be a zero-sum game. As more individuals gain power within, others do not necessary lose power (unless this power is translated to power over). However, for example, if an individual realizes 'power from within', then perhaps power exerted from the family or kin group over the individual is lessened. Therefore, it depends on the situation as to whether power from within is zero-sum.

The most collective type of power is ‘power with.’ This type of power involves the organization of individuals to work with each other to achieve a common goal. An organization of individuals may be able to achieve something that individuals themselves may not be able to on their own. Participation in an organization may be empowering through decision-making taking place in the organization. For example, women’s cooperatives may produce and sell products that they would not otherwise have the resources or ability to produce or sell without a group effort (Premchander, Prameela, & Polman, 2004). The family can also be a source of power with through the collective control of wealth and property. This type of power is closely connected to ‘power within’ via the collective norms within an organization that can be empowering to individual.

Lastly, ‘power to’ “is often used to mean a political power, a power to influence others, to have a say in decisions...” (Townsend et al., 1999: 32). This involves expanding access to resources and the ability to take control over those resources. Some scholars posit that ‘power to’ is the main type of power that leads to women’s empowerment, as the empowerment “process involves the use of power, but not ‘power over’ others or power as dominance as is traditionally the case; rather, power is seen as ‘power to’ or power as competence which is generated and shared by the disenfranchised as they being to shape the context and structure of their daily existence” (Bystydzienski, 1993:3). As with the other types of power, ‘power to’ is closely linked with ‘power over.’ ‘Power to’ may increase the ability to challenge ‘power over.’ Whether or not ‘power to’ is zero-sum depends on the context and situation. The power to vote in elections may not decrease others power to vote in elections, but the power to make a decision about household purchases may decrease others amount of influence in the decision.

### **Empowerment, Social Institutions and Social Networks**

As a result of above discussion, we may say that the definition of empowerment stems from the concepts of power itself and should include social institutions within social context. Power is embedded in social institutions, and confers status upon individuals that then influences the degree to which they may gain control over and access to resources. Differences in access and control over resources stem from the issue that “gender as a power relation derives from institutional arrangements which provide men, of a given social group, with the greater capacity than women from that group to mobilize institutional rules and resources to promote and defend their own interests” (Kabeer, 1994: 299). As discussed above, these resources come in human,

material and intangible forms, such as labor, money, or knowledge. The extent to which social institutions overlap and intersect depends on context of each particular society, which then influences the distribution of power through each of the institutions. This then influences how individuals can be empowered in each social institution, and whether empowerment in one social institution maps on to and intersects with empowerment in another institution.

Empowerment also includes the ability of the individual to go against authority to achieve desired goals in one or multiple social institutions, or to have the means to become the authority in particular institutions. The type of power in each social institutional context dictates the extent to which this may occur. Because authority operates in all social institutions in one form or another, an individual can be empowered in some and not in others, depending on the degree to which institutions and networks intersect.

The relative influence of empowerment on demographic outcomes may depend on how important that institution is to an individual and the society that the individual is situated within. Both the individual and the society are important to address in empowerment research. Kabeer (1999) distinguishes between first- and second- order choices that reflect empowerment. First-order choices include those which are “critical to live the lives [individuals] want” and second-order choices are “important for the quality of one’s life but do not constitute its defining parameters” (437). Thus, it may be more important for an individual to be empowered in one particular social institution compared to another, depending on whether it falls into first- or second-order choices based on the specific society.

### **Institutional Contexts of Empowerment**

The following describes the ways that power and empowerment may occur in five social institutions: kinship, religion, politics, economy, and education. This framework aims to provide general concepts that can be applied across countries and cultures, but also uses measures specific to cultural contexts.

#### **Kinship**

The control over and access to resources within reproductive and productive activities defines the power relations within the kinship group and household (and the workplace), which then determines the distribution of resources (Sen, 1990). As such, “familial relationships are a primary mechanism through which social meanings are invested in, and social controls exercised over, women’s bodies, labor, sexuality, productive capacity and life choices” (Kabeer, 1994:

578). Furthermore, family and kinship roles, statuses, and power may influence who has access to inheritance and property ownership, who has a say in decision-making, marriage issues (arrangements of marriage, divorce, and polygamy), and whether women are allowed freedom of movement and whether there are any controls on domestic violence.

Status within kinship groups encompasses “the degree of women’s access to (and control over) material resources (including food, income, land and other forms of wealth) and to social resources (including knowledge, power, and prestige” (Dixon-Mueller, 1978:6). In addition, empowerment involves gaining access to new resources and influence.

Resources in this institutional context include material (income or food,) human (labor) and intangible (knowledge and moral authority) items. People are a particularly important resource, used as employees, slaves, and household workers. Control over people can provide an individual or group of individuals’ resources through the actions of these employees, slaves, or household workers. Control over material resources, such as food, dictates the extent to which individuals receive necessary items for health and survival. An intangible resource, such as moral authority within the kinship group, confers power to a particular individual that may translate to the ability to make decisions within that group.

The structure and composition of the kinship group may also influence power relations. Cultures may have patrilineal or matrilineal descent, as well as patrilocal or matrilocal residence patterns which may influence inheritance patterns, women’s control over resources in the household, and land ownership. In societies that practice matrilineal descent, women tend to have higher status due to more egalitarian ownership and inheritance rights (e.g. Nzei, 2008). These women also tend to have more bargaining power within the household and a greater voice in decisions in the household.

Decision-making about reproductive behavior is also important to consider, as it can influence the physical and mental health of women. Decisions whether or not to use contraceptives and access to health care (if it is available), as well as care for children reflect the amount of power women have over their reproductive capabilities. These decisions are based on knowledge of contraception methods (perhaps gained from formal education or social networks) and norms regarding kinship. For example, having more children may increase the power and empowerment of a woman because she may have power over her children (daughters, and maybe

sons) as well as daughter-in-laws. In this case, a woman's status in society increases with age as she bears more children.

When to marry, who to marry, and other marriage decisions are also related to control over resources. Culture primarily influences the decision to marry and when to marry, yet the law may regulate the minimum age at marriage. Some households, through the use of marriage patterns that marry individuals of elite families to elite individuals of other elite families, can maintain and, in some cases, increase the wealth of their family 'estate' (and thus maintain control over resources) (Farber, 1971). Also, arranged marriages may be the norm in the community, but not regulated by the state. Whether or not a dowry is paid to either family of the marrying couple is determined by traditional authority, but may be regulated by law. Whether divorce is common and acceptable, as well as the grounds acceptable to divorce for men and women, is also culturally bound. Finally, while some societies prohibit polygamy, others do not. It is debated in the literature as to whether polygamy positively or negatively relates to women's empowerment. On one hand, it can lessen household responsibilities through distributing them amongst multiple wives (Boserup, 1970), but on the other hand, it may spur jealousy among wives and create conflict due to less resources (and perhaps control over resources) for each member of the household. Also, it may empower the first wife to control junior co-wives.

Finally, the degree to which individuals in the household and community are free to move about the community without permission of others dictates the amount of power authorities have over others. Examples include laws that limit access to particular places, limited mobility due to lack of money, and rules limiting individuals' movement outside of the household. These issues can influence control over and access to resource. In the household context, this pertains to the whether a wife or daughter has permission granted by a husband or father to go outside of the household by herself, or from the village market to distant areas. Often restriction of movement limits women's ability to have a job outside of the household and earn money. Therefore, "in communities with restrictive attitudes to use of female labor, preference for sons is strong and in many cases girls are neglected by their parents" (Boserup, 1989: 55). Also, in these communities, the risk of divorce may be greater (due to the stigma if a woman does not bear any sons for her husband) and early marriage is more common (to increase the chances of bearing at least one son). Control of women's movement in the household may also

be related to domestic violence. Domestic violence concerns legal issues through laws forbidding physical or mental harm to others, as well as cultural norms concerning attitudes and behavior.

## **Religion**

Religious power stems from the roles and statuses conferred on individuals or groups of individuals that influence the access and control over material resources such as sacred places and objects, as well as aspects in other social institutions such as intangible and human resources, such as moral authority and marriage partners. The main resource of religious control is moral authority, which confers access to and control over other resources. Religious authority given to individuals can be in the form of leadership positions and administrative positions, as well as intersect with authority in other social institutions. Moral authority that religious leaders hold may be powerful enough for individuals to hand over their control over resources to the religious institution. Allowing for particular individuals, such as men and not women, access to sacred objects or places may be regulated by religious doctrines or authorities.

The extent to which women can become religious leaders or enter administration may determine the extent to which women play a role in influencing religious doctrines, practices, and the general inclusion of women. Also, women may gain power through simply being involved in religious communities, but also particularly as leaders. In the American Presbyterian church, “the presence of women, lay and clergy, on sessions/ on presbytery, synod and General Assembly committees; on governing body staffs; and in seminaries afford the possibility of altering the very power structures that have excluded them from ‘full acceptance’” (Prichard, 1996: 51).

As noted above, in some societies, religion and politics overlap, as well as the family/kinship, educational system, and the economic context. While the influence of religion, overall, has decreased in much of the world through secular ideologies, other areas of world have active religious institutions with great power. In earlier societies, the church had a great deal of political power, even to the extent that it had more power than some government entities. For example, “religion provided the legitimacy on which the power of monarchy and civil order was based” (Juergensmeyer, 1995: 382). In India, “religious political parties have elected legislators to national and state assemblies; religious schools have been affiliated with the state; and temples and mosques have received direct public support” (Juergensmeyer, 1995: 385). Also, religious power and influence may permeate the educational system. In some societies, religion is part of

the formal curriculum, which is often mandated by the state. Lastly, religious institutions may hold economic power through having authority to property, requiring tithes, or restrict accumulation of wealth (such as restrictions on taking interest).

## **Politics**

Individuals and groups of individuals organized on the basis of social order, usually through legal-rational authority, are considered to be within the political social institution. This institution organizes rights and obligations of individuals in a particular society through laws and regulations. These laws and regulations act to influence control and access to resources, from human rights (intangible) to property rights (material) to access to education (human) through “centralized, institutionalized, territorialized regulation of many aspects of social relations” (Mann 1986: 24). Roles and statuses within the political realm include elected and other legislative officials, judicial and administrative officials, codified legal rights with respect to property and other persons, local politics, and military/police force of the state.

Through institutional differentiation, politics can become separated from religion and/or kinship and family relations, to the extent that legal rights become attached to individuals regardless of their connections to these other institutions, and to the extent that these other institutions themselves may lose legal standing and rights. In most societies, politics deals with legal rights through laws, treaties, and other forms of sanctions. Political power is the ability to create these laws and treaties, as well as the enforcement of them. At the root of political power is enforcing the rules through a monopoly on the use of coercive force. Empowerment through legal rights includes issues such as voting rights, freedom of speech, divorce laws and other similar issues.

Political power through the reformation of laws can redistribute resources, allow for ownership of resources, and increase access to resources. Individual voting rights increase one’s power to influence political decisions, as opposed to power concentrated in the hands of a king, for example. In addition, resource distribution may be based on patron-client networks in some societies, where “vertical links with local politicians are actively sought by slum leaders who promise their dwellers’ votes in return for resource provision” (Asthana, 1996: 8-9).

At the individual-level, political power can also manifest in social networks. This type of power can come in the form of ‘power with’ through organizing with individuals to accomplish a particular goal. Petitioning and protesting can be methods through which these networks seek to



accomplish the goal. As more formally organized networks, grassroots movements that form can influence political change, such as women's rights movements. The extent to which these political movements form depends in several factors, including cultural norms regarding community organizing, roles of women in society, and links with other organizations (Asthana, 1996).

Traditional authority in politics is also important to consider when investigating different cultures. This authority may have a greater impact on the individual than legal authority, depending on the enforcement of legal authority and the extent to which institutions interact. Village headmen, tribal councils, and other similar traditional authority structures may or may not agree with legal-rational authority structures. Traditional authority may control the participation of individuals in major and minor community decisions. Whether traditional authority figures are elected or inherited through familial ties may determine the amount of power women have to hold these positions. Depending on the culture of the community, women may or may not be able to be a traditional authority figure or participate in traditional politics.

Legal rights also cut across several other social institutions as well, including the family and economy. The right to own property (economy and family institutions), have polygamous marriages (family), and domestic violence (family) issues may be regulated by laws. The right to formal education afforded to all children may be granted through the law, as well as prohibitions against child labor. Politics intersect with the economy through laws and, in some cases, military forces that confer access to and control over economic resources. For example, laws may protect some employment contracts and outlaw slavery. Depending on the extent to which politics are separate from religion, religious doctrines may be enforceable through laws.

### **Economy**

For survival, humans need a way to obtain materials for subsistence, so they form economic relationships through money, barter and trade, gifts, and other economic transactions (Mann 1986: 14). In a market economic framework, the economy is where the availability, consumption and production of resources, as well as the distribution of goods and services are organized. The most common material resources within the economy include land and money in most societies, while intangible and human resources can be in the form of economic information and labor, for example. In non-market economic frameworks, there are alternative

economic arrangements that might rely on systems of feudal authority and expropriation of resources by groups that hold power in other social institutions, such as religion or politics.

Economic transactions can happen in the formal or informal economy, depending on the societal context. Regardless of whether an individual acts within the formal or informal economy (or both), empowerment stems from access and control over economic resources.

Due to different hiring practices, availability of work in the formal sector, and individual's skills, women may not have the opportunity to be hired in the formal sector of the economy. As a result, the informal sector of the economy may be the option for gaining income. The informal economy may include volunteering, family labor, bartering, cooperatives and gifts, consisting mainly of women. The extent to which economic activity is empowering for women depends on a number of factors, including type and frequency of work, ability to control income from working, ability to work, and volunteering activities.

The type of work one does and the frequency of the work may influence power and, subsequently, women's empowerment. Particular occupations differ in terms of access and control over resources, and the division of labor in some societies tends toward men working in more favorable occupations. Laws may prohibit discrimination of hiring practices, as well as practices on the job, but for the most part the type of job one gains is regulated to traditional/cultural norms. In some areas of the world, the majority of women work in agriculture (Boserup, 1970). However, more recently, women are gaining employment in service and industry. Working outside of the home may be important for women in that "women's participation in outside gainful empowerment improves their bargaining power within the household and is therefore associated with greater gender equality in the distribution of household resources" (Kabeer, 1994: 111 [citing Sen, 1990]).

The ability to control the use of income or in-kind payments from work for personal and/or household purchases defines, in part, how much power the individual gains from being involved in economic activities. Ownership of wealth and property within the household also influence the distribution of economic power. This is mainly defined by cultural norms and household practices. It is argued that men, in some societies, use income to benefit themselves or increase the wealth of their household through large purchases. On the other hand, women are more likely to use income to buy necessities and to care for children's needs, including education (Caldwell, 1986; Engle, 1993). In societies where this holds true, women may give their children

access to empowering activities, such as education and employment, thus empowering future generations in the family through giving them access to economic resources. Investment in children may lead to future economic advancement of the household. The main point here is that access to money (or other means of economic value) as well as control over spending signals empowerment, and future empowerment of generations may be in the minds of family members who choose to invest in children within the household. Traditional authority may be conferred to women through support from children when they get older (Rendall & Bachieva, 1998).

Also, it is important to point out that the ability, rather than necessarily the current status, of the individual in terms of employment indicates empowerment. More clearly, the ability to work outside of the household, whether one chooses to or not, is the important factor indicating empowerment. An individual may not have to work due to sufficient economic resources; but in some studies it would appear that this individual is less empowered than others working outside of the home. These resources may be gained from an individual's position in politics or an individual's family/kin group, or both in some instances. Wealthy women may appear less empowered than working women due to their unemployment status. For example, "in India and Pakistan...where wage work for women is often unacceptable and poverty-induced, working for wages is not necessarily an indicator of autonomy" or empowerment (Jejeebhoy & Sathar, 2001:695). Thus, working outside of the home may indicate that a woman is less empowered than others who are doing no paid work or some sort of work within the household, in some contexts. In this case, empowerment for individuals working within the household may be in the form of control over resources and wealth in the family/household context.

Volunteer work, while not directly linked to the economy, is valuable as it provides opportunities for individuals to become involved in community organizations through productive activities (and can be linked to 'power with' via collective power) (Beneria, 1999). It can be an alternative to participating in the formal or informal economy as paid labor.

The extent to which individuals have opportunities to gain employment and earn income, or participate in other economic transactions, may depend on the influence and intersection of other social institutions as well. Defined within the social context, the household division of labor may determine the amount of time one has to have a paid job, as well as the type of job. Time spent doing (usually unpaid) household activities decreases time for paid work, but this may not be the case where money economies do not dominate. Also, access and control over

property may influence the ability to work, type of job, and whether a particular individual has control over earnings. For example, rent paid to individual property owners may be a significant source of income. If women have the ability to own property, the profits from that ownership may be influential in making economic decisions. Lastly, religious rules may influence the extent of participation in the economy through prohibiting particular practices, such as accepting interest.

## **Education**

As an intangible resource, education involves gaining knowledge and skills through formal or informal training, and these may help to gain access to and control over other material, intangible, and human resources. Knowledge and skills received from schooling gives recipients of formal education a wider world view, which may include different gender roles than the norm in a particular setting. Additionally, women's education can work through social networks such that the bargaining power of women through learning from others and social influence of others. For example, lower educated women may learn from their higher educated peers about health practices (Kravdal, 2004).

Thus, education is a social resource that may correspond to greater access and control over resources. This is not necessarily direct, but rather indirect through the interaction with several other social dimensions, including the economy, household/ kinship, and politics. Education may open doors to new opportunities in the economy. Knowledge of economic opportunities may occur through new social networks created from attending school, as well as opportunities within the education sector. Likewise, education obtained on the job shows the intersection with education and the economy.

Within the household, women with higher education may a greater ability and more influence in negotiations and decisions than women with less education. Although decision-making regarding education usually falls within the realm of male decisions in the household (Kabeer, 1999), women with more education may be able to negotiate greater decision-making power for their children (especially girls) in regards to education. Women with higher education tend to marry later, are less likely to be in polygamous marriages, and are more likely to use contraceptives as well as have children later in life (Goldstein & Kenney, 2001; Hogan, Berhanu, & Hailemariam, 1999).

Formal schooling is usually regulated by the state, involves trained teachers, and is classroom-based. In many societies, education may reflect economic powers, particularly in private schools that require tuition and restrict participation to children of the economic elites. In contrast, informal schooling occurs outside of the traditional classroom setting. The distinction between formal and informal schooling is relevant to this discussion because informal schooling may occur in the household, or even through religious teachings. This depends on the extent to which institutions interact and overlap. If there is not a formal education system in a particular society, education may occur within the household by family members or others.

Also, in the political arena, women with education may be better able to impact local and national politics through gaining elected seats. Women may be more likely to participate in politics on the local and national level when given educational opportunities (Andersen, 1975; Iversen & Rosenbluth, 2008).

### **Social Institutional Empowerment Framework**

The following framework summarizes the multi-dimensionality of empowerment and consideration for including institutions within empowerment research (Figure 1). As networks become institutions, these institutions become differentiated. Within each institution, there are numerous dimensions of empowerment that may be measured, some of which are listed in Figure 1. These dimensions can be indicators of the extent to which an individual has access to and power over resources, which then influences demographic outcomes such as infant and child mortality. Since empowerment is a combination of individual-, community-, and national-level factors, measuring dimensions within each institution at these levels can better explain women's empowerment in different societies and the relationship between empowerment and other outcomes. For example, within the kinship institution, inheritance laws and customs vary depending on the society. The extent to which a particular community acknowledges and abides by these laws differs, as well as the extent to which each family considers these laws. Taking into account inheritance may explain a woman's access and control over resources, which can influence mortality through access to medical care, supplies, etc.

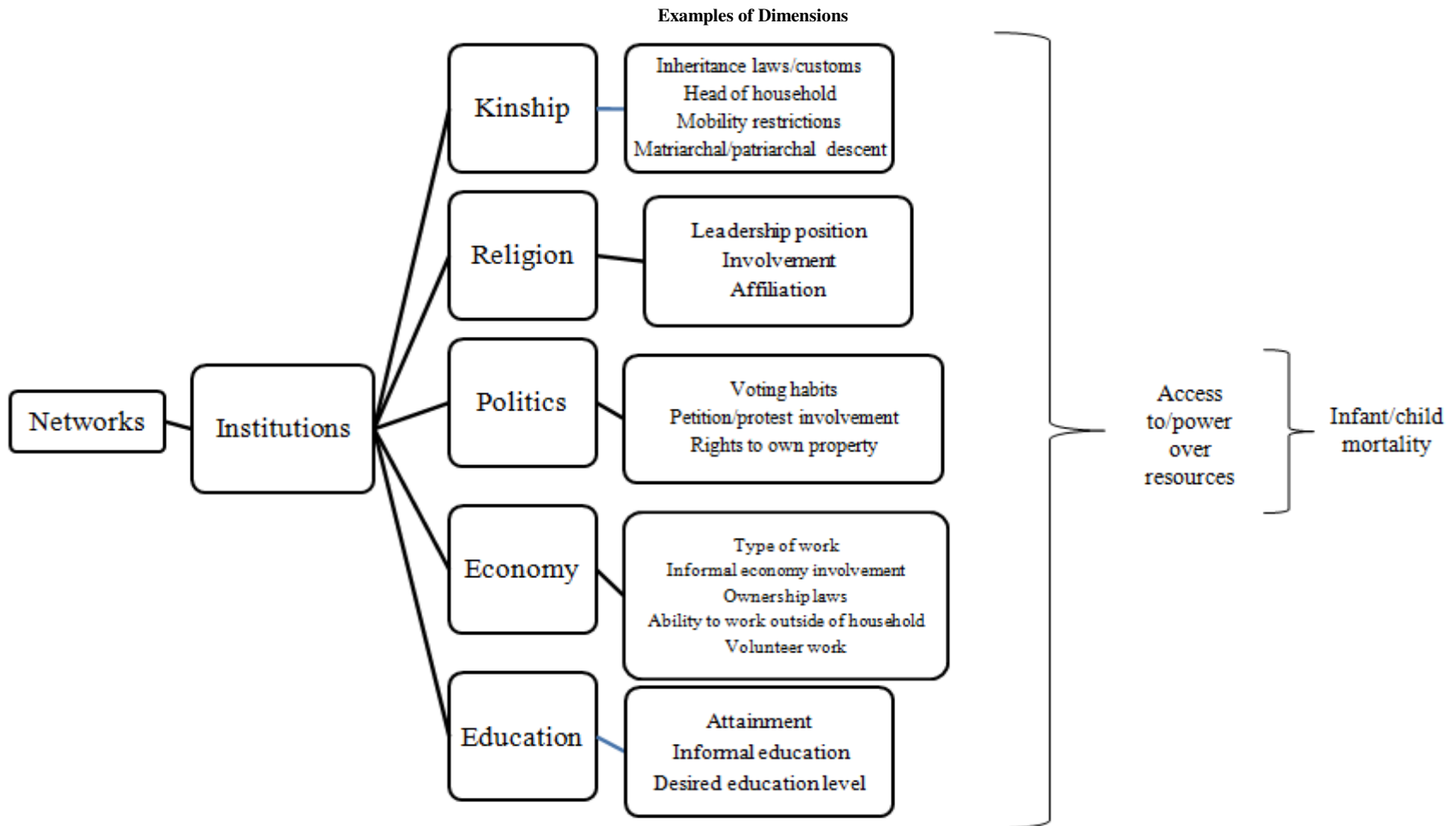


Figure 1. Social Institutional Empowerment Framework

While measures of some dimensions within each institution are readily available in surveys like the Demographic and Health Surveys, including, for example, educational attainment and the head of household, measures of many others are not available. It is important to also consider dimensions that are not available, as these may be as important or more important empowerment indicators depending on the society. For example, the DHS does not include indicators of informal education. While formal education can give a woman knowledge concerning infant and child health, informal education may also be an important indicator of this knowledge (Bloom & Cafiero, 2011). Similarly, while the DHS includes religious affiliation, it does not ask how involved within the church the respondent is or whether she is part of leadership within the congregation. Leadership and involvement in a congregation may increase an individual's access to important resources such as medical care or knowledge that could influence infant and child mortality.

Thus, it is important to consider available dimensions as well as those that are not available to investigate women's empowerment. In the following analysis, I use the dimensions and associated variables available in the Malawi DHS. I expect to find that variables used in previous research, such as educational attainment, are related to infant and child mortality. However, I do not expect that the relationship between available empowerment measures and infant and child mortality will be explained fully by these measures. Therefore, I discuss the omitted variables that may be important to women's empowerment in Malawi in the conclusion.

## CHAPTER THREE

This chapter first discusses the social context in Malawi that I will be using as an example with the above empowerment framework. Malawi provides an interesting context because of the recent research on women's empowerment as well as infant and child mortality. Then, I describe the data I use—the 2004 Malawi Demographic and Health Survey—as well as how each particular empowerment measure that I use fits into the empowerment framework. Finally, I describe the methods I use to investigate the relationship between women's empowerment and infant and child mortality in Malawi.

### Malawi

#### History

While the recent era of political rule in Malawi is characterized by relative democracy, the history of Malawi's politics has not been such. In 1964, Malawi gained independence from British rule and Dr. Hastings Banda, nicknamed the "President for Life," began his thirty-year authoritarian reign. During this time, there was a one-party system in which the government controlled economic development, dictated laws concerning the family, and favored particular ethnicity groups (mainly the Chewa) (Segal, 2008). During his tenure, Banda claimed that he was the *Nkhoswe* of all Malawian women, meaning that he was authority for all women in Malawi, giving advice and support (Gilman, 2004: 39). Although Malawi is and was an ethnically diverse country, Banda placed the Chewa culture as the model, with Chewa's matrilineal practices at the center. He also emphasized the need for Malawi to become more modern. While Banda publicized pictures and stories of urban women with modern jobs, very few Malawians lived in urban areas and even fewer women had jobs outside of selling in markets. Malawi ratified the Convention on the Elimination of Any Forms of Discriminating Against Women (CEDAW), but this period of Malawi's history is not known to be a time for women's empowerment. Rather, it was a time when women were portrayed as homemakers, under their husband's control and in servitude to him.

In 1993, the authoritarian regime of President Banda came to a close. After this, numerous reforms relating to politics and education occurred in the country. In 1994, a three-party parliament was created as was a bill of rights. Also, primary education became free for all citizens and secondary school fees for girls were abolished (although this increased the proportion of children in school, factors such as uniform cost and working in the home still



prohibit many children in Malawi from attending school). An increasing number of women are in Parliament, but this proportion is still small at 14 percent in 2005 (UNDP, 2005).

Also, the 1990s and early 2000s were times of national policy reform. In 1996, the Malawi Gender Training Team was formed. Shortly after in 1997, both the South African Development Community Declaration on Gender and Development as well as the Malawi National Platform for Action were signed. In 2000, the National Gender Policy was adopted that called for gender equality through equal participation in social and economic development followed by the National Gender Program in 2004. Finally, the Prevention of Domestic Violence Act was signed in 2006.

### **Demographic Profile**

Malawi is classified by the World Bank as a ‘low’ income country. About 15 million people inhabit the small country in sub-Saharan Africa, and over half are under the national poverty line. As of 2008, life expectancy for women was 54 and for men was 52 years. The infant mortality and child mortality rates have been steadily decreasing from 104 and 76 deaths per 1,000 for the 1990-1994 period to 76 and 62 per 1,000, respectively, for the 2000-2004 period (MDHS, 2004). These rates are still very high, so infant and child mortality are important to study in this context in order to investigate factors that could help bring these rates down. In addition, the fertility rate is 5.99 children per woman (World Bank, 2010). While primary education became free for girls and boys in 1994, 73 percent of the population is literate (only about one-quarter of women are literate). About 22 percent of the population lives in urban areas (World Bank, 2010).

### **Empowerment Factors**

Malawi is comprised of three regions—the north, central and south. The northern region has the largest percentage of individuals who adhere to Catholicism, who are highly educated, and who follow patrilineal descent. This region is mainly rural and only contains about 10 to 15 percent of the overall population. The central region contains the capital city, Lilongwe, and is characterized by mixed lineage traditions, the highest fertility rate compared to the other regions, and relative ethnic heterogeneity. The southern region has a high proportion of Muslims, is more economically developed, and more urban than the other regions. This region, along with the central region, practices matrilineal descent, which may grant some women authority in the

household and kinship group, but in the economy and community women may be marginalized (Peters, 1997).

About 75 percent of Malawi's population is Christian. The majority of Christians live in the northern region (Salim 1992). Muslims account about 20 percent of the population, are mainly of the Yao ethnic group and reside in the southern region. A mix of Christians and Muslims live in the central region (Muylwijk 1992).

The family and kinship group remain important in Malawi. Women tend to be responsible for the reproductive and productive roles in the household. In rural areas, women tend to do much of the subsistence agriculture work, collect firewood and water, and care for the children (Green & Baden, 1994). Also, extended families live in the same village, often multiple generations living under the same roof or within walking distance. Polygamous marriages are legal and most common in the northern region.

The main economic activity in Malawi is subsistence agriculture. The agriculture system is based on estates and smallholders, in which women are mainly employed. While most households own land, the average size of a plot is very small—about 1.2 hectares per household (World Bank, 2004). Men own all resources in the household, including land, in the patrilineal northern region. In the matrilineal central and southern regions, women hold land rights. Upon marriage, women receive land from their mothers (Strickland, 2004). About 70 percent of the agricultural work in Malawi is done by women (Diagne & Zeller, 2001). Recently, cash crops, such as tobacco, are increasingly becoming more common for farmers to plant than other crops to earn more income, particularly in the northern region of Malawi. Men tend to take production responsibility for cash crops, and as such, control over income and farming decisions may increase for men compared to women (Green & Baden, 1994: 10).

During the 1980s and 1990s, structural adjustment policies reduced public expenditures that affected social programs and greatly diminished funds to farmers, which then influenced mortality rates and sex differentials in mortality rates (Green & Baden, 1994). In light of these policies, the informal sector of the economy is important to a large portion of the population.

### **Research Questions**

The following are three main research questions I address:

1. How are demographic and life-event empowerment variables related to child mortality in Malawi?

2. Do women's attitudinal empowerment variables provide additional explanatory power in this relationship?
3. Does accounting for proximate determinants provide significant explanatory power when included in the relationship between demographic, socioeconomic, and empowerment variables and child mortality?

Lastly, I will also discuss the possible omitted measures on the Malawi DHS of women's empowerment using the social institutional framework outlined above. This may inform research relating to empowerment by providing measures that may be related to mortality, but not measured on current surveys in Malawi, or possibly other countries.

### **Data**

The Malawi 2004 Demographic and Health Survey (MDHS) is a nationally representative survey including 13,664 households, 11,698 women between the ages of 15 and 49 within these households, and 35,883 children. Sampling for the survey was weighted, multistage, stratified cluster approach. The household questionnaire contains socioeconomic information about the household and was used to identify women between 15 and 49 years of age eligible for the individual questionnaire and men between 15 and 54 years of age. The individual (women's) questionnaire includes indicators of demographic and socioeconomic characteristics, knowledge of contraceptives, reproductive history, and fertility preferences. Additionally, it includes women's status and domestic violence modules, consisting of questions relating to household decision-making, freedom of movement, husband's control over the wife, and attitudes about domestic violence.

All analysis is run at the infant- or child-level. Of the 11,698 women in the survey, 8,560 women had at least one child within the previous 5 years of the survey. Only one woman per household was asked questions about domestic violence<sup>1</sup>, further limiting the number of mothers in the sample to 6,406. Eliminating women who answer "don't know" or "decision not made" to the attitudinal empowerment questions<sup>2</sup>, or are missing data on one or more of these questions, results in 6,105 mothers. After omitting multiple births, the final sample size is 8,286 infants and children from 5,982 women. Women are slightly more likely to be educated, in wealthier

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<sup>1</sup> The respondent in each household was randomly determined if more than one woman in a household was eligible.

<sup>2</sup> Women who did not answer at least one of the empowerment questions were more likely to not answer other empowerment questions.

households, and live in urban areas in this sample compared to all women in the MDHS 2004. In addition, the infant mortality estimate for the total sample is slightly lower for this sample of infants compared to all infants in the sample due to the selection of the subsample used in this analysis.

## **Variables**

The following are variables I use that incorporate demographic, socioeconomic, proximate, and empowerment determinants. Each variable to be included in the analytic model is italicized.

### **Demographic and Socioeconomic Variables**

*Residence* is divided into two categories—urban and rural residence. Women living in urban areas generally have lower infant and child mortality risk than women in rural areas. This may be due to better health facilities, closer proximity to facilities, and better general infrastructure in urban areas (Balk et al., 2003; Defo, 1996).

*Marital status* is divided into married or living together and widowed/divorced/separated. Research shows that divorced, separated and widowed women have higher risks for infant and child mortality (Defo, 1996; Kendala & Ghilagaber, 2006).

*Region*<sup>3</sup> is divided into three areas—north, central and south. Previous research shows that the southern region has the highest risk for child mortality, followed by the central and then the north (Kendala & Ghilagaber, 2006).

For socioeconomic status of the household, I will use an index of *household wealth*. The DHS constructs this index using variables that include house-building materials, household income, water availability, household luxuries (such as owning a TV and radio), and other wealth factors. This index is then split into quintiles and is useful because previous research shows that wealth is a significant predictor of child mortality in Malawi as well as other countries (Kravdal, 2004; Kendala & Ghilagaber, 2006).

*Household head* refers to whether the respondent, her husband or someone else in the household is considered the head of the household. Households with women who are the heads in sub-Saharan Africa may indicate the death of the husband, absence of the husband due to

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<sup>3</sup> Ethnicity is also an important predictor of infant and child mortality. However, ethnicity is highly correlated with region, so I chose to only include region in the analysis.

labor migration, or divorce. These situations may negatively affect child survival if the husband provided the bulk of resources to the household through income. This may operate differently in the matrilineal south compared to the patrilineal north.

### **Birth Characteristics**

Birth characteristics<sup>4</sup> I plan to use include gender, previous birth interval, birth order, place of birth, and age of mother at birth, and estimated relative size at birth.

Because gender has been shown to be related to survival in infant and childhood years, I will control for *gender* (Bolstad & Manda, 2001; Kandala & Ghilagaber, 2006; Sear, Steele, McGregor, & Mace, 2002).

Previous *birth interval/order* has been found to be one of the most significant predictors of child mortality, although this effect is found to decrease with increasing child age (Bolstad & Manda, 2001). Children born to mothers with short previous birth intervals (less than 24 months) may have an increased risk for mortality. For short birth intervals, children may have a higher risk of mortality due to wasting, limited resources in the household, or other factors. Longer birth intervals may be linked to the risk of child mortality (Griffiths, Hinde & Matthews, 2001). Similarly, *birth order* may influence child mortality. This may be due to increasingly limited resources in the household with the addition of more children. Higher birth order is often in combination with short birth intervals (Kembo and Van Ginneken 2009). Similar to previous research (e.g. Kembo & Van Ginneken, 2009), I combine birth interval and order into a categorical variable with the following categories: first birth, 2<sup>nd</sup> to 5<sup>th</sup> birth with a short (less than 24 month) birth interval, 2<sup>nd</sup> to 5<sup>th</sup> birth with a medium (between 24 and 48 month) birth interval, 2<sup>nd</sup> to 5<sup>th</sup> birth with a long (greater than 48 month) birth interval, 6 or greater birth with a short birth interval, 6 or greater birth with a medium birth interval, and 6 or greater birth with a long birth interval.

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<sup>4</sup> The immunization status of the child is important to consider given that pathogens may be deterred if immunized (Antai, 2010). However, fewer than half of children had a vaccination card, so I cannot use this variable without losing a significant portion of children in the analyses. I also replicated the models for girls and boys separately to investigate possible interactions. Since the significance and magnitude were the same for both models, there is little evidence of interaction of gender and other variables.

*Place of birth* indicates whether a child was delivered at home, at a hospital or health center, through a traditional birth attendant, or at a different location (other). Mortality is significantly reduced for children born in a hospital or health center in Malawi (Bolstad & Manda, 2001).

*Age of mother* at the child's birth is correlated with mortality (for infants more so than children) such that younger and older women who have children have a greater risk for child mortality. This may be due to underdevelopment of the reproductive system for young mothers and scaring effects for older mothers (Hobcraft, McDonald, & Rutstein, 1985; Kandala & Ghilagaber, 2005). Because of the J-shaped relation of age of mother to child mortality, an age-squared variable will also be included in the models.

The birth weight of the child is one of the main predictors of infant and child mortality (Eberstein, Nam, & Hummer, 1990). Low birth weight infants and children show higher risks for mortality than infant and children with normal birth weights. The majority (about 52 percent) of birth weights are not available for infants and children in the Malawi dataset; however there is an indicator of estimated *size at birth* which is self-reported by the mother.<sup>5</sup> This variable is composed of five categories: very small, smaller than average, average, larger than average, and very large.

### **Empowerment Variables**

Numerous measures of empowerment are included in the analyses that have been used in previous literature. These include religion, education, age at first marriage, polygamy and wife rank, household head, work status, five measures of final say on decisions, four measures of justification for refusal of sex, four measures of husband's control over the wife and difficulties in getting medical care. These measures are listed in Table 1 according to the corresponding social institutional context.

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<sup>5</sup> For the births that did have birth weight indicated, birth weight increased significantly with the mother's estimated size at birth estimate ( $p < 0.001$ ).

<b>Table 1. Institutions and Empowerment Variables, MDHS 2004</b>	
<b>Institution</b>	<b>Variable(s)</b>
<b>Family/kinship</b>	Age at marriage Polygamous marriage/wife rank Final say on health care, visiting family/relatives, food cooked Justification for refusal of sex (4 variables) Justification for domestic violence (6 variables) Husband's control over wife (4 variables)
	Difficulties getting medical help due to knowing where to go, getting permission, getting money needed for treatment, and distance to health facility
<b>Religion</b>	Religious affiliation
<b>Politics</b>	
<b>Economy</b>	Work status Final say on large household and daily purchases Difficulties getting medical help due to money issues
<b>Education</b>	Educational attainment Difficulties getting medical help due to not knowing where to go

### **Empowerment Variables—Life Events**

*Religion* may influence infant and child mortality through practices and norms associated with particular groups. Religion is comprised of Christians, Muslims, and other. While Muslims usually reside in the southern region, there are areas in the central and northern region with Muslim populations. While some studies find Muslim areas have high child mortality rates (Caldwell, 1986; Kravdal, 2004), other studies find religion is not a significant predictor of child mortality (Benefo & Schultz, 1996; Ghuman, 2003). This may be due to the women's limited access to education and mobility among some Muslim populations. These restrictions may not pertain to Muslim women in Malawi, however, as areas where these women tend to live in the southern region show higher women's geographic mobility than areas in the north (Schatz, 2003).

*Education* is divided into three categories—no education, primary, and secondary or higher. Women's education has been found to be one of the most significant predictors of infant and child mortality internationally (Caldwell, 1986) as well as in Malawi (Kandala &

Ghilagaber, 2006). Knowledge and skills received from schooling gives recipients of formal education a wider world view, which may include different gender roles than the norm in a particular setting. Also, more educated women tend to utilize government and private health care resources more so than less educated women (Caldwell, 1989). Additionally, women's education can work through social networks such that the bargaining power of women through learning from others and social influence of others. For example, lower educated women may learn from their higher educated peers about health practices (Kravdal, 2004).

*Age at first marriage* is measured in years, ranging from age 10 to age 42.<sup>6</sup> Women who marry later tend to have higher education, more bargaining power in the household, and more health knowledge (Clark, Bruce & Dude, 2006), as well as lower child mortality rates (Dyson & Moore, 1983).

*Polygamous marriage* indicates whether a woman is in a marriage with a polygamous husband and, if so, what number wife she is. About 13 percent of women in the sample are in a polygamous marriage. This variable is coded as not in a polygamous marriage, first wife, second or higher wife, or not applicable (divorce/separated). Women who are in polygamous marriages are likely to be less educated and practice traditional child bearing methods, such as having a birth at home rather than in a hospital. Being in a polygamous marriage may also indicate less empowerment in the household through subordination to other wives (in addition to the husband). Also, being in a polygamous marriage is found to be associated with higher risk for infant and child mortality (Defo 1996; Sear et al. 2002). However, other research has found that polygamy is beneficial to children's health in lower socioeconomic households (Amankwaa, Eberstein, & Schmertmann, 2001). There is reason to believe that children born into families with polygamous marriages may have a higher risk of mortality due to the lower autonomy of women in the northern, patrilocal region where there is the highest proportion of polygamous marriages in Malawi (Schatz, 2003).

*Work status* is a variable that addresses whether a woman works inside or outside of her home and if she receives pay for her work. The following are the possible categories in this variable—does not work, works at home and is not paid, works at home and is paid in cash or in

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<sup>6</sup> Of the 11,698 women in the sample, 16.3 percent (n=1,902) have never been married. Of these, only 197 reported ever having at least one child. Further, 89 reported having at least one child in the previous 5 years of the survey; 65 of which were not missing on any variables in the analysis. These women were dropped due to their small sample size. Thus, for this analysis, all infants and child had mothers who were married at some point in time.



kind, works away from home and is not paid, or works away from home and is paid in cash or in kind. In some developing countries where working outside of the home is not normative for women, higher child mortality rates are found for women who work outside of the home (Caldwell & McDonald, 1982; Farah & Preston, 1982). Working outside of the home may indicate economic stress in the household or lack of child care for children of working mothers, depending on the type of work<sup>7</sup>.

### **Empowerment Variables—Attitudinal Measures**

Final say on decisions pertaining to (1) *health care*, (2) making *large household purchases*, (3) *visiting family or relatives*, and (4) *food cooked* for each day. For each measure, three categories are available—respondent alone, jointly with husband, or someone else making the decision. Less than 1 percent of the sample reported “decision not made or don’t know” to these questions, and these respondents were dropped. Previous literature shows that bargaining power in the household through decision-making (either solely or jointly) may influence child mortality through access and control over resources (Eswaran, 2002). In Malawi, women who have less of a final say on these decisions have a greater risk for nutritional deprivation (Hindin, 2005), which then may influence their children’s health and survival.

*Justification for refusal of sex* is a set of measures that indicate whether or not a wife is justified refusing sex with her husband. These scenarios include (1) when a wife knows that her *husband has a sexually transmitted disease*, (2) when her *husband has sex with women other than his wife (or wives)*, (3) when the *wife has recently given birth*, and (4) when the *wife is tired or not in the mood*. For all of these measures, a yes, no, or don’t know response was coded. Because less than 1.5 percent of the sample reported “don’t know” to these questions, I choose to drop these respondents in this category due to the response sensitivity of these questions<sup>8</sup> (Yount, Halim & Head, 2011). Negotiating power concerning sexual relations with a husband is crucial to reproductive health and related outcomes (Dixon-Mueller, 1993; Wolff, Blanc & Gage, 2000), such as child mortality.

*Justification for domestic violence* includes several measures of whether a husband is justified in beating his wife. These measures include whether or not a husband is justified in

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<sup>7</sup> However, type of work is not available for over half of the sample.

<sup>8</sup> Sensitivity analysis concerning the “don’t knows” was conducted by assigning them to the yes group, and another with the “don’t knows” assigned to the no group. Results remained the same regardless of the assignment, so I chose to drop these few individuals.

beating his wife if (1) she *goes out without telling him* (2) she *neglects the children* (3) she *argues with him* (4) she *refuses to have sex* with him (5) she *burns food* or (6) she has an *extramarital affair*. For each of these variables, the respondent answered yes, no or don't know. Because less than 1.0 percent of the respondents reported "don't know" to some of these questions, I dropped these respondents from the sample. Partner violence in sub-Saharan Africa is common (almost a third of women in Malawi experienced sexual or physical violence), and is also significantly related to child nutrition and mortality (Rico, Fenn, Abramsky & Watts, 2011; Hindin, Kishor & Ansara, 2008).

*Husband's control over the wife* is a set of measures that indicate the extent to which a husband controls mobility, contacts, and money. The following are questions that respondents answers yes, no, or don't know: does your husband (1) not permit you to *meet your female friends* (2) *limit your contact with your family* (3) *insist on knowing where you are* at all times (4) *not trust you with any money*? Because less than 1.0 percent of the respondents reported "don't know" to some of these questions, I dropped these respondents from the sample. These variables indicate mobility and money restrictions on the wife, which previous research shows is correlated with utilization of maternal health care resources (Bloom, Wypij, & Das Gupta, 2001) and child mortality (Kravdal, 2004).

There are several variables that indicate the *difficulties in getting medical help*. These include (1) knowing where to go (2) getting permission to go and (3) getting money needed for treatment. For all of these variables, respondents indicated if it was a big problem or no problem. (Don't know or not applicable were not possible choices for these variables). These variables indicate the extent to which women have the knowledge about where to go for medical help, control over their mobility, and financial issues.

## **Methods**

Using the Malawian Demographic and Health Surveys, I first use descriptive statistics to describe the distribution of the dependent and independent variables. I then investigate the relationship between demographic, socioeconomic, and life-event empowerment variables, and attitudinal empowerment variables. I use bivariate analyses to investigate how demographic, socioeconomic, proximate, and empowerment measures are related to infant and child mortality. Multivariate analysis is then employed to investigate this relationship.

Similar to previous research methodology on empowerment and infant and child mortality (Hossain, Phillips, & Pence 2007; Kravdal 2004; Sear, Steele, McGregor, & Mace 2002), I use multivariate hazard analysis to assess the risk of child death based on the above variables. Infants and children remaining alive will be right-censored. For children who are reported dead, each child has a month and year of birth and month and year of death. For children who are reported still living, each child has a month and year of birth. These children are right-censored since they remain living at the time of the survey. This data allows me to create survival histories by monthly intervals for infants, and grouped by six month intervals for children (12-17, 18-23, 24-29, 30-35, 36-41, 42-47, 48-53 and 54-59 months). Grouping children into six month intervals decreases the number of month-variables in the model—this technique has been used in previous research (e.g. Sear et al. 2002). Grouping also eliminates the problem of having zero children die during particular months—variation in the dependent variable during each interval is needed in order for all observations in the model to be included. Because children-months are grouped with 6 months in each group, I will use piecewise constant hazard models. The timing of birth and death are in months, so I will estimate discrete-time hazard models.

I cannot assume that the hazard of death is proportional, thus I use the logistic discrete hazard model (I also ran the complimentary log-log model and glamm with clogclog link model, and results are similar to the logistic results). The logistic discrete hazard model estimates a coefficient, which can then be exponentiated to get the hazard odds ratio. I run separate models by infant (0-11 months) and childhood (12-59 months, in 3 month categories) because factors that influence infant and child mortality may be different over these five years of life (Manda, 1999; Sear, Steele, McGregor, & Mace 2002). For example, social and economic factors become more important with increasing age of the child (Manda, 1999). Child mortality models start with all children who survived to age one and omit all children who died in the first year of life. I use cluster robust standard errors to account for the possibility that two or more children may have the same mother (and thus the children would have the same characteristics for demographic, socioeconomic and empowerment variables, except for birth characteristics).

As stated above, I include only births within the past five years of the survey (1999-2004). These births include detailed information (e.g. birth interval/order and place of birth). In

addition, limiting the sample to the past five years minimizes the possibility that covariates collected during the survey may change over time.

Table 2 shows the number of children who survived, died, or were censored during each of these time periods in Malawi. Right-censored infants or children are reported alive at the time of the survey, but are less than 11 months old for infants and less than 59 months old for children. Those who are reported alive at the time of survey and 11 months (or older) for infants and 59 months for children have survived and are counted in the “survived” row.

<b>Table 2. Number of Children Who Survived, Died or Were Censored, MDHS 2004</b>		
	Infancy (0-11 months)	Childhood (12-59 months)
Died	406	126
Right-Censored	1451	6187
Survived	6429	116
Total	8286	6429

I run three sets of models for both infant and child mortality, corresponding to my research questions above. The first model incorporates demographic, socioeconomic, and life-event empowerment variables. The second model adds women’s attitudinal empowerment variables to the first model. The third model incorporates birth characteristics. I also perform likelihood ratio tests to compare the explanatory power of the models. The following table illustrates these models:

**Table 3. Model Specification**

<b>Model 1 (Demographic, Socioeconomic, Empowerment—Life Events)</b>	<b>Model 2 (Empowerment—Attitudes)</b>	<b>Model 3 (Birth Characteristics)</b>
Residence (Urban/Rural) Region  Household wealth Head of household Religious affiliation Education  Age at first marriage Polygamy and wife rank  Work status	Residence (Urban/Rural) Region  Household wealth Head of household Religious affiliation Education  Age at first marriage Polygamy and wife rank  Work status Final say on decisions (5 variables)  Justification for refusal of sex (4 variables)  Justification for domestic violence (6 variables) Control over wife (4 variables) Difficulties in getting medical help (3 variables)	Residence (Urban/Rural) Region  Household wealth Head of household Religious affiliation Education  Age at first marriage Polygamy and wife rank  Work status Final say on decisions (5 variables)  Justification for refusal of sex (4 variables)  Justification for domestic violence (6 variables) Control over wife (4 variables) Difficulties in getting medical help (3 variables) Gender Previous birth interval/birth order Place of birth Age of mother at birth  Size at birth

## CHAPTER FOUR

In this chapter, I first describe the demographic characteristics of the sample from both the mother and child-level. I then display the distribution of deaths per mother. Following this, I present the distribution of demographic, socioeconomic and life-event empowerment variables and attitudinal empowerment variables. Finally, bivariate and multivariate discrete-time hazard models are displayed by infants and children.

### Descriptive Statistics

Only about ten percent of women with children born between 1999 and 2004 in the MDHS live in urban areas (Table 4). About one-half of women live in the Southern region and one-third of women live in the Central region. Women in this sample come from a relatively even distribution of household wealth, but a lower percentage of women are very poor or very wealthy. The vast majority of households are husband-headed (over 80%).

<b>Table 4. Descriptive Statistics--Mother Variables (N=5,982)</b>			
		n	%
<b>Residence</b>			
	Urban	658	11.00
	Rural	5,324	89.00
<b>Region</b>			
	North	713	11.91
	Central	2169	36.26
	South	3,100	51.83
<b>Household Wealth</b>			
	Poorest	1,102	18.42
	2	1,385	23.15
	3	1,414	23.64
	4	1,207	20.18
	Wealthiest	874	14.61
<b>Head of Household</b>			
	Husband	4,842	80.64

<b>Table 4--Continued. Descriptive Statistics--Mother Variables (N=5,982)</b>			
		n	%
	Wife	772	12.99
	Other	381	6.37

Source: 2004 MDHS

Table 5 displays life-event empowerment variables. The majority of women are Christian (82%), while 17% consider themselves Muslim. A quarter of women report no formal education. About half of women in the sample report marrying between ages 17 and 20 and 41% report marrying before 17. The majority (77%) are not in polygamous relationships. A large percentage of women report not working (37%) and working away from home without pay (29%).<sup>9</sup>

<b>Table 5. Descriptive Statistics--Empowerment Variables, Life Events (N=5,982)</b>			
		n	%
Religion	Christian	4,901	81.93
	Muslim	1023	17.10
	Other	58	0.97
Education	None	1,608	26.88
	Primary	3,802	63.56
	Secondary or above	572	9.56
Age at First Marriage	<17	2,481	41.47
	17-20	2,775	46.39
	21+	726	12.14

<sup>9</sup> This variable was derived from two survey questions: “Do you usually work at home or away from home?” and “Are you paid or do you earn in cash or king for this work or are you not paid at all?” Work may be defined by women differently—for example, some women may consider working at home as “not working” because they are not paid for housework, while other women may consider working at home as “working at home, not paid.”

<b>Table 5--Continued. Descriptive Statistics-- Empowerment Variables, Life Events (N=5,982)</b>			
		n	%
<b>Polygamy</b>			
	Not polygamous	4,608	77.03
	First wife	380	6.35
	Second wife +	460	7.69
	Divorced	534	8.93
<b>Work Status</b>			
	Does not work	2,201	36.79
	Home, paid	904	15.11
	Home, not paid	390	6.52
	Away, not paid	1,747	29.20
	Away, paid	740	12.37
Source: 2004 MDHS			

Table 6 displays attitudinal empowerment variables. One-fifth of women have the final say in healthcare, while 70% of women have someone else (primarily the husband) have the final say. This is more pronounced with large household purchases, as only 11% of women have the final say. On the other hand, there is a relatively equal distribution concerning the final say when visiting family and friends: 24% of respondents decide, 37% jointly decide, and 39% of husbands/others decide. The majority of women have the final say with regards to food cooked, as 66% make this decision.

The majority of women agree that it is allowable for a woman to refuse sex with her husband if she knows that he has a sexually-transmitted disease (77%), he has sex with other women (74%), she recently gave birth (84%), or she is tired or not in the mood (68%). Similarly, the majority of women do not justify any form of domestic violence. The only scenario which domestic violence is justified by a large percentage of women is when a woman has an extramarital affair (42% report domestic violence is justified).

One fifth of women's husbands control their ability to meet friends and contact family. Twenty percent of women report that their husband does not trust them with money. About 60% of women report that their husband must know their location when going out.



Finally, a large percentage of women report knowing where to go or getting permission to go receive medical help is not a problem (84% and 91%, respectively). However, 64% of women report getting money for treatment as a big problem.

<b>Table 6. Descriptive Statistics--Empowerment Variables, Attitude Measures (N=5,982)</b>			
		n	%
Final say:			
Health care			
	Respondent	1,304	21.80
	Jointly	506	8.46
	Husband/Someone else	4,172	69.74
Large household purchases			
	Respondent	692	11.57
	Jointly	556	9.29
	Husband/Someone else	4,734	79.14
Visiting family, friends			
	Respondent	1,429	23.89
	Jointly	2,216	37.04
	Husband/Someone else	2,337	39.07
Food cooked			
	Respondent	3,952	66.06
	Jointly	504	8.46
	Husband/Someone else	1,526	25.51
Refusal of sex:			
Knows STD			
	Yes	4,596	76.83
	No	1,386	23.17
Sex with other women			
	Yes	4,446	74.32
	No	1,536	25.68
Recently given birth			
	Yes	5,033	84.14
	No	949	15.86
Tired, not in mood			
	Yes	4,052	67.74
	No	1,930	32.26

**Table 6--Continued. Descriptive Statistics--  
Empowerment Variables, Attitude Measures (N=5,982)**

		n	%
<b>Domestic Violence justification:</b>			
Going out	Yes	881	14.73
	No	5,101	85.27
Neglects children	Yes	1052	17.59
	No	4,930	82.41
Argues	Yes	720	12.04
	No	5262	87.96
Refusal of sex	Yes	884	14.78
	No	5098	85.22
Burns food	Yes	708	11.84
	No	5274	88.16
Extramarital affair	Yes	2,514	42.03
	No	3,968	57.97
<b>Control:</b>			
Meet friends	Yes	1,251	20.91
	No	4,731	79.09
Contact with family	Yes	1,299	21.72
	No	4,683	78.28
Know location	Yes	3,583	59.80
	No	2,399	40.10
Not trust with money	Yes	1,218	20.36
	No	4,764	79.64
<b>Medical Help Difficulties:</b>			
Know where to go	No problem	5019	83.90
	Big problem	962	16.10

	n	%
Permission to go		
No problem	5,457	91.22
Big problem	523	8.78
Getting money for treatment		
No problem	2137	35.72
Big problem	3842	64.28

Source: 2004 MDHS

About half of the infants and children in the sample are female (Table 7). The largest proportion had a short previous birth interval and were between the 2<sup>nd</sup> and 5<sup>th</sup> child to be borne by the mother (39%). Mother's average age at birth is 25.6 years old. The majority of children (55%) were born in a hospital or health center, while about one-third (30%) were born at home. About half (49%) were estimated as average size by his or her mother.

	n	%
Gender		
Male	4,165	50.27
Female	4,121	49.73
Birth Interval/Order		
First birth	1,776	21.43
2-5 birth, short BI	3,252	39.25
2-5 birth, medium BI	771	9.30
2-5 birth, long BI	1,096	13.23
6+ birth, short BI	769	9.28
6+ birth, medium BI	220	2.66
6+ birth, long BI	402	4.85
Age of mother at birth (mean, st. dev)	25.6	6.5
Place of birth		
Home	2,494	30.10
Hospital/health center	4,588	55.37

<b>Table 7--Continued. Descriptive Statistics—Birth Event Variables (N=8,286)</b>			
		n	%
	Birth attendant	1,115	13.46
	Other	89	1.07
Size at birth	Very small	286	3.45
	Smaller than average	956	11.54
	Average	4,031	48.65
	Larger than average	1,999	24.13
	Very large	803	9.69
	Don't know	211	2.55
	Source: 2004 MDHS		

### **Distribution of Deaths**

Table 8 displays the number of births and number of deaths mothers in the MDHS. About 12 percent of children in the sample come from mothers who had only 1 child between 1999 and 2004. These children count for over half (68.7 percent) of the number of children who died. About 4 percent of children who died were born to mothers who had two children between 1999 and 2004, accounting for 28.9 percent of the children who died.

<b>Table 8. Births and Deaths, 1999-2004</b>			
	Children Alive	Children Dead	Total
Number of Births per Mother			
1	2,824	366	3,190
2	4,070	154	4,224
3	773	10	783
4+	87	2	89
	7,754	532	8286

### **Survival Curves**

Figures 2 and 3 show the Kaplan-Meier survival curves for infant and child mortality, respectively. By 6 months old, about 2 percent of infants in the sample do not survive, and by the end of infancy at 11 months, almost 4 percent of infants do not survive.

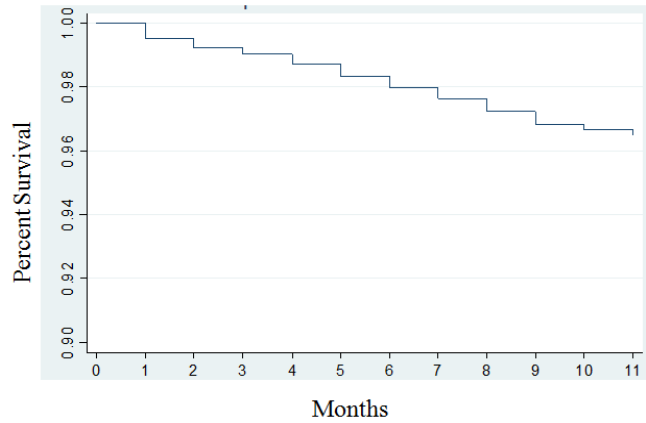


Figure 2. Kaplan Meier Survival Curve, Infant Mortality

For children (those who survived to age one), by 24 months about 2 percent of children do not survive. The drop in survival at 24 months is most likely an artifact of age clumping, as research shows that age lumping at particular years (including 12 months, 24 months, etc.) is common in survey research. An additional 1 percent do not survive to 5 years old (past 59 months).

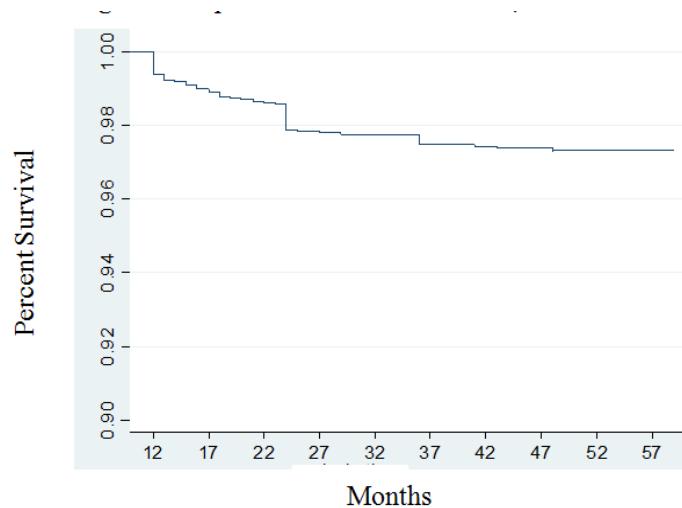


Figure 3 . Kaplan Meier Survival Curve, Child Mortality

### Distribution of Demographic, Socioeconomic, and Empowerment Variables

In order to investigate the relationship between demographic, socioeconomic and life-event empowerment variables and attitudinal variables, Tables 9-17 show the distribution of demographic, socioeconomic and life-event empowerment variables and attitudinal variables. In Tables 9 and 10, all “final say” variables that relate to various decisions are significantly associated with demographic, socioeconomic and life-event empowerment variables.

<b>Table 9. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables</b>								
Final Say For:								
	Health Care				Large Household Purchases			
	Respon- -dent	Jointly	Husband/ Someone Else	p-value	Respon- -dent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
<b>Residence</b>								
Urban	123	114	421		64	129	465	
	18.69	17.33	63.98		9.73	19.60	70.67	
Rural	1181	392	3751		628	427	4269	
	22.18	7.36	70.45	0.000	11.80	8.02	80.18	0.000
<b>Region</b>								
North	197	64	452		68	117	528	
	27.63	8.98	63.39		9.54	16.41	74.05	
Central	443	145	1581		217	157	1795	
	20.42	6.69	72.89		10.00	7.24	82.76	
Southern	664	297	2139		407	282	2411	
	21.42	9.58	69.00	0.000	13.13	9.10	77.77	0.000
<b>Household Wealth</b>								
Poorest	388	59	655		283	55	764	
	35.21	5.35	59.44		25.68	4.99	69.33	
Poor	280	96	1009		146	88	1151	
	20.22	6.93	72.85		10.54	6.35	83.10	
Average	263	102	1049		123	117	1174	

**Table 9--Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables**

Final Say For:								
	Health Care				Large Household Purchases			
	Respon- -dent	Jointly	Husband/ Someone Else	p-value	Respon- -dent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Above average	18.60 206	7.21 111	74.19 890		8.70 80	8.27 127	83.03 1000	
Wealthiest	17.07 167	9.20 138	73.74 569		6.63 60	10.52 169	82.85 645	
Head of Household	19.11	15.79	65.10	0.000	6.86	19.34	73.80	0.000
Husband	664	453	3707		172	493	4159	
Wife	13.76 14	9.39 9	76.84 77		3.57 461	10.22 28	86.21 288	
Other	68.60 107	3.35 27	28.06 247		59.33 59	3.60 35	37.07 287	
Religion	28.08	7.09	64.83	0.000	15.49	9.19	75.33	0.000
Christian	1039	446	3416		515	503	3883	
Muslim	21.20 12	9.10 1	69.70 45		10.51 4	10.26 2	79.23 52	
Other	20.69 253	1.72 59	77.59 711		6.90 173	3.45 51	89.66 799	
Education	24.73	5.77	69.50	0.001	16.91	4.99	78.10	0.000
None	378	110	1120		226	106	1276	
	23.51	6.84	69.65		14.05	6.59	79.35	

**Table 9--Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables**

Final Say For:								
	Health Care				Large Household Purchases			
	Respon- -dent	Jointly	Husband/ Someone Else	p-value	Respon- -dent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Primary	809	303	2690		418	322	3062	
Secondary	21.28	7.97	70.75		10.99	8.47	80.54	
	117	93	362		48	128	396	
	20.45	16.26	63.29	0.000	8.39	22.38	69.23	0.000
Age at First Marriage [mean(st.dev .)]	17.41	17.64	17.26		17.60	17.85	17.22	
	4.14	3.20	3.06	0.014	3.38	3.16	3.03	0.000
Polygamy Not polygamous	678	451	3479		197	488	3923	
First wife	14.71	9.79	75.50		4.28	10.59	85.13	
	82	13	285		36	26	318	
Second wife +	21.58	3.42	75.00		9.47	6.84	83.68	
	120	28	312		65	25	370	
Divorced	26.09	6.09	67.83		14.13	5.43	80.43	
	424	14	96		394	17	123	
	79.40	2.62	17.98	0.000	73.78	3.18	23.03	0.000
Work Status Does not work	413	157	1631		205	179	1817	
Home, paid	18.76	7.13	74.10		9.31	8.13	82.55	
	184	81	639		96	87	721	
Home, not paid	20.35	8.96	70.69		10.62	9.62	79.76	
	74	41	275		52	45	293	
	18.97	10.51	70.51		13.33	11.54	75.13	



<b>Table 9--Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables</b>								
Final Say For:								
	Health Care				Large Household Purchases			
	Respon- -dent	Jointly	Husband/ Someone Else	p-value	Respon- -dent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Away, not paid	413	148	1186		190	138	1419	
	23.64	8.47	67.89		10.88	7.90	81.22	
Away, paid	220	79	441		149	107	484	
	29.73	10.68	59.59	0.000	20.14	14.46	65.41	0.000

<b>Table 10. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables</b>								
Final Say For:								
	Visiting family, friends				Food cooked			
	Respon- -dent	Jointly	Husban d/Some one Else	p-value	Respond ent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Residence								
Urban	133	281	244		409	84	165	
	20.21	42.71	37.08		62.16	12.77	25.08	
Rural	1,296	1,935	2,093		3,543	420	1,361	
	24.34	36.34	39.31	0.003	66.55	7.89	25.56	0.000
Region								
North	179	251	283		569	46	98	
	25.11	35.20	39.69		79.80	6.45	13.74	
Central	466	748	955		1,512	119	538	
	21.48	34.49	44.03		69.71	5.49	24.80	

**Table 10—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables**

Final Say For:								
	Visiting family, friends				Food cooked			
	Respon- -dent	Jointly	Husban d/Some one Else	p-value	Respond ent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Southern	784	1,217	1,099		1,871	339	890	
	25.29	39.26	35.45	0.000	60.35	10.94	28.71	0.000
Household Wealth								
Poorest	422	311	369		771	72	259	
	38.29	28.22	33.48		69.96	6.53	23.50	
Poor	331	501	553		924	98	363	
	23.90	36.17	39.93		66.71	7.08	26.21	
Average	300	500	614		912	104	398	
	21.22	35.36	43.42		64.50	7.36	28.15	
Above average	226	490	491		789	110	308	
	18.72	40.60	40.68		65.37	9.11	25.52	
Wealthiest	150	414	310		556	120	198	
	17.16	47.37	35.47	0.000	63.62	13.73	22.65	0.000
Head of Household								
Husband	734	2,017	2,073		3,068	437	1,319	
	15.22	41.81	42.97		63.60	9.06	27.34	
Wife	575	102	100		691	25	61	
	74.00	13.13	12.87		88.93	3.22	7.85	

**Table 10—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables**

Final Say For:								
	Visiting family, friends				Food cooked			
	Respon- -dent	Jointly	Husban d/Some one Else	p-value	Respond ent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Other	120	97	164		193	42	146	
Religion	31.50	25.46	43.04	0.000	50.66	11.02	38.32	0.000
Christian	1,114	1,936	1,851		3,297	435	1,169	
	22.73	39.50	37.77		67.27	8.88	23.85	
Muslim	12	20	26		28	9	21	
	20.69	34.48	44.83		48.28	15.52	36.21	
Other	303	260	460		627	60	336	
Education	29.62	25.42	44.97	0.000	61.29	5.87	32.84	0.000
None	428	509	671		1,016	113	479	
	26.62	31.65	41.73		63.18	7.03	29.79	
Primary	893	1,437	1,472		2,549	316	937	
	23.49	37.80	38.72		67.04	8.31	24.64	
Secondary	108	270	194		387	75	110	
	18.88	47.20	33.92	0.000	67.66	13.11	19.23	0.000
Age at First Marriage [mean(st.de v.)]	17.39 (3.23)	17.42 (3.00)	17.19 (3.08)	0.021	17.38 (3.03)	17.70 (3.37)	17.07 (3.13)	0.021

**Table 10—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Final Say" Attitudinal Empowerment Variables**

Final Say For:								
	Visiting family, friends				Food cooked			
	Respon- -dent	Jointly	Husban d/Some one Else	p-value	Respond ent	Jointly	Husband/ Someone Else	p-value
	n (%)	n (%)	n (%)		n (%)	n (%)	n (%)	
Polygamy Not polygamous	778	1,910	1,920		2,939	437	1,232	
	16.88	41.45	41.67		63.78	9.48	26.74	
First wife	80	136	164		252	21	107	
	21.05	35.79	43.16		66.32	5.53	28.16	
Second wife +	141	136	183		326	25	109	
	30.65	29.57	39.78		70.87	5.43	23.70	
Divorced	430	34	70		435	21	78	
	80.52	6.37	13.11	0.000	81.46	3.93	14.61	0.000
Work Status								
Does not work	493	699	1,009		1,371	175	655	
	22.40	31.76	45.84		62.29	7.95	29.76	
Home, paid	202	355	347		643	58	203	
	22.35	39.27	38.38		71.13	6.42	22.46	
Home, not paid	95	150	145		260	36	94	
	24.36	38.46	37.18		66.67	9.23	24.10	
Away, not paid	414	705	628		1,162	144	441	
	23.70	40.35	35.95		66.51	8.24	25.24	
Away, paid	225	307	208		516	91	133	
	30.41	41.49	28.11	0.000	69.73	12.30	17.97	0.000

Tables 11 and 12 show that attitudes about justifying refusing sex are significantly related to all demographic, socioeconomic and life-event empowerment variables in most cases. However, there are exceptions. Age at first marriage is not significantly related to demographic, socioeconomic and life-event empowerment variables in all four instances that women report justifying the refusal of sex. The head of household and polygamy variables are not significantly related to justifying the refusal of sex in three of the four instances. In addition, household wealth and religion are not significantly related to justifying the refusal of sex when the woman is tired or not in the mood. Work status is not significantly related to justifying the refusal of sex when the husband has a known STD.

<b>Table 11. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables</b>						
Justification for refusal of sex if:						
Known STD			Sex with other women			
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
Residence						
Urban	105 15.96	553 84.04		143 21.73	515 78.27	
Rural	1,281 24.06	4,043 75.94	0.000	1,393 26.16	3,931 73.84	0.014
Region						
North	115 16.13	598 83.87		174 24.4	539 75.6	
Central	618 28.49	1,551 71.51		630 29.05	1,539 70.95	
Southern	653 21.06	2,447 78.94	0.000	732 23.61	2,368 76.39	0.000
Household Wealth						
Poorest	278 25.23	824 74.77		306 27.77	796 72.23	
Poor	366 26.43	1,019 73.57		375 27.08	1,010 73	
Average	349 24.68	1,065 75.32		376 26.59	1,038 73.41	

**Table 11—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables**

Justification for refusal of sex if:						
Known STD			Sex with other women			
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
Above average	255	952		301	906	
	21.13	78.87		24.94	75.06	
Wealthiest	138	736		178	696	
	15.79	84.21	0.000	20.37	79.63	0.001
Head of Household						
Husband	1,141	3,683		1,258	3,566	
	23.65	76.35		26.08	73.92	
Wife	166	611		196	581	
	21.36	78.64		25.23	74.77	
Other	79	302		82	299	
	20.73	79.27	0.190	21.52	78.48	0.140
Religion						
Christian	1,098	3,803		1,224	3,677	
	22.40	77.6		24.97	75.03	
Muslim	17	41		16	42	
	29.31	70.69		27.59	72.41	
Other	271	752		296	727	
	26.49	73.51	0.010	28.93	71.07	0.029
Education						
None	448	1,160		496	1,112	
	27.86	72.14		30.85	69.15	
Primary	847	2,955		928	2,874	
	22.28	77.72		24.41	75.59	
Secondary	91	481		112	460	
	15.91	84.09	0.000	19.58	80.42	0.000
Age at First Marriage [mean(st.dev.)]	17.19(3.21)	17.36 (3.05)	0.084	17.32 (3.23)	17.32 (3.03)	0.994
Polygamy						
Not polygamous	1,051	3,557		1,150	3,458	

**Table 11—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables**

Justification for refusal of sex if:						
Known STD				Sex with other women		
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
First wife	22.81 95	77.19 285		24.96 122	75.04 258	
Second wife +	25.00 120	75.00 340		32.11 135	67.89 325	
Divorced	26.09 120	73.91 414		29.35 129	70.65 405	
Work Status	22.47	77.53	0.334	24.16	75.84	0.004
Does not work	562	1,639		595	1,606	
Home, paid	25.53 218	74.47 686		27.03 221	72.97 683	
Home, not paid	24.12 102	75.88 288		24.45 108	75.55 282	
Away, not paid	26.15 360	74 1,387		27.69 446	72.31 1,301	
Away, paid	20.61 144	79.39 596		25.53 166	74.47 574	
	19.46	80.54	0.000	22.43	77.57	0.100

**Table 12. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables**

Justification for refusal of sex if:						
Recently given birth				Tired, not in mood		
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
Residence						
Urban	76	582		190	468	
	11.55	88.45		28.88	71.12	
Rural	873	4,451		1,740	3,584	
	16.4	83.6	0.000	32.68	67.32	0.049
Region						
North	73	640		217	496	

**Table 12—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables**

Justification for refusal of sex if:						
Recently given birth			Tired, not in mood			
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
Central	10.24 442	89.76 1,727		30.43 911	69.57 1,258	
Southern	20.38 434	79.62 2,666		42 802	58 2,298	
	14	86	0.000	25.87	74.13	0.000
Household Wealth						
Poorest	196	906		362	740	
	17.79	82.21		32.85	67.15	
Poor	244	1,141		458	927	
	17.62	82.38		33.07	66.93	
Average	234	1,180		463	951	
	16.55	83.45		32.74	67.26	
Above average	172	1,035		393	814	
	14.25	85.75		32.56	67.44	
Wealthiest	103	771		254	620	
	11.78	88.22	0.001	29.06	70.94	0.300
Head of Household						
Husband	776	4,048		1,600	3,224	
	16.09	83.91		33.17	66.83	
Wife	117	660		220	557	
	15.06	84.94		28.31	71.69	
Other	56	325		110	271	
	14.7	85.3	0.624	28.87	71.13	0.009
Religion						
Christian	733	4,168		1,551	3,350	
	14.96	85.04		31.65	68.35	
Muslim	14	44		24	34	
	24.14	75.86		41.38	58.62	
Other	202	821		355	668	
	19.75	80.25	0.000	34.7	65.3	0.054
Education						



**Table 12—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for refusal of sex" Attitudinal Empowerment Variables**

Justification for refusal of sex if:						
Recently given birth			Tired, not in mood			
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
None	323 20.09	1,285 79.91		573 35.63	1,035 64.37	
Primary	558 14.68	3,244 85.32		1,188 31.25	2,614 68.75	
Secondary	68 11.89	504 88.11	0.000	169 29.55	403 70.45	0.002
Age at First Marriage [mean(st.dev.)]	17.35 (3.34)	17.32 (3.04)	0.819	17.42 (3.21)	17.28 (3.03)	0.090
Polygamy						
Not polygamous	720 15.63	3,888 84.38		1,487 32.27	3,121 67.73	
First wife	68 17.89	312 82.11		130 34.21	250 65.79	
Second wife +	75 16.3	385 83.7		157 34.13	303 65.87	
Divorced	86 16.1	448 83.9	0.691	156 29.21	378 70.79	0.300
Work Status						
Does not work	426 19.35	1,775 80.65		771 35.03	1,430 64.97	
Home, paid	123 13.61	781 86.39		276 30.53	628 69.47	
Home, not paid	69 17.69	321 82.31		149 38.21	241 61.79	
Away, not paid	242 13.85	1,505 86.15		497 28.45	1,250 71.55	
Away, paid	89 12.03	651 87.97	0.000	237 32.03	503 67.97	0.000

Tables 13 and 14 show that attitudes about the justification of domestic violence in six different cases are significantly related to all demographic, socioeconomic and life-event empowerment variables for most cases. However, similar to the justification for refusal of sex variables, there are a few exceptions in which this relationship is not significant. These include residence and justifying domestic violence when the wife goes out without notifying the husband; the head of household and justifying domestic violence when the wife argues with her husband as well as burning food; polygamy and burning food; and, finally, work status and refusing sex.

<b>Table 13. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables</b>									
Justification for domestic violence if:									
	Wife goes out without notifying			Neglects Children			Argues		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
<b>Residence</b>									
Urban	576	82		581	77		611	47	
	87.54	12.46		88.3	11.7		92.86	7.14	
Rural	4,525	799		4,349	975		4,651	673	
	84.99	15.01	0.082	81.69	18.31	0.000	87.36	12.64	0.000
<b>Region</b>									
North	518	195		503	210		577	136	
	72.65	27.35		70.55	29.45		80.93	19.07	
Central	1,773	396		1,663	506		1,809	360	
	81.74	18.26		76.67	23.33		83.4	16.6	
Southern	2,810	290		2,764	336		2,876	224	
	90.65	9.35	0.000	89.16	10.84	0.000	92.77	7.23	0.000
<b>Household Wealth</b>									
Poorest	948	154		916	186		964	138	
	86.03	13.97		83.12	16.88		87	12.52	
Poor	1,163	222		1,132	253		1,201	184	
	83.97	16.03		81.73	18.27		86.71	13.29	
Average	1,195	219		1,134	280		1,213	201	
	84.51	15.49		80.2	19.8		85.79	14.21	
Above average	1,014	193		979	228		1,071	136	
	84.01	15.99		81.11	18.89		88.73	11.27	

**Table 13—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables**

Justification for domestic violence if:									
	Wife goes out without notifying			Neglects Children			Argues		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Wealthiest	781	93		769	105		813	61	
	89.36	10.64	0.003	87.99	12.01	0.000	93.02	6.98	0.000
Head of Household									
Husband	4,078	746		3,938	886		4,224	600	
	84.54	15.46		81.63	18.37		87.56	12.44	
Wife	706	71		678	99		703	74	
	90.86	9.14		87.26	12.74		90.48	9.52	
Other	317	64		314	67		335	46	
	83.2	16.8	0.000	82.41	17.59	0.001	87.93	12.07	0.068
Religion									
Christian	4,118	783		3,958	943		4,259	642	
	84.02	15.98		80.76	19.24		86.9	13.1	
Muslim	50	8		50	8		52	6	
	86.21	13.79		86.21	13.79		89.66	10.34	
Other	933	90		922	101		951	72	
	91.2	8.8	0.000	90.13	9.87	0.000	92.96	7.04	0.000
Education									
None	1,396	212		1,359	249		1,438	170	
	86.82	13.18		84.51	15.49		89.43	10.57	
Primary	3,193	609		3,083	719		3,301	501	
	83.98	16.02		81.09	18.91		86.82	13.18	
Secondary	512	60		488	84		523	49	
	89.51	10.49	0.000	85.31	14.69	0.002	91.43	8.57	0.001
Age at First Marriage [mean(st.dev.)]	17.37 (3.14)	17.08 (2.75)	0.004	17.39 (3.14)	17.00 (2.81)	0.000	17.40 (3.13)	16.92 (2.71)	0.000
Polygamy									
Not polygamous	3,925	683		3,797	811		4,042	566	
	85.18	14.82		82.4	17.6		87.72	12.28	
First wife	312	68		302	78		334	46	

<b>Table 13—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables</b>									
Justification for domestic violence if:									
	Wife goes out without notifying			Neglects Children			Argues		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Second wife +	82.11	17.89		79.47	20.53		87.89	12.11	
	379	81		355	105		394	66	
Divorced	82.39	17.61		77.17	22.83		85.65	14.35	
	485	49		476	58		492	42	
Work Status	90.82	9.18	0.000	89.14	10.86	0.000	92.13	7.87	0.010
Does not work	1,907	294		1,864	337		1,972	229	
	86.64	13.36		84.69	15.31		89.6	10.4	
Home, paid	752	152		707	197		767	137	
	83.19	16.81		78.21	21.79		84.85	15.15	
Home, not paid	311	79		309	81		330	60	
	79.74	20.26		79.23	20.77		84.62	15.38	
Away, not paid	1,524	223		1,461	286		1,555	192	
	87.24	12.76		83.63	16.37		89.01	10.99	
Away, paid	607	133		589	151		638	102	
	82.03	17.97	0.000	79.59	20.41	0.000	86.22	13.78	0.000

<b>Table 14. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables</b>									
Justification for domestic violence if:									
	Refuses sex			Burns food			Extramarital affair		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Residence									
Urban	602	56		620	38		474	184	
	91.49	8.51		94.22	5.78		72.04	27.96	
Rural	4,496	828		4,654	670		2,975	2,348	
	84.45	15.55	0.000	87.42	12.58	0.000	55.89	44.11	0.000
Region									
North	539	174		575	138		267	446	
	75.6	24.4		80.65	19.35		37.45	62.55	
Central	1,713	456		1,825	344		1,102	1,067	

**Table 14—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables**

Justification for domestic violence if:									
	Refuses sex			Burns food			Extramarital affair		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Southern	78.98	21.02		84.14	15.86		50.81	49.19	
	2,846	254		2,874	226		2,080	1,019	
	91.81	8.19	0.000	92.71	7.29	0.000	67.12	32.88	0.000
Household Wealth									
Poorest	938	164		955	147		650	452	
	85.12	14.88		86.66	13.34		58.98	41.02	
Poor	1,134	251		1,197	188		762	623	
	81.88	18.12		86.43	13.57		55.02	44.98	
Average	1,202	212		1,232	182		800	614	
	85.01	14.99		87.13	12.87		56.58	43.42	
Above average	1,020	187		1,071	136		657	549	
	84.51	15.49		88.73	11.27		54.48	45.52	
Wealthiest	804	70		819	55		580	294	
	91.99	8.01	0.000	93.71	6.29	0.000	66.36	33.64	0.000
Head of Household									
Husband	4,073	751		4,246	578		2,732	2,091	
	84.43	15.57		88.02	11.98		56.65	43.35	
Wife	689	88		697	80		503	274	
	88.67	11.33		89.7	10.3		64.74	35.26	
Other	336	45		331	50		214	167	
	88.19	11.81	0.002	86.88	13.12	0.291	56.17	43.83	0.000
Religion									
Christian	4,140	761		4,273	628		2,693	2,207	
	84.47	15.53		87.19	12.81		54.96	45.04	
Muslim	52	6		52	6		38	20	
	89.66	10.34		89.66	10.34		65.52	34.48	
Other	906	117		949	74		718	305	
	88.56	11.44	0.002	92.77	7.23	0.000	70.19	29.81	0.000
Education									

**Table 14—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Justification for domestic violence" Attitudinal Empowerment Variables**

Justification for domestic violence if:									
	Refuses sex			Burns food			Extramarital affair		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
None	1,358 84.45	250 15.55		1,418 88.18	190 11.82		992 61.69	616 38.31	
Primary	3,213 84.51	589 15.49		3,320 87.32	482 12.68		2,089 54.94	1,713 45.06	
Secondary	527 92.13	45 7.87	0.000	536 93.71	36 6.29	0.000	368 64.45	203 35.55	0.000
Age at First Marriage [mean(st.dev.)]	17.40 (3.12)	16.88 (2.85)	0.010	17.36 (3.11)	17.06 (2.88)	0.000	17.40 (3.19)	17.22 (2.95)	0.028
Polygamy									
Not polygamous	3,932 85.33	676 14.67		4,064 88.19	544 11.81		2,640 57.3	1,967 42.7	
First wife	320 84.21	60 15.79		337 88.68	43 11.32		206 54.21	174 45.79	
Second wife +	368 80	92 20		391 85	69 15		253 55	207 45	
Divorced	478 89.51	56 10.49	0.000	482 90.26	52 9.74	0.080	350 65.54	184 34.46	0.001
Work Status									
Does not work	1,874 85.14	327 14.86		1,969 89.46	232 10.54		1,397 63.5	803 36.5	
Home, paid	770 85.18	134 14.82		776 85.84	128 14.16		495 54.76	409 45.24	
Home, not paid	324 83.08	66 16.92		337 86.41	53 13.59		212 54.36	178 45.64	
Away, not paid	1,506 86.2	241 13.8		1,534 87.81	213 12.19		956 54.72	791 45.28	
Away, paid	624 84.32	116 15.68	0.517	658 88.92	82 11.08	0.041	389 52.57	351 47.43	0.000

Tables 15 and 16 display the distribution of demographic, socioeconomic and life-event empowerment variables and husband's control over his wife. For this set of variables, only region and household wealth are significantly related to all four "control" variables.

<b>Table 15. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Control" Attitudinal Empowerment Variables</b>						
Control over wife:						
	Meeting friends/family			Limits contact with family		
	Yes	No		Yes	No	
	n (%)	n (%)	p-value	n (%)	n (%)	p-value
Residence						
Urban	535	123		527	131	
	81.31	18.69		80.09	19.91	
Rural	4,196	1,128		4,156	1,168	
	78.81	21.19	0.138	78.06	21.94	0.234
Region						
North	597	116		602	111	
	83.73	16.27		84.43	15.57	
Central	1,632	537		1,593	576	
	75.24	24.76		73.44	26.56	
Southern	2,502	598		2,488	612	
	80.71	19.29	0.000	80.26	19.74	0.000
Household Wealth						
Poorest	853	249		838	264	
	77.4	22.6		76.04	23.96	
Poor	1,071	314		1,065	320	
	77.33	22.67		76.9	23.1	
Average	1,109	305		1,100	314	
	78.43	21.57		77.79	22.21	
Above average	999	208		988	219	
	82.77	17.23		81.86	18.14	
Wealthiest	699	175		692	182	
	79.98	20.02	0.004	79.18	20.82	0.006
Head of Household						

**Table 15--Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Control" Attitudinal Empowerment Variables**

Control over wife:						
	Meeting friends/family			Limits contact with family		
	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)	
Husband	3,860	964		3,807	1,017	
	80.02	19.98		78.92	21.08	
Wife	590	187		583	194	
	75.93	24.07		75.03	24.97	
Other	281	100		293	88	
	73.75	26.25	0.001	76.9	23.1	0.041
Religion						
Christian	3,891	1,010		3,837	1,064	
	79.39	20.61		78.29	21.71	
Muslim	38	20		38	20	
	65.52	34.48		65.52	34.48	
Other	802	221		808	215	
	78.4	21.6	0.030	78.98	21.02	0.054
Education						
None	1,240	368		1,229	379	
	77.11	22.89		76.43	23.57	
Primary	3,021	781		3,002	800	
	79.46	20.54		78.96	21.04	
Secondary	470	102		452	120	
	82.17	17.83	0.025	79.02	20.98	0.108
Age at First Marriage [mean(st.dev.)]	17.33 (3.09)	17.29 (3.07)	0.653	17.33 (3.09)	17.32 (3.09)	0.927
Polygamy						
Not polygamous	3,692	916		3,656	952	
	80.12	19.88		79.34	20.66	
First wife	295	85		292	88	
	77.63	22.37		76.84	23.16	
Second wife +	360	100		352	108	
	78.26	21.74		76.52	23.48	
Divorced	384	150		383	151	
	71.91	28.09	0.000	71.72	28.28	0.000
Work Status						



**Table 15—Continued. Distribution of Demographic, Socioeconomic, and Life Event Empowerment Variables and "Control" Attitudinal Empowerment Variables**

Control over wife:						
	Meeting friends/family			Limits contact with family		
	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		N (%)	n (%)	
Does not work	1,726	475	0.161	1,706	495	0.239
	78.42	21.58		77.51	22.49	
Home, paid	742	162		732	172	
	82.08	17.92		80.97	19.03	
Home, not paid	302	88		309	81	
	77.44	22.56		79.23	20.77	
Away, not paid	1,383	364		1,354	393	
	79.16	20.84		77.5	22.5	
Away, paid	578	162		582	158	
	78.11	21.89		78.65	21.35	

**Table 16. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Control" Attitudinal Empowerment Variables**

Control over wife:						
	Know location at all times			No trust with money		
	Yes	No	p-value	Yes	No	p-value
	n(%)	n(%)		n(%)	n(%)	
Residence			0.000			0.081
Urban	308	350		541	117	
	46.81	53.19		82.22	17.78	
Rural	2,091	3,233		4,223	1,101	
	39.27	60.73		79.32	20.68	
Region			0.004			0.000
North	297	416		580	133	
	41.65	58.35		81.35	18.65	
Central	809	1,360		1,607	562	
	37.3	62.7		74.09	25.91	
Southern	1,293	1,807		2,577	523	
	41.71	58.29	83.13	16.87		
Household Wealth						

**Table 16—Continued. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Control" Attitudinal Empowerment Variables**

Control over wife:						
	Know location at all times			No trust with money		
	Yes	No	p-value	Yes	No	p-value
	n(%)	n(%)		n(%)	n(%)	
Poorest	410	692		858	244	
	37.21	62.79		77.86	22.14	
Poor	547	838		1,085	300	
	39.49	60.51		78.34	21.66	
Average	604	810		1,116	298	
	42.72	57.28		78.93	21.07	
Above average	468	739		981	226	
	38.77	61.23		81.28	18.72	
Wealthiest	370	504		724	150	
	42.33	57.67	0.029	82.84	17.16	0.021
<b>Head of Household</b>						
Husband	1,958	2,866		3,870	954	
	40.59	59.41		80.22	19.78	
Wife	292	485		602	175	
	37.58	62.42		77.48	22.52	
Other	149	232		292	89	
	39.11	60.89	0.261	76.64	23.36	0.068
<b>Religion</b>						
Christian	1,941	2,960		3,878	1,023	
	39.6	60.4		79.13	20.87	
Muslim	15	43		40	18	
	25.86	74.14		68.97	31.03	
Other	443	580		846	177	
	43.3	56.7	0.008	82.7	17.3	0.005
<b>Education</b>						
None	668	940		1,269	339	
	41.54	58.46		78.92	21.08	
Primary	1,512	2,290		3,030	772	
	39.77	60.23		79.69	20.31	
Secondary	219	353		465	107	
	38.29	61.71	0.309	81.29	18.71	0.475

**Table 16—Continued. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Control" Attitudinal Empowerment Variables**

Control over wife:						
	Know location at all times			No trust with money		
	Yes	No	p-value	Yes	No	p-value
	n(%)	n(%)		n(%)	n(%)	
Age at First Marriage [mean(st.dev.)]	17.36 (3.16)	17.30 (3.04)	0.496	17.35 (3.09)	17.23 (3.1)	0.247
Polygamy						
Not polygamous	1,900 41.23	2,708 58.77		3,721 80.75	887 19.25	
First wife	129 33.95	251 66.05		293 77.11	87 22.89	
Second wife +	173 37.61	287 62.39		351 76.3	109 23.7	
Divorced	197 36.89	337 63.11	0.008	399 74.72	135 25.28	0.001
Work Status						
Does not work	1,007 45.75	1,194 54.25		1,678 76.24	523 23.76	
Home, paid	358 39.6	546 60.4		743 82.19	161 17.81	
Home, not paid	147 37.69	243 62.31		300 76.92	90 23.08	
Away, not paid	605 34.63	1,142 65.37		1,463 83.74	284 16.26	
Away, paid	282 38.11	458 61.89	0.000	580 78.38	160 21.62	0.000

Finally, Table 17 displays distribution results for medical attitudinal empowerment variables. Most are related to demographic, socioeconomic and life-event empowerment variables with a few exceptions. These include the head of household variable and knowing where to go for medical help; age at first marriage and knowing where to go and getting permission to go for medical help; and religion and getting money for treatment.

**Table 17. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Medical" Attitudinal Empowerment Variables**

Medical help difficulties:									
	Knowing where to go			Permission to go			Money for treatment		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
<b>Residence</b>									
Urban	593	65		617	41		387	271	
	90.12	9.88		93.77	6.23		58.81	41.19	
Rural	4,426	898		4,840	484		1,750	3,574	
	83.13	16.87	0.000	90.91	9.09	0.014	32.87	67.13	0.000
<b>Region</b>									
North	555	158		639	74		394	319	
	77.84	22.16		89.62	10.38		55.26	44.74	
Central	1,777	392		1,949	220		657	1,512	
	81.93	18.07		89.86	10.14		30.29	69.71	
Southern	2,687	413		2,869	231		1,086	2,014	
	86.68	13.32	0.000	92.55	7.45	0.001	35.03	64.97	0.000
<b>Household Wealth</b>									
Poorest	926	176		1,003	99		255	847	
	84.03	15.97		91.02	8.98		23.14	76.86	
Poor	1,109	276		1,243	142		393	992	
	80.07	19.93		89.75	10.25		28.38	71.62	
Average	1,143	271		1,260	154		428	986	
	80.83	19.17		89.11	10.89		30.27	69.73	
Above average	1,043	164		1,123	84		499	708	
	86.41	13.59		93.04	6.96		41.34	58.66	
Wealthiest	798	76		828	46		562	312	
	91.3	8.7	0.000	94.74	5.26	0.000	64.3	35.7	0.000
<b>Head of Household</b>									
Husband	4,069	755		4,414	410		1,787	3,037	
	84.35	15.65		91.5	8.5		37.04	62.96	
Wife	640	137		711	66		207	570	
	82.37	17.63		91.51	8.49		26.64	73.36	
Other	310	71		332	49		143	238	
	81.36	18.64	0.143	87.14	12.86	0.014	37.53	62.47	0.000

**Table 17—Continued. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Medical" Attitudinal Empowerment Variables**

Medical help difficulties:									
	Knowing where to go			Permission to go			Money for treatment		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
<b>Religion</b>									
Christian	4,108	793		4,502	399		1,751	3,150	
	83.82	16.18		91.86	8.14		35.73	64.27	
Muslim	42	16		48	10		21	37	
	72.41	27.59		82.76	17.24		36.21	63.79	
Other	869	154		907	116		365	658	
	84.95	15.05	0.038	88.66	11.34	0.000	35.68	64.32	0.997
<b>Education</b>									
None	1,325	283		1,441	167		427	1,181	
	82.4	17.6		89.61	10.39		26.55	73.45	
Primary	3,186	616		3,476	326		1,367	2,435	
	83.8	16.2		91.43	8.57		35.95	64.05	
Secondary	508	64		540	32		343	229	
	88.81	11.19	0.002	94.41	5.59	0.002	59.97	40.03	0.000
<b>Age at First Marriage [mean(st.dev.)]</b>									
	17.35	17.21		17.33	17.30		17.43	17.26	
	(3.12)	(2.90)	0.203	(3.05)	(3.46)	0.882	(2.93)	(3.17)	0.041
<b>Polygamy</b>									
Not polygamous	3,904	704		4,230	378		1,734	2,874	
	84.72	15.28		91.8	8.2		37.63	62.37	
First wife	305	75		329	51		111	269	
	80.26	19.74		86.58	13.42		29.21	70.79	
Second wife +	373	87		417	43		158	302	
	81.09	18.91		90.65	9.35		34.35	65.65	
Divorced	437	97		481	53		134	400	
	81.84	18.16	0.015	90.07	9.93	0.004	25.09	74.91	0.000
<b>Work Status</b>									
Does not work	1,832	369		1,986	215		783	1,418	

<b>Table 17—Continued. Distribution of Demographic, Socioeconomic, and Life-Event Empowerment Variables and "Medical" Attitudinal Empowerment Variables</b>									
Medical help difficulties:									
	Knowing where to go			Permission to go			Money for treatment		
	Yes	No	p-value	Yes	No	p-value	Yes	No	p-value
	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
Home, paid	83.23	16.77		90.23	9.77		35.57	64.43	
	704	200		811	93		332	572	
Home, not paid	77.88	22.12		89.71	10.29		36.73	63.27	
	307	83		346	44		149	241	
Away, not paid	78.72	21.28		88.72	11.28		38.21	61.79	
	1,540	207		1,631	116		546	1,201	
Away, paid	88.15	11.85		93.36	6.64		31.25	68.75	
	636	104		683	57		327	413	
	85.95	14.05	0.000	92.3	7.7	0.001	44.19	55.81	0.000

Overall, demographic, socioeconomic and life-event variables are significantly related to attitudinal empowerment variables. However, there are instances where these sets of variables are not significantly correlated, such as many of the “control over wife” variables. Thus, including demographic, socioeconomic, and life-event and attitudinal variables in multivariate models is important to investigate their association with infant and child mortality.

### **Bivariate and Multivariate Results**

#### **Infant Mortality**

Table 18 displays the results of bivariate and multivariate hazard models for infants. In the bivariate results, infants born in rural areas have 1.72 greater odds of death compared to urban born infants. Infant born in the Central region have 60 percent higher odds of death compared to Northern born infants. Infants born to wealthier households and secondary educated women are less likely to die compared to infants born to poorer households and less educated women. Compared to Christian households, infants born to Muslim households have greater odds of death (2.27 times greater).

**Table 18. Multivariable Logistic Hazard Model Results, Infant Mortality**

	Bivariate OR		Model 1 OR		Model 2 OR		Model 3 OR
<b>Residence</b>							
Urban (ref)							
Rural	1.72	**	1.59		1.59		1.49
<b>Region</b>							
North (ref)							
Central	1.62	**	1.37		1.41		1.27
Southern	1.33		1.22		1.18		1.14
<b>Household Wealth</b>							
Poorest (ref)							
Poor	0.88		0.89		0.89		0.92
Average	0.63	**	0.64	**	0.64	**	0.70 *
Above average	0.61	**	0.68	*	0.65	**	0.71 *
Wealthiest	0.53	**	0.74		0.66		0.79
<b>Head of Household</b>							
Husband (ref)							
Wife	0.94		0.68		0.82		0.83
Other	0.81		0.69		0.65		0.62
<b>Religion</b>							
Christian (ref)							
Muslim	2.27	*	1.83		1.48		1.29
Other	0.81		0.80		0.79		0.74
<b>Education</b>							
None (ref)							
Primary	0.91		0.99		0.98		0.89
Secondary	0.62	*	0.78		0.78		0.70
Age at First Marriage	0.97		0.97		0.97		0.99
<b>Polygamy</b>							
Not polygamous (ref)							
First wife	0.60		0.61		0.62		0.68
Second wife +	1.25		1.34		1.38		1.46

**Table 18--Continued. Multivariable Logistic Hazard Model Results, Infant Mortality**

	Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
Divorced	1.18	1.44	1.84 *	1.72
<b>Work Status</b>				
Does not work (ref)				
Home, paid	0.87	0.86	0.87	0.90
Home, not paid	0.66	0.68	0.71	0.78
Away, not paid	1.01	1.00	0.99	0.99
Away, paid	1.09	1.11	1.15	1.17
<b>Final say:</b>				
<b>Health care</b>				
Respondent (ref)				
Jointly	0.92		0.97	0.94
Husband/Someone else	1.12		1.10	1.13
<b>Large household purchases</b>				
Respondent (ref)				
Jointly	0.91		1.01	0.99
Husband/Someone else	1.14		1.06	0.93
<b>Visiting family, friends</b>				
Respondent (ref)				
Jointly	1.14		1.17	1.15
Husband/Someone else	1.53		1.86 ***	1.78 **
<b>Food cooked</b>				
Respondent (ref)				
Jointly	1.64 **		1.65	1.65
Husband/Someone else	1.12		0.86	0.87
<b>Refusal of sex:</b>				
<b>Knows STD</b>				
Yes (ref)	1.11		1.02	1.00
No				
<b>Sex with other women</b>				
Yes (ref)	1.16		1.03	1.07
No				
<b>Recently given birth</b>				
Yes (ref)	1.23		1.24	1.30
No				



**Table 18--Continued. Multivariable Logistic Hazard Model Results, Infant Mortality**

	Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
Tired, not in mood				
Yes (ref)	1.15		1.06	1.05
No				
Domestic Violence justification:				
Going out				
Yes (ref)				
No	0.91		0.90	0.92
Neglects children				
Yes (ref)				
No	0.96		1.10	1.10
Argues				
Yes (ref)				
No	0.72		0.54 *	0.52 *
Refusal of sex				
Yes (ref)				
No	0.91		0.91	0.95
Burns food				
Yes (ref)				
No	1.25		1.72	1.58
Extramarital affair				
Yes (ref)				
No	0.89		0.86	0.85
Control:				
Meet friends				
Yes	1.19		1.03	1.08
No (ref)				
Contact with family				
Yes	1.37 **		1.40 *	1.36
No (ref)				
Know location				
Yes	1.16		1.11	1.07
No (ref)				
Not trust with money				
Yes	0.95		0.79	0.78
No (ref)				

**Table 18--Continued. Multivariable Logistic Hazard Model Results, Infant Mortality**

	Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
<b>Medical Help Difficulties:</b>				
Know where to go				
No problem (ref)				
Big problem	1.11		1.15	1.16
Permission to go				
No problem (ref)				
Big problem	1.00		0.96	0.98
Getting money for treatment				
No problem (ref)				
Big problem	0.97		0.85	0.86
<b>Gender</b>				
Male (ref)				
Female	0.88			0.83
<b>Birth Interval/Order</b>				
First birth (ref)				
2-5 birth, short BI	2.19	***		2.28 ***
2-5 birth, medium BI	0.91			1.06
2-5 birth, long BI	0.70			0.87
6+ birth, short BI	2.79	***		3.39 ***
6+ birth, medium BI	0.46	*		0.69
6+ birth, long BI	0.39	*		0.59
Age of mother at birth	0.99			0.95
Age of mother at birth (sqrd)	1.00			1.00
<b>Place of birth</b>				
Home (ref)				
Hospital/health center	0.65	***		0.74 **
Birth attendant	0.97			0.96
Other	0.29			0.27
<b>Size at birth</b>				
Very large (ref)				
Larger than average	1.01			1.06

**Table 18--Continued. Multivariable Logistic Hazard Model Results, Infant Mortality**

	Bivariate OR		Model 1 OR	Model 2 OR	Model 3 OR
Average	1.34				1.38
Smaller than average	2.11	***			1.94 **
Very small	2.42	**			2.35 **
Don't know	0.84				0.85
Pseudo R-square			0.016	0.029	0.052
Log likelihood			-1692.86	-1671.76	-1632.04
Degrees of Freedom			32	57	74
Infant-months			78407	78407	78407

\*p≤.10; \*\*p≤.05; \*\*\*p≤.01

Infants born to women who do not have the final say in deciding to visit family or friends, but rather a husband or someone else has the final say in this decision, have 1.53 times the odds of death compared to infants born to women who have the final say in this decision. Similarly, controlling contact with family increases the odds of death by 37 percent. Infants born to women who jointly (with their husband) make the decision about what food to cook have 1.64 times the odds of death compared to infants born to mothers who make this decision alone.

For birth characteristics, a short previous birth interval is associated with increased odds of death—2.19 greater odds for second to fifth born infants with a short previous birth interval and 2.79 greater odds for sixth or higher born infants. Having a medium or long preceding birth interval for sixth or higher born infants is protective of the odds of death. Being born in a hospital or health center decreases the odds of death by 35 percent. Also, infants who are smaller than average or very small are more than twice as likely to die as infants who were born larger than average.

In the first multivariate model (Model 1), demographic characteristics and life event empowerment variables are included (residence, region, household wealth, household head, religion, education and age at first marriage). In general, household wealth is significantly related to infant mortality—living in a wealthier household significantly decreases the odds of death. This relationship appears curvilinear, which may be due to the limits of wealth and its effects on

infant and child mortality for the wealthiest individuals—in Malawi, it may be that there is a point at which wealth does not add additional benefits to infant and child mortality. While not significant, higher education is protective against infant death.

Model 2 incorporates attitudinal empowerment measures. Household wealth continues to remain significant, with infants born into wealthier households having significantly lower odds of death. Also, infants born to divorced mothers have 84 percent greater odds of death than infants born to non-polygamous mothers. Several attitudinal measures are significant—having the final say when visiting family or friends, justification of domestic violence for arguments and control over contact with family. If the mother does not have the sole decision to visit her family or friends, the infant has significantly higher odds of death (86 percent higher if the husband or someone else controls the decision). The odds of infant death are significantly lower (46 percent) if the mother disagrees that domestic violence is justified when arguing with her husband. Lastly, the odds of infant death are significantly higher (40 percent) if the mother reports that her husband controls her contact with family. By performing a likelihood ratio test for adding empowerment variables in this model, this model provides significantly more explanatory power than Model 1 ( $p=0.017$ ).

Model 3 includes birth characteristics—gender, birth order/interval, age of mother at birth, place of birth and estimated size at birth. As in Models 1 and 2, wealth remains protective against infant mortality. While infants of divorced mothers had significantly higher odds of death in Model 2, this effect is not significant in Model 3. The attitudinal empowerment variables that were significant in Model 2 remain significantly related to infant mortality in Model 3, including who has the final say in visiting family and friends and justification for domestic violence in the event of an argument. Husband's control of contact with family is now not significantly related to infant mortality in this model. Short previous birth intervals for infants, regardless of the order of the infant, are significantly related to higher odds of death compared to first born infants (2.28 times higher for second to fifth born infants and 3.39 times higher for sixth or higher born infants). Being born at a hospital or health center decreases the odds of death by about 26 percent compared to home-births. Infants born smaller than average and very small have higher odds of death—1.94 and 2.35 times higher, respectively—than very large infants. This model provides significantly more explanatory power than Model 2 ( $p<0.001$ ). However, Model 3 does not provide significantly more explanatory power than a model (not shown) with traditional

demographic characteristics (residence, region, wealth, gender, interval/order, age of mother at birth [and squared], place of birth, and size at birth) [p =0.122].

### Child mortality

Table 19 displays the results of bivariate and multivariate hazard models for children. In the bivariate results, children who are sixth or higher born and have a short preceding birth interval have 2.72 greater odds of death compared to first born children. Children who were born larger than average have 43 percent lower odds of death compared to children who were born very large.

<b>Table 19. Multivariable Logistic Hazard Model Results, Child Mortality</b>					
		Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
Residence	Urban (ref)				
	Rural	1.34	0.93	0.93	0.97
Region	North (ref)				
	Central	1.87 *	1.47	1.35	1.26
	Southern	1.31	0.97	0.83	0.77
Household Wealth	Poorest (ref)				
	Poor	0.99	1.18	1.20	1.21
	Average	0.95	0.99	0.98	0.99
	Above average	0.70	0.79	0.74	0.76
	Wealthiest	0.53 *	0.71	0.71	0.70
Head of Household	Husband (ref)				
	Wife	0.78	0.45	0.74	0.77
	Other	0.65	0.49	0.43	0.41 *
Religion	Christian (ref)				
	Muslim	3.35 **	2.28 *	2.22 *	2.04 *
	Other	1.40	1.48	1.56	1.62

**Table 19—Continued. Multivariable Logistic Hazard Model Results, Child Mortality**

	Bivariate OR		Model 1 OR	Model 2 OR	Model 3 OR
<b>Education</b>					
None (ref)					
Primary	0.73 *		0.83	0.83	0.77
Secondary	0.29 **		0.42	0.44	0.40
<b>Age at First Marriage</b>					
	1.01		1.02	1.02	1.04
<b>Polygamy</b>					
Not polygamous (ref)					
First wife	0.69		0.67	0.66	0.68
Second wife +	1.07		1.07	1.04	1.03
Divorced	1.18		2.30	3.95 **	3.80 **
<b>Work Status</b>					
Does not work (ref)					
Home, paid	1.20		1.28	1.34	1.36
Home, not paid	0.61		0.66	0.68	0.73
Away, not paid	1.11		1.14	1.12	1.14
Away, paid	0.78		0.84	0.91	0.90
<b>Final say:</b>					
<b>Health care</b>					
Respondent (ref)					
Jointly	0.74			0.80	0.79
Husband/Someone else	1.84 **			2.03 **	2.04 **
<b>Large household purchases</b>					
Respondent (ref)					
Jointly	1.00			2.36	2.15
Husband/Someone else	1.73			2.02	1.83
<b>Visiting family, friends</b>					
Respondent (ref)					
Jointly	1.15			0.97	1.05
Husband/Someone else	1.34			0.88	0.93
<b>Food cooked</b>					
Respondent (ref)					
Jointly	0.94			1.09	1.12
Husband/Someone else	1.30			1.11	1.15

**Table 19—Continued. Multivariable Logistic Hazard Model Results, Child Mortality**

		Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
Reason for refusal of sex:					
Knows STD					
	Yes	1.20		1.35	1.38
	No (ref)				
Sex with other women					
	Yes	1.03		0.78	0.78
	No (ref)				
Recently given birth					
	Yes	1.17		1.06	1.02
	No (ref)				
Tired, not in mood					
	Yes	1.27		1.27	1.30
	No (ref)				
Domestic Violence justification:					
Going out					
	Yes (ref)				
	No	1.34		1.20	1.24
Neglects children					
	Yes (ref)				
	No	1.36		1.25	1.26
Argues					
	Yes (ref)				
	No	1.32		0.85	0.86
Refusal of sex					
	Yes (ref)				
	No	1.34		1.18	1.18
Burns food					
	Yes (ref)				
	No	1.55 *		1.53	1.47
Extramarital affair					
	Yes (ref)				
	No	0.88		0.65 *	0.64 *
Control:					
Meet friends					
	Yes	0.84		0.77	0.79

**Table 19—Continued. Multivariable Logistic Hazard Model Results, Child Mortality**

	Bivariate OR	Model 1 OR	Model 2 OR	Model 3 OR
Contact with family				
No (ref)				
Yes	0.94		1.02	0.98
Know location				
No (ref)				
Yes	1.13		1.20	1.21
Not trust with money				
No (ref)				
Yes	0.95		1.02	1.03
Medical Help Difficulties:				
Know where to go				
No problem (ref)				
Big problem	0.60		0.59	0.59
Permission to go				
No problem (ref)				
Big problem	0.53		0.63	0.61
Getting money for treatment				
No problem (ref)				
Big problem	1.19		1.11	1.13
Gender				
Male (ref)				
Female	0.90			0.88
Birth Interval/Order				
First birth (ref)				
2-5 birth, short BI	1.29			1.48
2-5 birth, medium BI	0.90			1.16
2-5 birth, long BI	0.90			1.35
6+ birth, short BI	2.72	***		3.68
6+ birth, medium BI	0.88			1.32
6+ birth, long BI	0.31			0.40



<b>Table 19—Continued . Multivariable Logistic Hazard Model Results, Child Mortality</b>				
	Bivariate	Model 1	Model 2	Model 3
	OR	OR	OR	OR
Age of mother at birth	0.91			1.39
Age of mother at birth (sqrd)	1.00			1.37
Place of birth				
Home (ref)				
Hospital/health center	1.03			3.68 **
Birth attendant	1.31			0.83 *
Other	3.23			1.00
Size at birth				
Very large (ref)				
Larger than average	0.57 *			0.61
Average	0.88			0.94
Smaller than average	1.04			1.04
Very small	1.33			1.33
Don't know	1.14			1.49
Pseudo R-square		0.077	0.097	0.113
Log likelihood		-730.17	-713.89	-701.30
Degrees of freedom		29	54	71
Child-months (grouped by 6 months)		24596	24596	24596

\*p≤.10; \*\*p≤.05; \*\*\*p≤.01

Children born in the Central region have 87 percent higher odds of death than children born in the Northern region. Children born to wealthier families have lower odds of death—children in the wealthiest families are 47 percent less likely to die than children in the poorest families. Similarly, children born to more educated mothers have lower odds of death—27 percent lower odds for primary educated and 71 percent for secondary educated. Compared to children born to Christian mothers, children born to Muslim mothers have 3.35 times the odds of death.

Children born to women who do not have the final say in decisions about health care, but rather a husband or someone else has the final say in this decision, have 1.84 times the odds of

death compared to children born to women who have the final say in this decision. Children born to women who report that domestic violence is not justified if food is burnt by the women have 1.55 times the odds of death than women who report that domestic violence is justified.

Model 1 incorporates demographic characteristics and life event empowerment variables. Compared to variables related to infant mortality, fewer demographic and life event empowerment variables are related to child mortality. The only variable significantly related to child mortality in model 1 is religion—Muslim children have 2.28 greater odds of death compared to Christian children. While region, wealth, and education were significantly related to child mortality in the unadjusted bivariate models, these are now not significant in Model 1.

When including the attitudinal empowerment measures, Model 2 shows that several empowerment variables are significantly related to child mortality. Muslim children continue to have significantly higher odds of mortality. In addition, children born to divorced mothers have about 4 times the odds of mortality compared to children born to married, non-polygamous mothers. Children born to women who do not have the final say in decisions about health care, but rather a husband or someone else has the final say in this decision, have 2.03 times the odds of death compared to children born to women who have the final say in this decision. Also, children born to mothers who claim that an extramarital affair does not justify domestic violence have 35 percent lower odds of mortality. By performing a likelihood ratio test for adding empowerment variables in this model, this model does not provide significantly more explanatory power than Model 1 ( $p=0.142$ ).

Model 3 adds birth characteristics. As in Models 1 and 2, the odds of death for Muslim children are about 2 times higher than Christian children. Now significant in Model 3, children born into households with someone other than the husband or wife as the household head have about 60 percent lower odds of death compared to children in husband-headed households. Children with mothers who are divorced remain 3.8 times more likely to die than children with mothers who are married and not in a polygamous relationship. Similarly, having the final say in health care decisions and not justifying domestic violence for an extramarital affair also remain significantly related to child mortality. Children who are the 6<sup>th</sup> born or higher and have a short preceding birth interval are over 3.5 times more likely to die compared to first born children. Also, children born in places other than a hospital or health center or by a birth attendant have 3.68 times the odds of death compared to children born at home. The addition of birth

characteristics provides slightly more explanatory power compared to Model 2 ( $p=0.091$ ). However, Model 3 does not provide significantly more explanatory power than a model (not shown) with traditional demographic characteristics (residence, region, wealth, gender, interval/order, age of mother at birth [and squared], place of birth, and size at birth) [ $p=0.154$ ].

## CHAPTER FIVE

### Discussion

Although there has been significant research on women's empowerment in recent years, this research has not been conclusive in terms of how empowerment relates to demographic outcomes. I provided a comprehensive review of the literature on how previous research defined and operationalized empowerment. Issues with the definition and measurement of women's empowerment, as well as different analytic techniques, contribute to the inconclusive research within and across countries and societal contexts.

This dissertation used the specific social context of Malawi to investigate how women's empowerment is related to infant and child mortality. Malawi is a particularly interesting context because of historical factors as well as the diversity of the country in terms of ethnicity, geography, and the economy. Modernization, industrialization, and urbanization are all changing the demographic landscape of Malawi. Despite this, Malawi continues to have relatively high infant and child mortality rates. Also, with the first female president of Malawi recently appointed (and only the second in Africa), the status of women in Malawi is changing. Recent bills, including the 2006 "Prevention of Domestic Violence Bill", are encouraging forms of legislation.

In this study, household wealth is an important factor related to both infant and child mortality—infants and children born to women in wealthier households tend to have lower mortality. Wealth can increase control over and access to resources, particularly health resources. For infants, this relationship is significant for all three models, showing the great importance of wealth in relation to infant mortality. Women in wealthier households may have access to a wider array of resources, such as better healthcare, political connections to health care professionals, or available transportation to health centers. Several interactions were conducted with wealth, including education, region, and polygamy. Results from including each interaction in the models did not change the significant influence of power in each model.<sup>10</sup>

For both infants and children, being born to a mother who is divorced increases the odds of death (although this is mediated by birth characteristics for infants). This has been found in

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<sup>10</sup> This may be due to small sample sizes, however. For example, combining five categories of wealth and three categories of wealth produces 15 categories with very small sample sizes for some cells.

previous research, and may signify that these women have fewer resources to care for their children than first wives or women in non-polygamous relationships. Divorced women may not have the access to or control over resources, or time, to care for their infants or children due to issues such as work responsibilities or caring for other children.

For infants, a mother's control over mobility (decision-making about visiting family or friends and control over contact with family) is an important factor related to mortality. Women who may not be able to make the decision to travel to friends or family may also have limited decision-making power and control over the health of an infant. Limited mobility can limit access to resources that may be valuable to infant health.

For children, if the final say about health care decisions are made by the husband (or someone else), the likelihood of mortality increases. Delays in taking children to receive health care due to consulting other family members may lead to increases health issues. Limiting control over health decisions is a measure of power within the household. Thus, women who are able to make independent decisions about health care, especially concerning their children, may have better child mortality outcomes (Desai & Johnson, 2005).

Despite the significant relationships described above, the majority of empowerment measures are not significantly related to both infant and child mortality. This could be because these measures that have been standardized and used in many different social contexts through the Demographic and Health Surveys are not capturing empowerment of women in Malawi. It could also be the case that empowerment of women in particular, rather than empowerment of an entire social stratum, village, or ethnic group, may not be all that related to infant and child mortality. Because of the non-significance of these measures of women's empowerment in relation to infant mortality, and particularly child mortality, I explore possible ways to improve upon these measures to better capture women's empowerment in Malawi, and its demographic outcomes including infant and child mortality.

### **Additional Empowerment Indicators and Future Research**

While the results show that several empowerment indicators are related to infant and child health, there are numerous measures of empowerment that have been omitted with the social institutional and network empowerment framework described above. Across all social institutions, the process of empowerment, community organization, and shared power may better measure women's empowerment. Within each social institution, there may be other measures

that capture empowerment, including inheritance and marriage decisions (kinship), leadership within religious communities (religion), political involvement (politics), informal work (economy) and non-traditional measures of education (education).

### **Process of empowerment**

Across all social institutions, the issue of measuring the empowerment process arises. This could occur through collecting longitudinal data rather than collecting data at one point in time. Since empowerment is a process (Rowlands, 1995), reporting at one point in time in cross-sectional surveys may not capture the empowerment process. An example of where this is particularly important in Malawi is education. This measure may not be significant in the above analysis due to the cross-sectional nature of the variable education. Tracking the educational attainment of a woman over a particular period of time could provide important information because women are becoming increasingly more educated.

While longitudinal data may provide researchers with a more comprehensive assessment of empowerment, this data is not yet available for many countries. Barriers to collecting this type of data include cost and time associated with follow-up and incomplete data due to follow-up difficulties.

### **Community Organizing**

It is important to recognize and document women's involvement in organizations, both formal and informal. Organizations can empower women through communication with each other, common goals, and strength in numbers. For example, grassroots movements can influence political change, such as women's rights movements. Through organizing, women may be able to increase their power over a certain set of resources, particularly health resources. Cultural norms, the roles of women in a particular society, and other organizations may influence the extent to which women are able to participate in organizations and general organizing (Asthana, 1996).

In southern Malawi, groups of women formed an organization to share food and other resources particularly among young divorced women, increasing their access to and control over these resources (Hirschmann & Vaughan, 1983). Future surveys could include a question such as "Are you involved in a community group or organization?" with follow-up questions about the purpose of the group and what resources they have access to and control over by being part of

the group. Qualitative research is particularly important here to further explore why women are part of community organizations.

### **Shared Power**

While access to and control over resources may be a zero-sum game in some instances, in others it may not. Acting on the realization that one is disempowered is a form of empowerment. For instance, recognizing and acting on power exerted from family members are forms of ‘power-within.’ Also, the organization of individuals to work toward a common goal is not zero-sum. Shared power that comes from organizing communities, families, or other groups of individuals can lead to increased access to and control over resources. For example, families can collectively control wealth and property, and may be more powerful than sole individuals that are in control of resources. Women within wealthy families may have better access to health resources, money, and food.

### **Kinship**

In the institution of kinship, inheritance can be both legally and traditionally defined through cultural norms, and this is often the most commonly omitted set of variables on surveys. Women may have the ability to own tangible items, such as land, and intangible items, such as laws. On the other hand, traditional norms may prohibit the ownership of these items and stipulate that women are owned by men. Also, the inheritance of these items may be limited to male or female members of the family, depending on the law and custom of the area.

Because of the differences in inheritance patterns in Malawi that are related to ethnicity and region of residence, additional questions on the DHS concerning matriarchal and patriarchal patterns of inheritance are important to consider for women’s empowerment in Malawi. In the matriarchal southern region, women are able to inherit land and other resources from their mothers, whereas in the northern region women are not permitted to own land, unless a rare instance happens where a husband or brother-in-law allows his wife or sister-in-law to own his land. Access to land is particularly important for food security since over 70 percent of agricultural work is done by women in Malawi (Diagne & Zeller, 2001), and this may influence the health and mortality of infants and children through adequate nutrition.

### **Religion**

Many surveys include religious affiliation which researchers attempt to infer power and empowerment status from an individual’s affiliation, but few surveys ask further questions about

involvement and leadership positions within religious communities. Women who are able to participate in important religious ceremonies or who become religious leaders may be better able to gain control over resources. Religious leadership can often intersect with community leadership, such as chiefs, headwomen or political figures. In some areas of Malawi, women are able to become headwomen and control resources such as land, food, and money. These women may also have more access to health care and facilities for their children. Thus, additional questions such as “How involved are you in your congregation?” and “How do you benefit from your congregation involvement?” may be indicators of the degree to which a woman is involved and gains access to resources through this involvement. Also, assessing family member’s leadership roles within the church are important to consider given that religion continues to play a powerful role in gaining access to and power over resources in Malawi (Newell, 1995) that may be important to infant and child health and mortality.

### **Economy**

While work status was not significantly related to infant or child mortality in the above models, this may not be accurately capturing the consumption, production and distribution of goods and services within the economy that may signify empowerment. For example, informal work may be an important source of income and control over resources for women, but they may not refer to it as “work” per se, but rather a necessary daily activity. In the Malawi DHS example, women who are working in the informal economy may not report working if asked as a survey question. Because the majority of agriculture work is completed by women, much of which is unpaid or paid in-kind, women in Malawi may not consider this work. Furthermore, questions concerning how much money, food, or other goods gained from work the woman is allowed to keep also are important to measure. While a woman may be working outside of the household with decent pay, she may be giving the majority of her wages to her family or husband. This may result in limited resources to care for her children, influencing infant and child health and mortality.

As another example, housework is productive work that is not counted in (money-based) economic indicators, but is valuable as providing goods and services to individuals within the household (Beneria, 1999; Beneria & Feldman, 1992). The extent to which the individual doing the housework has control over it may inform the power, and empowerment, in this dimension.



## **Politics**

Political empowerment is not part of the empowerment module in the DHS. Voting power, community leadership positions, and other political arenas could better get at the political climate of women in Malawi and other areas. In relation to infant and child mortality, political power may influence access to and control over health resources. As in other societies, it may be correlated with wealth and ethnicity, which has shown to be a significant factor in infant and child mortality in this study.

In Malawi, given the relatively recent changes in government and politics after the Banda regime, the measurement of women's involvement is extremely important to consider in empowerment research. Questions such as "Did you vote in the most recent election?...Why or why not?" may measure an individual's political involvement. Additionally, questions concerning a woman's family history of political involvement may address how politically powerful her family may be, which can be an indicator of access to and control over resources. Questions that address political power may also address familial wealth and religious power, given that politics, wealth and religion are intertwined in Malawi (Newell, 1995).

## **Education**

While traditional education measures, including grade-level and graduation, may indicate a level of empowerment for a woman based on increased knowledge, informal education can also increase access to and power over resources. This can be in the form of peer groups, organizations, or other mechanisms that encourage transferring knowledge. For example, women who learned about perinatal problems during monthly women's groups meeting in Nepal had lower neonatal mortality rate than those who did not participate (Manandhar, Osrin and Shrestha, et al. 2004). In Malawi, there are increasingly more organizations that provide education to women other than the formal education system. For example, a program run through Malawi's Ministry of Gender, Child Welfare and Community Services provides free adult literacy courses during the weekends and at night. The majority (over 80 percent) are women (Swann, 2007). Another program, the Skills Development and Income Generation Project, is aimed at providing rural individuals skills to participate in economic activities. Courses include literacy, training, and micro-finance. Attending these programs may provide women with the knowledge and resources to better influence the health of their infants and children. Asking women on surveys

such as the DHS if they have received training such as these programs may better measure empowerment within the institution of education.

### **Limitations**

There are several limitations to consider in this dissertation based on the available data. First, although empowerment is a process, the cross-sectional nature of the data limits the analysis to one point in time. Thus, I can only measure behaviors and attitudes associated with empowerment at one time point. Similarly, the cross-sectional nature of the data limits me to investigate correlation, rather than causation with respect to empowerment (and proximate and socioeconomic determinants) and infant and child mortality.

Also, this data set is a select set of women who have given birth to at least one child in the past five years of the survey. These women may be different in terms of demographic, socioeconomic, and empowerment indicators than other women in Malawi. Similarly, roughly 13 percent of children (from 15 percent of mothers who had children) were not included in the analyses because only one woman from each household was asked the domestic violence module. Women excluded could have been other women living in the household (such as mother, sister, cousin, older children or other relatives of the respondent) or other wives. Because the majority of the sample (77 percent) are not in polygamous relationships, excluded women are most likely relatives or friends living in the household. Thus, results are only generalizable to this population of women.

Lastly, there are various types of domestic violence, including emotional, sexual, and physical. When asked about justification for domestic violence, it is unclear as to which type the question refers, or if all types are considered. Many women may assume that domestic violence equates to physical violence, without thinking about the other possible options. Thus, this series of questions may be ambiguous, and in cultures where other forms of domestic violence may be present, researchers may miss a valuable component of women's empowerment.

### **Conclusion**

This dissertation shows that while traditional empowerment variables, such as wealth and education, are related to infant and child mortality, few other empowerment variables can also provide explanatory power—the majority of empowerment variables, both life-events and attitudinal, do not relate to infant or child mortality. This may be due to question wording on the

survey, or these standard empowerment questions may not be applicable to this particular setting. Regardless, further research is needed to examine how empowerment is measured and related to in Malawi, as well as across Africa and other regions of the world. This could include measuring political empowerment, power over others compared to power over materials, and more concise measures of domestic violence.

## REFERENCES

- Amankwaa, A.A., Eberstein, I.W., & Schmertmann, C.P. 2001. Polygyny and infant mortality in Western Africa: Evidence from Ghana. *African Population Studies* 16(1): 1-13.
- Andersen, K. 1975. Working women and political participation. *American Journal of Political Science* 19(3): 439-453.
- Antai, D. 2011. Inequalities in under-5 mortality in Nigeria: Do ethnicity and socioeconomic position matter? *Journal of Epidemiology* 21(1): 13-20.
- Asthana, S. 1996. Women's health and women's empowerment: A locality perspective. *Health and Place* 2(1): 1-13.
- Balk, D., Pullum, T., Storeygard, A., Greenwell, F., & Neuman, M. 2003. Spatial analysis of childhood mortality in West Africa. Measure DHS, MACRO International.
- Benefo, K. & Schultz, P. 1996. Fertility and child mortality in Cote d'Ivoire and Ghana. *The World Bank Economic Review* 10(1): 123-158.
- Beneria, L. 1999. The enduring debate over unpaid labour. *International Labor Review* 138(3): 287-309.
- Benería, Lourdes and Shelley Feldman (1992), *Unequal Burden; Economic Crises, Persistent Poverty and Women's Work*, Boulder: Westview Press.
- Blau, P.M & Schwartz, J.E. 1984. *Crosscutting Social Circles: Testing a macrostructural theory of intergroup relations*. Orlando: Academic Press, Inc.
- Bloom, D.E. & Cafiero, E. 2011. Implementation of public health interventions. In *Problem Solving for Better Health*. Smith, B.H., Fitzpatrick, J.J. & Hoyt-Hudson, P. (eds). Springer: New York.
- Bloom, S.S., Wypij, D. and das Gupta, M. 2001. Dimensions of women's autonomy and the influence on maternal health care utilization in a North Indian city. *Demography* 38(1): 67-78.
- Bolstad W.M. & Manda S.O. 2001. Investigating child mortality in Malawi using family and community random effects: a Bayesian analysis. *Journal of the American Statistical Association* 96: 12-19.
- Boserup, E. 1970. *Women's Role in Economic Development*. London: George Allen and Unwin.
- Boserup, E. 1989. Population, the status of women, and rural development. *Population and Development Review* 15: 45-60.

- Brunson, E.K., Shell-Duncan, B., & Steele, M. 2009. Women's autonomy and its relationship to children's nutrition among the Rendille of North Kenya. *American Journal of Human Biology* 21: 55-64.
- Bystydzienski, J.M. 1993. (ed). *Women Transforming Politics: Worldwide strategies for empowerment*. Bloomington: Indiana University Press.
- Caldwell, J. C. 1979. Education as a factor in mortality decline: An examination of Nigerian data. *Population Studies* 33(3): 395-413.
- Caldwell, J. C. 1986. Routes to low mortality in poor countries. *Population and Development Review* 12: 171-220.
- Caldwell, J. C. & McDonald, P. 1982. Influence of maternal education on infant and child mortality: Levels and causes. *Health Policy and Education* 2(3-4): 251-267.
- Caldwell, J.C., Reddy, P.H., & Caldwell, P. 1986. The social component of mortality decline: An investigation in South India employing alternative methodologies. *Population Studies* 37: 185-205.
- Clark, S., Bruce, J., & Dude, A. 2006. Protecting young women from HIV/AIDS: The case against child and adolescent marriage. *International Family Planning Perspectives* 32(2): 79-88.
- Csazar, F. 2005. Understanding the concept of power. In Alsop, R. (ed) *Power, Rights and Poverty: Concepts and Connections*. Washington DC: World Bank. Pp. 137-146.
- Defo, B.K. 1996. Areal and socioeconomic differentials in infant and child mortality in Cameroon. *Social Science and Medicine* 42(3): 399-420.
- Demographic and Health Surveys. 2005a. DHS Questionnaires and Manuals: Women's Status Module. [http://www.measuredhs.com/pubs/pub\\_details.cfm?ID=709&srchTp=type](http://www.measuredhs.com/pubs/pub_details.cfm?ID=709&srchTp=type). Retrieved March 27, 2011.
- Demographic and Health Surveys. 2005b. DHS Questionnaires and Manuals: Domestic Violence Module. [http://www.measuredhs.com/pubs/pub\\_details.cfm?ID=709&srchTp=type](http://www.measuredhs.com/pubs/pub_details.cfm?ID=709&srchTp=type). Retrieved March 27, 2011.
- Desai, S., & K. Johnson. 2005. Women's decision-making and child health: Familial and social hierarchies. in *A focus on gender: Collected papers on gender using DHS data*. Measure/DHS.
- Diagne, A. & Zeller, M. 2001. *Access to Credit and Its Impact on Welfare in Malawi*. IFPRI Research Report 116. Washington DC: International Food Policy Research Institute.
- DiMaggio, P.J. & Powell, W.W. 1985. Introduction in DiMaggio, P.J. and Powell, W.W. (eds.) *The New Institutionalism in Organizational Analysis*. Chicago: University of Chicago Press. Pp. 1-38.

- Dixon-Mueller, R. 1978. *Rural Women at Work: Strategies for development in South Asia*. Baltimore, Maryland: Johns Hopkins University Press.
- Dixon-Mueller, R. 1993. The sexuality connection in reproductive health. *Studies in Family Planning* 24(5): 269-282.
- Durkheim, E. 1933. *The Division of Labor in Society*. New York: The Free Press.
- Dyson, T. and Moore, M. 1983. On kinship structure, female autonomy and demographic behavior in India. *Population and Development Review* 9: 35-60.
- Eberstein, I.W., Nam, C.B., & Hummer, R.A. 1990. Infant mortality by cause of death: Main and interaction effects. *Demography* 27(3): 413-430.
- Engle, P.R. 1993. Influences of mothers' and fathers' income on children's nutritional status in Guatemala. *Social Science and Medicine* 37: 1303-1312.
- Engels, F. 2004 [1884]. *The Origin of the Family, Private Property and the State*. Newtown, Australia: Resistance Books.
- Eswaran, M. 2002. The empowerment of women, fertility, and child mortality: Towards a theoretical analysis. *Journal of Population Economics* 15(3): 433-454.
- Farah, A. & Preston, S.H. 1982. Child mortality differentials in Sudan. *Population and Development Review* 8(2): 365-383.
- Farber, B. 1971. *Kinship and Class: A Midwestern study*. New York: Basic Books.
- Fischer, C. 1982. *To Dwell Among Friends*. Chicago: University of Chicago Press.
- Foucault, M. 1980. *Power/knowledge: Selected Interviews and other writings, 1972-1977*. Gordon, G. (ed). Knopf Doubleday.
- Ghuman, S. 2003. Women's Autonomy and Child Survival: A Comparison of Muslims and Non-Muslims in Four Asian Countries. *Demography* 40(3): 419-436.
- Gilman, L. 2004. The traditionalization of women's dancing, hegemony and politics in Malawi. *Journal of Folklore Research* 41(1): 33-60.
- Goldstein, J.R. & Kenney, C.T. 2001. Marriage delayed or marriage forgone? New cohort forecasts of first marriage for U.S. women. *American Sociological Review* 66(4): 506-519.
- Green, C. & Baden, S. 1994. *Women and development in Malawi*. Bridge: Development and Gender. Brighton, United Kingdom: Institute of Developing Studies.
- Griffiths, P., Hinde, A. & Matthews, Z. 2001. Infant and child mortality in three culturally contrasting states of India. *Journal of Biosocial Science* 33: 603-622.

- Gwatkin, D.R. 2001. Poverty and inequality in health within developing countries: Filling the information gap. In Leon, D.A. and Walt, G. (eds) *Poverty, Inequality and Health: An international perspective*. Oxford: Oxford University Press. Pp. 217-246.
- Hindin, M. 2005. Women's autonomy, status, and nutrition in Zimbabwe, Zambia and Malawi. In Kishor, S. (ed) *A Focus on Gender: Collected Papers on Gender using DHS Data*. Calverton, Maryland: ORC Macro.
- Hindin, M. J., Kishor, S., & Ansara, D.L. 2008. Intimate Partner Violence Among Couples in 10 DHS Countries: Predictors and Health Outcomes. Calverton, MD: USAID.
- Hirschmann, D. & Vaughan, M. 1983. Food production and income generation in a matrilineal society: Rural women in Zomba, Malawi. *Journal of Southern African Studies* 10(1): 86-99.
- Hobcraft, J. McDonald, J. and Rutstein S. 1985. Demographic determinants of infant and child mortality: A comparative analysis. *Population Studies* 39(3): 363-385.
- Hodgson, G.M. 1988. *Economics and Institutions*. Cambridge: Polity Press.
- Hodgson, D. and Watkins, S. 1997. Feminists and neo-Malthusians: Past and present alliances. *Population and Development Review* 23(3): 469-523.
- Hogan, D.P., Berhanu, B., & Hailemariam, A. 1999. Household organization, women's autonomy, and contraceptive behavior in Southern Ethiopia. *Studies in Family Planning* 30(4): 302-314.
- Hossain, M.B., Phillips, J.F., & Pence, B. 2007. The effect of women's status on infant and child mortality in four rural areas of Bangladesh. *Journal of Biosocial Science* 39: 355-366.
- Iversen, T. & Rosenbluth, F. 2008. Work and power: The connection between female labor force participation and female political presentation. *Annual Review of Political Science* 11: 479-495.
- Jejeebhoy, S.J. & Sathar, Z.A. 2001. Women's autonomy in India and Pakistan: The influence of religion and region.
- Juergensmeyer, M. 1995. The new religious state. *Comparative Politics* 27(4): 379-391.
- Kabeer, N. 1994. *Reversed Realities: Gender hierarchies in development thought*. London: Verso.
- Kabeer, N. 1999. Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change* 30: 435-464.
- Kabeer, N. & Subrahmanian, R. 1996. Institutions, relations and outcomes: Framework and tools for gender-ware planning. IDS Discussion Paper 357. Brighton.

- Kandala, N.B., & Ghilagaber, G. 2006. A geo-additive Bayesian discrete-time survival model and its application to spatial analysis of childhood mortality in Malawi. *Quality & Quantity* 40: 935-957.
- Kembo, J. and Van Ginneken, J. 2009. Determinants of infant and child mortality in Zimbabwe: Results of multivariate hazard analysis. *Demographic Research* 21(13): 367-384.
- Kravdal, O. 2004. Child mortality in India: The community-level effect of education. *Population Studies* 58(2): 177-192.
- Lukes, S. 1974. *Power: A radical view*. Macmillan.
- Malhotra, A., Shuler, S.R., & Boender, C. 2002. Measuring women's empowerment as a variable in international development. *Gender and Development Group*. The World Bank: Washington, D.C.
- Manandhar, D.S., Osrin, D., Shrestha, B.P., Mesko, N., Morrison, J. & Tumbahangphe, K.M. et al. 2004. Effect of a participatory intervention with women's groups on birth outcomes in Nepal: Cluster-randomised controlled trial. *Lancet* 364: 970-979.
- Manda, S. 1999. Birth intervals, breastfeeding and determinants of childhood mortality in Malawi. *Social Science and Medicine* 48: 301-312.
- Mann, M. 1986. *The Sources of Social Power, Volume I: A history of power form the beginning to AD 1760*. New York: Cambridge University Press.
- March, J.G., & Olsen, J. P. 1989. *Rediscovering Institutions: The Organizational Basis of Politics*. New York: Free Press.
- Mason, K.O. 1984. *The Status of Women: A review of its relationships to fertility and mortality*. New York: The Rockefeller Foundation.
- Mason, K. O. 1986. The status of women: Conceptual and methodological issues in demographic studies. *Sociological Forum* 1(2): 284-300.
- Mason, K.O. 1987. The impact of women's social position on fertility in developing countries. *Sociological Forum* 2: 718-745.
- Mayhew, B.H. & Levinger, R.L. 1976. Size and the density of interaction in human aggregates. *American Journal of Sociology* 82: 86-110.
- MDHS. 2004. Malawi Demographic and Health Survey. MACRO International.
- Miles Doan, R. & Bisharat, L. 1990. Female autonomy and child nutritional status: The extended-family residential unit in Amman, Jordan. *Social Science and Medicine* 31(7): 783-789.



- Misselhorn, M. & Harttgen, K. 2006. A multilevel approach to explain child mortality and undernutrition in South Asian and Sub-Saharan Africa. *Ibero-America Institute for Economic Research Discussion Paper No. 152*.
- Moser, C.O.N. 1989. Gender planning in the Third World: Meeting practical and strategic gender needs. *World Development* 17(11): 1799-1825.
- Mosley, W.H. and Chen, L.C. 1984. An analytical framework for the study of child survival in developing countries. In *Child Survival: Strategies for Research* Mosley, W.H. and Chen, L.C (eds). New York: Population Council. Pp. 25-45.
- Muylwijk, J. 1992. Will women farmers till the land until the cows come home?: Socio-economic differentiation of women in Malawi in relation to their access to animal traction. Wageningen Agricultural University, Department of Development Sociology.
- Newell, J. 1995. A moment of truth? The church and political change in Malawi, 1992. *The Journal of Modern African Studies* 33: 243-262.
- Newell, M.L., Brahmabhatt, H., & Ghys P.D. 2004. Child mortality and HIV infection in Africa: A review. *AIDS* 18: S27-S34.
- Nzei, A.A. 2008. Women, power and empowerment in African societies: A theoretical overview. *Journal of Social Issues* 6: 121-146.
- Peters, P. 1997. Against the odds: matriliney, land and gender in the Shire Highlands of Malawi. *Critique of Anthropology* 17 (2): 189-210.
- Premchander, S., Prameela, V. & Polman, W. 2004. Promoting rural women's cooperative businesses in Thailand: A training kit. Food and Agriculture Organization of the United Nations: RAP publication 2004/01.
- Pritchard, R.B. 1996. *Grandes Dames, Femmes Fortes, and Matrones* : Reformed women ministering. In *Religious Institutions and Women's Leadership: New roles inside the mainstream*. Wessinger, C (ed.) Columbia: University of South Carolina Press. Pp. 39-57.
- Rendall, M.S. & Bachieva, R.A. 1998. An old-age security motive for fertility in the United States? *Population and Development Review* 24(2): 293-307.
- Rico, E., Fenn, B., Abramsky, T., & Watts, C. 2011. Associations between maternal experiences of intimate partner violence and child nutrition and mortality: findings from Demographic and Health Surveys in Egypt, Honduras, Kenya, Malawi and Rwanda. *Journal of Epidemiology and Community Health* 65 (4): 360-367.
- Ritzer, G. 1999. *Sociological Theory* (Third Edition). New York: McGraw-Hill.
- Rowlands, J. 1995. Empowerment examined. *Development in Practice* 5(2): 101-107.

- Rowlands, J. 1997. *Questioning Empowerment: Working with women in Honduras*. Oxford: Oxfam Publications.
- Salim, M. 1992. Malawi: Gender issues. Fact Sheet. WID Unit, Poverty and Social Policy Division, Technical Department, Africa Region, World Bank.
- Samman, E. and Santos, M. E. (2009). Agency and Empowerment: A review of concepts, indicators, and empirical evidence. Oxford Poverty and Human Development Initiative, The University of Oxford.
- Sastry, N. 1995. A multilevel hazard model for hierarchically clustered data: Model estimation and an application to the study of child survival in Northeast Brazil. *Labor and Population Program: Working paper series*. 95-15.
- Schatz, E. 2003. Comparing, contextualizing and conceptualizing: Enhancing quantitative data on women's situation in rural Africa. *Demographic Research* 1(5): 143-174.
- Schatz, E. & Williams, J. 2011. Understanding women's status, empowerment and autonomy in sub-Saharan Africa: The need to contextualize and validate DHS gener analyses with supplemental qualitative data. *Population Association of America Meeting*, Washington, D.C.
- Sear, R., Steele, F., McGregor, I.A., & Mace, R. 2002. The effects of kin on child mortality in rural Gambia. *Demography* 39(1): 43-63.
- Segal, E.S. 2008. Gender and ethnicity in Banda's Malawi. *Wagadu* (Special Issue: Women's activism for gender equality in Africa) 6.
- Sen, A.K. 1990. Gender and cooperative conflicts. In Tinkler, I. (ed) *Persistent inequalities: Women and world development*. Oxford: Oxford University Press. Pp. 123-149.
- Singh, S. 2010. Women's autonomy in rural India: Need for culture and context. *International Social Work* 53: 169-186.
- Singh, G. and Yu, S. 1996. US childhood mortality, 1950 through 1993: Trends and socioeconomic differentials. *American Journal of Public Health* 86(4): 505-512.
- Solis, P., Pullum, S.G. & Frisbie, W.P. 2000. Demographic models of birth outcomes and infant mortality: An alternative measurement approach. *Demography* 37: 489-498.
- Strickland, R. 2004. *To Have and To Hold: Women's Property Rights in the Context of HIV/AIDS in sub-Saharan Africa*. ICRW Working Paper, June. Washington, DC: International Center for Research on Women.
- Sullivan, J.M., Rutstein, S.O., & Bicego, G.T. 1994. Infant and Child Mortality. DHS Comparative Studies. No. 15.

- Takyi, Baffour K., & Christopher L. Broughton. 2006. Marital stability in sub-Saharan Africa: Do women's autonomy and socioeconomic situation matter? *Journal of Family and Economic Issues* 27:113-132.
- Timaeus, I.M., & Lush, L. 1995. Intra-urban differentials in child health. *Health Transition. Review* 5: 163-90.
- Townsend, J., Zapata, E., Rowlands, J., Alberti, P., & Mercado, M. 1999. *Women and Power: Fighting patriarchies and poverty*. London: Zed Books.
- Tucker, R.C. (ed). 1978. *The Marx-Engels Reader* (Second Edition). W.W. Norton and Company.
- UNDP. 2005. United Nations Development Report: Malawi.
- United Nations. 2011. The Millennium Development Goals Report. New York, New York.
- Varela, F.G., Maturana, H.R., & Uribe, R. 1974. Autopoiesis: the organization of living systems, its characterization and a model. *BioSystems* 5: 187-195.
- Vella, V., Tomkins, A., Borghesi, A., Migliori, G.B., Adriko, B.C., & Crevatin, E. 1992. Determinants of child nutrition and mortality in north-west Uganda. *Bulletin of the World Health Organization* 70(5): 637-643.
- Victoria, C.G, Wagstaff, A., Schellenberg, J.A., Gwatkin, D. Cleason, M. & Habicht, J.P. 2003 Applying an equity lens to child health and mortality: More of the same is not enough. *The Lancet* 362: 233-41.
- Wallerstein, N. & Bernstein, E. 1988. Empowerment education: Freire's idea adapted to health education. *Health Education Quarterly* 15(4): 379-394.
- Weber, Max. 1978 [1922]. *Economy and Society: An outline of interpretive sociology, Volume 2*. Roth, G. and Wittich, Claus (eds). Berkely: University of California Press.
- Wolff, B., Blanc, A.K., & Gage, A.J. 2000. Who decides? Women's status and negotiation of sex in Uganda. *Culture, Health & Sexuality* 2(3): 303-322.
- World Bank. 2004. Malawi Poverty and Vulnerability Assessment: Investing in our future. Working Draft. ESDS International.
- World Bank. 2010. World Development Indicators (WDI). ESDS International.
- Williams, J.R. (2010). Doing feminist-demography. *International Journal of Social Research Methodology* 13(3): 197-210.
- Yount, K. Halim, N., & Head. S. 2011. A survey experiment of women's attitudes about intimate partner violence against women in rural Bangladesh. Paper presented at the Population Association of America, Washington, DC.

# BIOGRAPHICAL SKETCH

## Education

**Florida State University** Tallahassee, FL

Doctor of Philosophy in Sociology (Summer 2012)

Major Area: Demography; Minor Areas: Quantitative Methods and Health

**Florida State University** Tallahassee, FL

Masters of Science in Sociology (Spring 2010)

Major Area: Demography; Minor Areas: Quantitative Methods and Health

**Cornell University** Ithaca, NY

Bachelor of Science Double Major in Biometry and Statistics; Developmental Sociology (2008)

Minor: Applied Economics and Management

*Magna Cum Laude*

## Relevant Coursework

- Spatial Statistics
- Multivariate Statistics
- Linear regression
- Advanced Multivariate Statistics
- Epidemiology
- Biometry
- Event History and Hazard Analysis
- Survey and Sample Design

## Additional Training

- Growth Curve Modeling, Florida State University, May 3-7, 2010.
- Workshop in Biodemography, Stanford University, October 28-31, 2009
- Longitudinal Data Analysis: Hazard Models, University of Colorado, June 17-19, 2009
- Program for Instructional Excellence, Florida State University, August 24-25, 2008

## Skills

- Proficiency in SPSS, STATA, Minitab, ArcGIS, TreeAge, Microsoft Office Suite
- Familiarity with SAS and R
- Experience with multiple large and small data sets (Census, Add Health, Demographic and Health Survey, World Fertility Survey, Generational and Gender Survey, Family and Fertility Survey)

## Research Experience

**Clinical Research Assistant, University of Pennsylvania (November 2011-present)**

- Manage database for the MyHeartMap Challenge
- Analyze data and write reports using various data sources
- Prepare presentations and publications
- Assist in writing proposals and grants

**Community Health Data Base Intern, Philadelphia Health Management Corp (Summer 2011)**

- Analyze CHDB data and perform literature reviews
- Write monthly Data Findings articles using CHDB data
- Analyze and write reports using Mercer County Health Survey

**Sustainable Communities Intern, Local Initiatives Support Corp, Philadelphia (Summer 2011)**

- Developed and designed survey questionnaires for the Digital Inclusion Program
- Research and collect data on national and local programs and policies relevant to education, crime and safety, and environmental health
- Write stories and edit Sustainable Communities monthly newsletter
- Attend, write about, and photo community events

**Research and Teaching Assistant, Florida State University (2008-present)**

- Co-author on several papers on marriage timing and health (all under review)
- Investigate the relationship between women's empowerment indicators and children's health using four national and international data sets for dissertation
- Perform data entry, data cleaning, data analysis, and literature reviews
- Reviewed IRB proposals and informed consents

**Research Assistant, Malawi Longitudinal Study of Families and Health UPenn (2010)**

- Revised and formatted three surveys on economics and health conducted May-July
- Compiled a data set of interviewer statistics
- Performed data management, survey quality checks, and survey organization
- Supervised project aids and interviewers

**Research Assistant, Cornell University (2007-2008)**

- Collected and analyzed data in the Sociology, Psychology, and Business departments
- Helped design and run experiments
- Created research protocols for experiments
- Recruited participants in the Ithaca community

**Presentations**

- Heather Griffis, Raina Merchant, Alison Leung, Sarah Wallace, et al. "How Well Does AED Location Match Cardiac Arrest Location?" *Society for Academic Emergency Medicine Annual Meeting*, May 2012, Chicago, Illinois.
- Miles Taylor, Scott Lynch and Heather Griffis. "Racial Differences in the Cohort Effects: Disability trajectories among older Americans." *Southern Demographic Conference*, October 2011, Tallahassee, Florida.
- Pina Valle and Heather Griffis. "Union Formation Behaviors: Young adult immigrants in the United States." *Southern Demographic Conference*, October 2011, Tallahassee, Florida.
- Pina Valle and Heather Griffis. "Gender Differences and the Timing of Marriage and Health Outcomes." *Population Association of America Conference*, April 2011, Washington, D.C.
- Pina Valle and Heather Griffis. "Gender Differences and the Timing of Marriage and Health Outcomes." *Southern Demographic Conference*, October 2010, Knoxville, Tennessee.
- Heather Griffis. "Mental health in post-socialist turmoil: the epidemiology of depression

- in Uzbekistan.” *European Population Conference*, September 2010, Vienna, Austria.
- Elwood Carlson and Heather Griffis. “Marriage Timing in Post-Transition Kazakhstan: Who is the Minority Group Now?” *Population Association of America Conference*, April 2010, Dallas, Texas.
  - Heather Griffis. “Employment and Mental Health: Depression During Uzbekistan’s Post-Socialist Transition.” *Work, Stress and Health Conference*, November 2009, San Juan, Puerto Rico.
  - Heather Griffis. “Health and Crisis in Uzbekistan.” *Southern Demographic Conference*, October 2009, Galveston, Texas.
  - Heather Griffis and Elwood Carlson. “Marriage Timing, Ethnicity, and Education in Kazakhstan,” *International Union for the Scientific Study of Population Conference*, September 2009, Marrakech, Morocco.