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# **Inequalities in the Use of Family Planning and Reproductive Health Services:**

## **Implications for Policies and Programs**

**FEBRUARY 2007**

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*February 2007*

The views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

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## EXECUTIVE SUMMARY

The purpose of this paper is to analyze inequalities in the use of family planning (FP) and maternal health (MH) services in selected developing countries to better understand how to improve the effectiveness of reproductive health (RH) policies and programs.<sup>1</sup> It aims to inform policymakers about new evidence on the interrelationships among poverty, inequality, and the use of FP and MH services. This paper is based on an extensive analysis of data disaggregated by socioeconomic status. The analysis uses Demographic and Health Surveys (DHS) available for 47 countries.

International development approaches now stress poverty reduction, and U.S. national security policy places more emphasis on broader development. There is new evidence of inequalities in RH status and outcomes in developing countries. A poverty and equity focus may affect RH goals, but may not actually translate into improving the RH health of the poor. Yet, reducing inequalities in the use of FP and MH services could have far-reaching implications beyond improved health outcomes by reducing poverty and improving quality of life, particularly for women.

### **Analysis of Data on Inequalities in Use of Family Planning and Reproductive Health Services and Inequalities in Social Trends**

**Findings on inequalities in the use of family planning.** The degree of inequality at any given level of FP use varies greatly in different countries. Patterns of inequality can be markedly different, even among countries with comparable levels of use. In countries with low contraceptive prevalence, inequalities in FP use tend to be high. Relying on overall increases in FP use to eventually reach the poor may not be sufficient to address inequalities. Many countries with moderate levels of FP use have considerable scope for reducing inequalities in use. Further analysis by socioeconomic groups at the country level found significant variations in levels of inequality, even in countries with similar levels of FP use. According to the analysis, at any given level of FP use, there is a clear and necessary role for pro-poor policies and programs.

**Findings on unmet need for family planning.** The analysis revealed that unmet need changes as FP use increases. Levels of inequalities in unmet need vary by country. There is evidence that inequalities can be significant. In a given country, the poor may tend to experience greater levels of unmet need for family planning as their desire to limit or space births increases, while wealthier groups experience diminishing unmet need due to their rising FP use. Country-level analysis of unmet need for family planning can provide useful information for strategic planning on how FP programs might increase its use.

**Findings on inequalities in the use of MH services.** Analysis of the use of MH services indicates that, in general, countries with low levels of antenatal care tend to have relatively high levels of inequality in use of antenatal services. The poor are far less likely to use antenatal services than wealthier socioeconomic groups. Each region had countries with low, moderate, and high inequalities. There were no discernible regional patterns evident from the analysis, and results varied by country. The analysis indicates that inequalities in use of antenatal care in developing countries needs to be addressed. In Latin America, patterns of inequality tend to vary between use of MH and FP services. In Asia, patterns of inequality between MH and FP use are quite different, depending on the country. In sub-Saharan Africa, the patterns of inequality tend to be similar across FP and MH care use. For this reason, integrating maternal healthcare and FP services has potential advantages. Levels of inequality are greater for use of delivery services in medical facilities than they are for antenatal care. Few countries vary from the norm of relatively high inequality for use of institutional delivery services.

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<sup>1</sup> In this context, RH services do not include abortion.

**Findings on inequalities in social trends.** Changes in the age at marriage have the potential to accelerate fertility decline. Age at marriage is greatly influenced by cultural and social factors, including education, and may lag far behind changes in other behaviors. Findings from the analysis show that inequalities in age at marriage, where poorer socioeconomic groups tend to marry earlier than wealthier women and bear children at an earlier age, can have an important demographic impact. Inequalities tend to emerge when wealthier women begin to delay their marriages before poorer women begin to delay their marriages. The evidence indicates that early marriage may be contributing to stagnating fertility decline among the poor in certain countries.

**Birth spacing.** The length of birth intervals in any country is the result of many social, cultural, and health norms. This analysis points to two distinct global patterns. In Latin America, the poorest groups have the lowest percentage and the wealthiest groups have the highest percentage of healthy birth intervals. The greatest inequalities are in Bolivia and the Dominican Republic (DR)—the countries with the lowest overall level of healthy birth intervals. A different pattern emerges in Africa and in Asia. In more than one-fourth of the countries analyzed, women in the poorest group were more likely to have healthy birth intervals than women in the wealthiest group. This was true for seven countries in Africa and two countries in Asia. This is most likely explained by the strong adherence to traditional practices among the poor, such as extended breastfeeding or lengthy periods of postpartum abstinence.

### **Implications for Policies and Programs**

There is considerable scope for reducing inequalities in the use of FP and MH services. Although inequalities exist in many countries, it is important to analyze data on a country-specific basis to understand the inequalities. Further analysis of data by subgroups will identify inequalities in service use (e.g., urban vs. rural populations or indigenous vs. other populations). Careful and periodic analyses of the interrelationships among poverty, inequality, and use of FP/MH services can provide important information to guide a country's FP/RH policies and programs.

There is evidence that inequalities in service use change over time in different socioeconomic groups as the overall use of services increases. The degree of inequality at any given level of FP use varies greatly; understanding how it changes can inform policy and program strategies, while understanding changes in unmet need can inform the design of effective FP interventions. The analysis presented here shows that rapid growth in the use of services goes hand-in-hand with rapid declines in inequalities. Inequalities in the use of RH care services must be addressed to achieve rapid growth in use by the whole population. These results indicate that, in the last 15 years, no country studied has achieved rapid increases in FP or MH care use without improving service use by the poor.

There is evidence that pro-poor policies and programs can be effective in reducing inequalities in service use; at any given level of FP use, there is a clear and necessary role for pro-poor policies and programs. Pro-poor strategies that target service delivery improvement and expansion to poor groups are critical where unmet need is concentrated among the poor and lower middle classes. Much more is known now about the types of barriers that impede poor women from accessing needed RH care and about the types of programmatic and policy approaches that help to overcome these barriers. Countries where inequalities are low may provide lessons on how to target inequalities in other countries.

### **Implications for Multisectoral Interventions**

A broad-based policy and programmatic approach to delaying age at marriage could draw upon the resources of the health, education, and labor sectors to contribute to reducing fertility. Programs that increase the enrollment and retention rates for girls in school, particularly in poor urban and rural areas, may delay marriage, as could vocational programs that expand the possibilities for girls in the workforce.

Policy action can raise the minimum legal age at marriage. In Latin America, pro-poor policies and programs to promote healthy birth spacing are needed. In Africa and in Asia, supporting healthy traditional cultural practices that promote longer birth intervals, such as extended breastfeeding, along with messages about modern FP practices, could have positive impacts on fertility levels and birth spacing.

### **Recommendations for Further Research**

- Further analysis of DHS quantitative data for national and subnational RH strategic planning, with a concomitant analysis of the policy environment
- Qualitative research on barriers to access of services by the poor
- Research on pro-poor financing mechanisms
- Operations research on pilot-test mechanisms to reach the poor

## **ABBREVIATIONS**

AIDS	acquired immune deficiency syndrome
DHS	Demographic and Health Survey
DR	Dominican Republic
FP	family planning
HIV	human immunodeficiency virus
IMR	infant mortality rate
MCH	maternal and child health
MDG	Millennium Development Goal
MH	maternal health
MMR	maternal mortality ratio
RH	reproductive health
TFR	total fertility rate
USAID	United States Agency for International Development
WB	World Bank

# I. INTRODUCTION

## Purpose

The purpose of this paper is to analyze inequalities in the use of family planning (FP) and maternal health (MH) services in selected developing countries to better understand how to improve the effectiveness of reproductive health (RH) policies and programs. The paper aims to inform policymakers about new evidence on the interrelationships among poverty, inequality, and use of FP and MH services. It presents new analyses, drawing on Demographic and Health Survey (DHS) data, and provides interpretations that will help to improve policy and programming in reproductive health. Policymakers in developing countries must be informed about the latest information on the relationships among FP and MH care and poverty and inequalities in use of FP and MH services, as they plan poverty reduction and MH strategies.

The following questions will be addressed:

- How much scope is there for programs to reduce these inequalities?
- Do inequalities in service use change as overall use of services increases?
- Does inequality in use for one type of service imply that other services are accessed unequally?
- Do more culturally determined behaviors, such as age at marriage and birth spacing, follow the same patterns of inequality as service use?

## Methodological Approach

This paper is based on extensive analysis of data that is disaggregated by socioeconomic status. The analysis uses the most recent DHS data available for 47 countries: 10 countries in Asia and the Near East; six in Europe and Eurasia; seven in Latin America and the Caribbean; and 24 in sub-Saharan Africa. With some variation, this paper looked at every country where a DHS was implemented in the past seven years.<sup>2</sup> In addition, to better understand how inequalities have changed, the analysis examined how inequality in service use has changed or evolved for the 36 countries that have had two or more DHS conducted over the last few decades.

The analysis looked at inequalities in service use in three areas that contribute either directly or indirectly to improved reproductive health: use of FP services and the level of unmet need for family planning; use of maternal healthcare services, including antenatal care and institutional deliveries; and social behaviors allied with fertility reduction, including age at marriage, age at first birth, and birth intervals. Inequalities in the indicators are measured by segmenting the population into five equal socioeconomic groups, or quintiles, on the basis of household amenities and ownership of household assets. This methodology allows for a ranking of wealth within each country; however, one of the limitations of quintile analysis is that relative wealth ranking is country-specific and not comparable across countries. Concentration ratios are introduced in the paper to provide a means of cross-country comparison with scatter plot figures. A guide to understanding measures of inequality, including wealth indices, bar charts, ratio of use, and concentration ratios, can be found in Appendix A.

Historically, contraceptive use, unmet need for spacing and limiting births, use of antenatal care, births delivered in medical facilities, and birth intervals have been common indicators for monitoring progress in RH outcomes within the context of social development programs. Age at marriage and age at birth of first child are becoming more common indicators as FP programs become more closely associated with

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<sup>2</sup> In some countries, the raw data were restricted and availability was limited. Where the raw data were unavailable, other secondary sources were consulted. Most often, these secondary sources did not analyze all of the selected variables; for this reason, not all indicators are calculated for some countries.

social development programs, including those that encourage young women to remain in school. Also, as declines in fertility levels stagnate due to unchanging levels of contraceptive use and other factors, program planners may want to look at possible improvements in such allied factors that influence fertility as a means of making further progress. These areas of investigation will provide a broad view on how use and the need for FP services, use of MH care services, and culturally determined behaviors have evolved over time.

## **Why a Poverty and Equity Focus?**

The international development community is placing greater emphasis on the goals of poverty reduction and achieving equity. The increasing prominence of poverty reduction as an overarching goal represents a gradual move to a broader development approach from an earlier approach focused on investments in economic growth. The Millennium Development Goals (MDGs) set by the international community in 2000 embrace this shift.

The first MDG is to eradicate extreme poverty, with the specific objective of reducing by half, between 1990 and 2015, the proportion of people in developing countries living on an income of less than \$1 a day (United Nations, 2002). According to an analysis of trends between 1990 and 2001, Asia has achieved significant progress toward this goal (United Nations, 2005). Other regions, most notably sub-Saharan Africa, have experienced an increase in the share of their populations living in extreme poverty. Moreover, because of population growth, the absolute number of extremely poor people has dropped only slightly, from 1.2 to 1.1 billion, over the same period. There is also evidence that those who are poor, on average, are becoming even poorer. The international development community has increased its focus on achieving greater equity within and among countries and on highlighting the role of equity in driving development and accelerating gains in poverty reduction (World Bank, 2005).

National security policy in the United States also has been revised to include development aid as an operational national security goal, along with more traditional diplomatic and military efforts (USAID, 2005). In this context, it has become increasingly important to examine the value of RH programs as contributors to economic growth, poverty reduction, and increased equity. “Transformational” development is now a core USAID operational goal; it goes beyond raising living standards and reducing poverty to profoundly changing countries in terms of governance, human capacity, and economic structure so as to promote further economic and social progress beyond dependence on foreign aid (USAID, 2004).

## **Does a Poverty and Equity Focus Affect Reproductive Health Goals?**

### **It is possible for countries to achieve the MDG health goals with minimal benefit to poor people.**

There is no guarantee that poor people will be the main beneficiaries of accelerated progress in achieving health goals (Gwatkin, 2002).<sup>3</sup> For example, an analysis of child survival data shows that socioeconomic groups do not always share equally in health improvements (World Bank, 2005). Other analyses found similarly mixed results (Winfrey et al., 2005). One macro-level analysis emphasized that the poor typically are the last to benefit from the healthy effects of the demographic transition (Eastwood and Lipton, 2001).

The MDGs as they were originally formulated included some key RH-related goals—most important, the reduction of maternal deaths—but left others out. In early October 2006, the United Nations General Assembly adopted a new target “to achieve universal access to reproductive health by 2015” under MDG 5 that calls for the reduction of maternal mortality (IPPF, 2006). The poverty and equity focus of the

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<sup>3</sup> The goals are societal averages and not focused on any particular socioeconomic group despite their avowed purpose of reducing poverty.

MDGs might positively affect the chances of meeting important RH objectives, such as reducing maternal death and illness, expanding contraceptive use, reducing teenage pregnancies, and lowering family size. To accelerate their progress toward reducing poverty, many developing nations have prepared poverty reduction strategies that incorporate the MDGs. As explicit statements of goals, programs, and associated budgets, these strategies are compelling policymakers to increasingly justify public-funded programs based on their poverty alleviation impacts. Recent reviews show that poverty reduction strategies often do not include addressing reproductive health concerns among the development priorities and, more important, fail to budget adequately for them (Sundaram et al., 2004). With the recent adoption of the new RH access target, meeting poverty reduction goals may require a revision of current strategies to make reproductive health a priority.

Poverty and equity issues may be linked to the stalled transition to replacement fertility that occurred in many developing countries beginning in the 1990s. One study examined 20 countries that have begun their transition from high to replacement-level fertility (about 2.1 births per woman) (Bongaarts, 2005). In seven countries,<sup>4</sup> levels of fertility stalled in mid-transition—between 4.7 and 2.5 births per woman. The stall occurred in countries at varying levels of socioeconomic development and at varying stages of the fertility transition; no correlation was found between a stall in the transition and lack of progress on socioeconomic indicators such as gross domestic product per capita, child survival, and girls' education. The study concluded that stalls have multiple causes and that each country should be treated as a special case. A study in Kenya explored the equity dimension of the stall in the fertility transition and found large increases in fertility among the least educated and poorest women between 1998 and 2003 (Westoff and Cross, 2005). The study concluded that increases in fertility in the least educated and poorest women offset continuing declines or stable rates among more educated and wealthier women.

### **Why Analyze Inequalities in Use of FP/RH Services?**

**There is new evidence of inequalities in RH status and outcomes in developing countries.** In recent years, there has been a leap forward in the measurement of poverty and the inequalities in RH access and outcomes by socioeconomic status. The recent disaggregation of DHS data according to socioeconomic groups provides overwhelming evidence that poor people generally use health services less and have worse RH outcomes.

**There are large inequalities in all developing country regions for a range of RH indicators.** An analysis of DHS data from 56 countries found that the poorest women have almost double the number of children as the wealthiest (6.0 vs. 3.2); the wealthiest women are 2.5 times as likely to have trained delivery attendance as the poorest; and the poorest adolescents are 2.4 times as likely to give birth as the wealthiest (Gwatkin et al., 2003, in Greene and Merrick, 2005).

**Maternal death is strongly correlated with poverty and poverty-related indicators, according to analysis of DHS data in 10 countries** (Graham et al., 2004). Similar disparities emerge when plotting MH or FP outcomes and access against other factors such as education and area of residence (urban vs. rural) (World Bank, 2005). As Claeson and others (2001) have proposed, poverty is both a cause and consequence of poor health, according to a typical model of health and poverty interactions that acknowledges a circular relationship.

**There are likely causal links between poor reproductive health outcomes and poverty.** Large family size promotes poverty by slowing economic growth and further distorts the distribution of income to the detriment of the poor, according to one study (Eastwood and Lipton, 2001). There is limited

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<sup>4</sup> Bangladesh, Colombia, Dominican Republic, Ghana, Kenya, Peru, and Turkey.

macroeconomic research that examines the direct effect of declining fertility on poverty reduction and improved income distribution, but there are some findings. Research shows that the demographic transition can help to lower poverty; however, the beneficial effects are concentrated in the latter stages of the transition, when fertility falls. Documentation from Brazil reinforces these findings (Paes de Barros et al., 2001).

Poor reproductive health outcomes contribute to poverty mainly through their negative impact on overall health. A synthesis of the evidence from 72 studies clarifies the various pathways from poor reproductive health to poverty (Greene and Merrick, 2005). The most persuasive evidence of the principal negative RH outcomes that contribute to poverty comes from: early childbearing, high or excess fertility, maternal death and illness, and unintended or mistimed pregnancies. For example, early childbearing may lead to poverty by disrupting schooling and affecting future employment opportunities for the adolescent. Early childbearing also contributes to the inter-generational transfer of poverty. In addition, adolescent mothers tend to have poorer health during pregnancy, through less use of healthcare services and biological constraints associated with their age. Adolescent mothers also tend to have lower educational levels, and maternal education has a significant positive effect on child health outcomes with long-term implications for child health, nutrition, and development.

Taken together, the macro and micro research increasingly favors a causal relationship between RH investments, improved RH, and poverty reduction. However, researchers recognize that many gaps remain in current knowledge. Both Greene and Merrick (2005) and a recent expert panel convened by the Center for Global Development (2005) present recommendations for an expanded and strengthened research agenda to explore these links further.

The new evidence on inequalities in RH status and outcomes, and the links between reproductive health and poverty reduction, has important implications for RH and multisectoral policies and program responses in developing countries; yet, more specific information is needed to guide policy and program directions. This paper aims to address the gap in information by probing RH inequalities more deeply, in terms of service use and changes in that use over time, to determine how much scope there might be for reducing inequalities through multiple channels. Section II discusses the results of data analysis on inequalities in FP use and unmet need; inequalities in the use of MH care services; and finally, inequalities in age at marriage, age at birth of first child, and birth intervals. Section III discusses policy and program implications drawn from the analytical findings, and Section IV briefly notes recommendations for further research that can guide policy and programming.

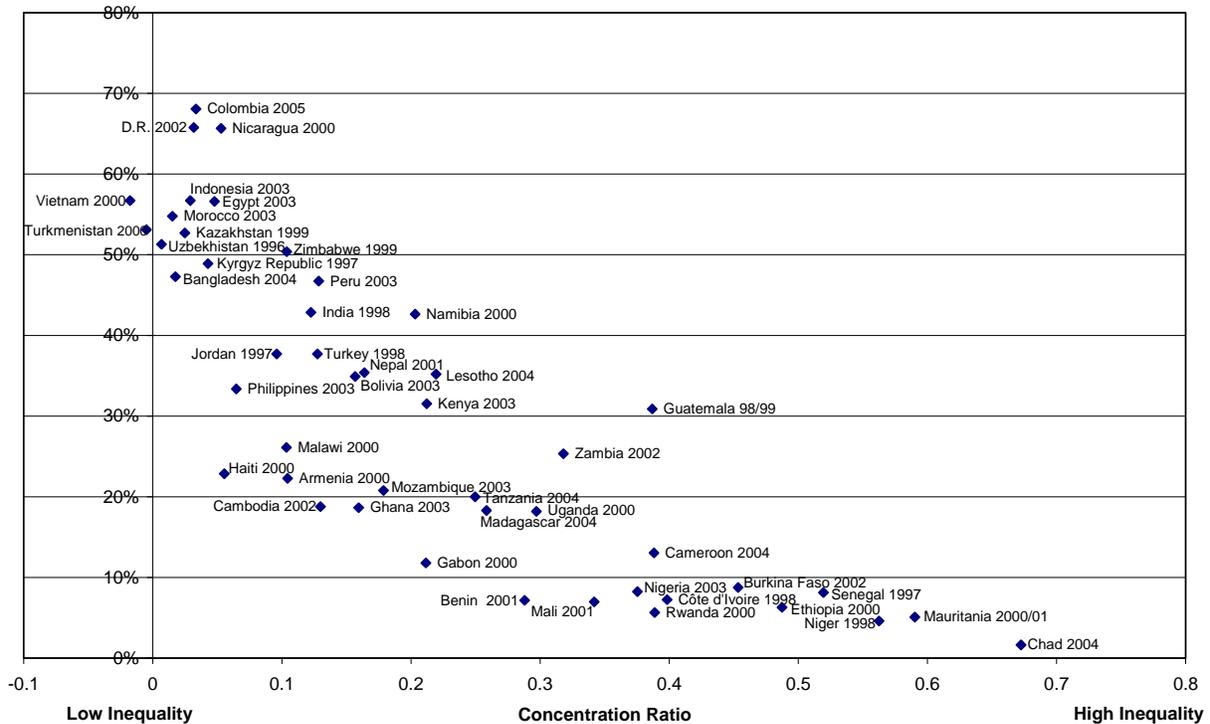
## II. ANALYSIS OF DATA ON INEQUALITIES IN THE USE OF FAMILY PLANNING AND REPRODUCTIVE HEALTH SERVICES AND IN SOCIAL TRENDS

Inequalities in access to FP/RH services exist both within and across countries. Understanding the nature and evolution of these inequalities is useful for identifying effective strategies for reducing them and contributing to a country's poverty alleviation efforts. As noted, this analysis used the most recent DHS available for 47 countries: 10 in Asia and the Near East; six in Europe and Eurasia; seven in Latin America and the Caribbean; and 24 in sub-Saharan Africa.

### Findings on Inequalities in the Use of Family Planning

The use of FP/RH services has been linked theoretically and empirically to various aspects of socioeconomic status, including education and income. Wealthier, better-educated women are more likely to use modern FP methods and maternal healthcare services than their less wealthy counterparts. Yet the analysis found that the degree of inequality at any given level of FP use across regions and countries varies greatly.

Figure 1. Use of modern family planning among married women ages 15–49



**In general, at higher levels of FP use, there is less inequality.** Figure 1 presents a scatter plot of the concentration ratio versus the use of family planning among married women ages 15–49 as measured in the most recent survey available for the countries analyzed. Each point in the scatter plot represents a single country. For example, the data point labeled Philippines 2003 indicates that FP use was about 33 percent and the concentration ratio was about 0.06. Moving from left to right in the figure indicates

greater inequality; concentration ratios range from 0 to 1, with 0 being perfect equality and 1 being perfect inequality. Moving from the bottom of the chart to the top indicates greater use of family planning.<sup>5</sup>

The concentration ratio is a rigorous summary measure to establish magnitudes of inequality. (A detailed description of how concentration ratios are derived can be found in Appendix A.) The scatter plot provides a means of cross-country comparison of inequality levels. For example, Colombia and the Dominican Republic (DR) have the highest levels of FP use and relatively low levels of inequality. At the opposite end of the spectrum, Chad and Mauritania have the lowest levels of FP use and the highest levels of inequality. Inequalities in FP use tend to decrease with increasing levels of contraceptive use, but according to these results, countries with similar FP use rates may have markedly different levels of inequality.

A reasonable question to ask is “What level of inequality should be considered high?” Given the general trend toward greater equality at higher levels of FP use, the answer to this question is contingent upon the overall level of FP use. Table 1 presents notional ranges of relative inequality by region as a guide to assess whether the level of inequality is relatively high or low based on the overall use of family planning. For example, according to this table, in the case of Mozambique, where FP use is 21 percent and the concentration ratio is 0.18, there is a low level of inequality given the current use of family planning. Table 1 shows inequality levels according to region and is followed by Figures 1a, 1b, 1c, and 1d, which show the results from Figure 1 subdivided according to region (Asia and North Africa, Latin America and the Caribbean, sub-Saharan Africa, Europe and Eurasia).

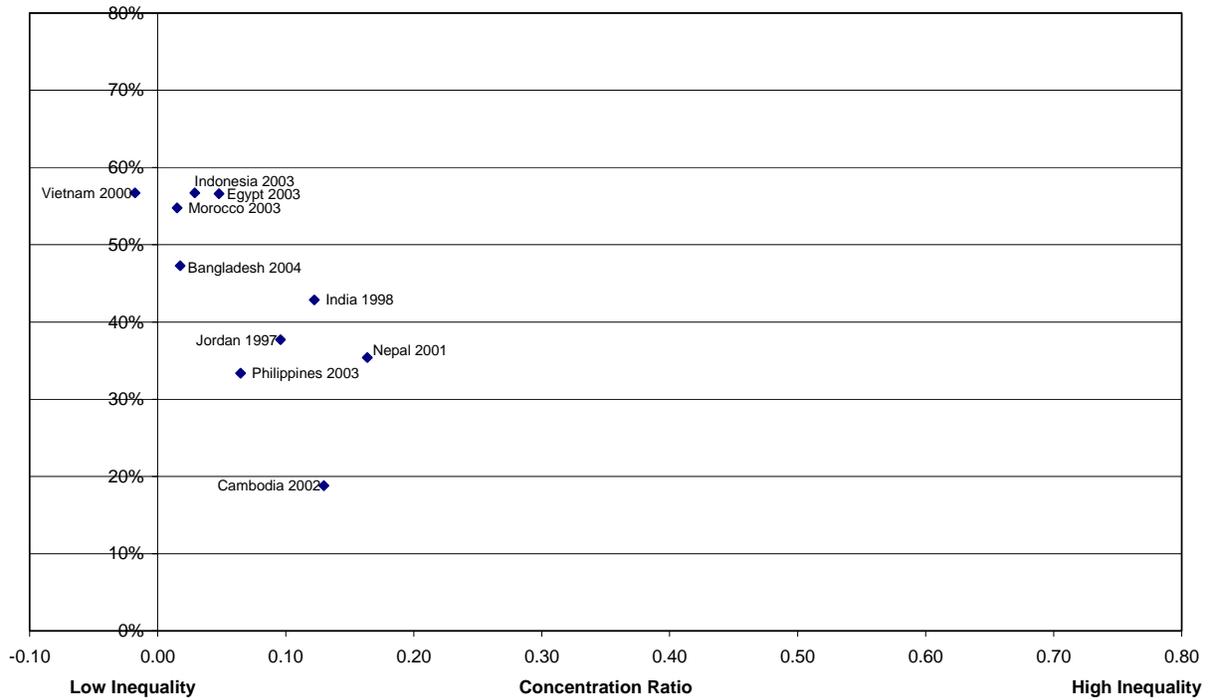
**Table 1. Notional ranges of relative inequality by region: FP use<sup>6</sup>**

Region	Concentration ratio indicating <b>high</b> level of inequality	Concentration ratio indicating <b>moderate</b> level of inequality	Concentration ratio indicating <b>low</b> level of inequality
Asia and North Africa	0.15 or higher	0.05 to 0.14	0.04 or lower
Latin American and the Caribbean	0.20 or higher	0.10 to 0.19	0.09 or lower
Sub-Saharan Africa	0.50 or higher	0.20 to 0.49	0.19 or lower
Europe and Eurasia	0.10 or higher	0.05 to 0.09	0.04 or lower

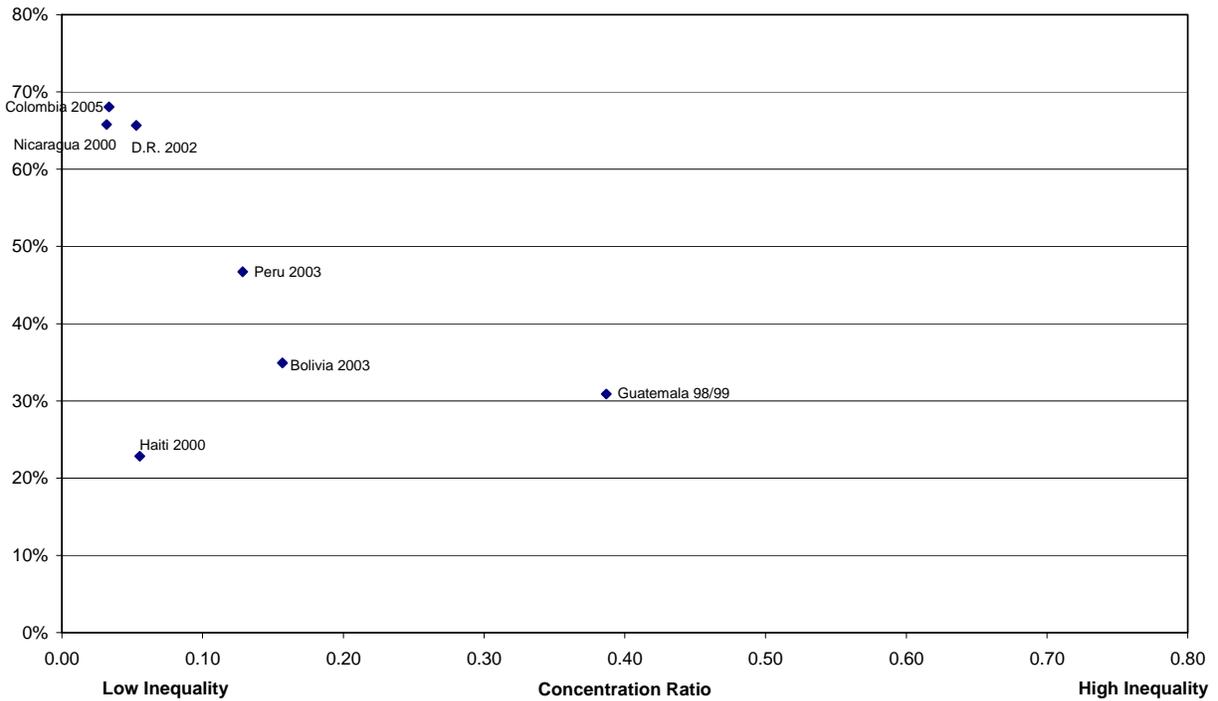
<sup>5</sup> Negative values of the concentration ratio indicate that the poor are more likely to use the service than the wealthy.

<sup>6</sup> Notional ranges for each region were created according to the following criteria: a) creating three country groups of approximately equal size and/or b) creating country groups that are distinguished from one another by large gaps in the measure of inequality.

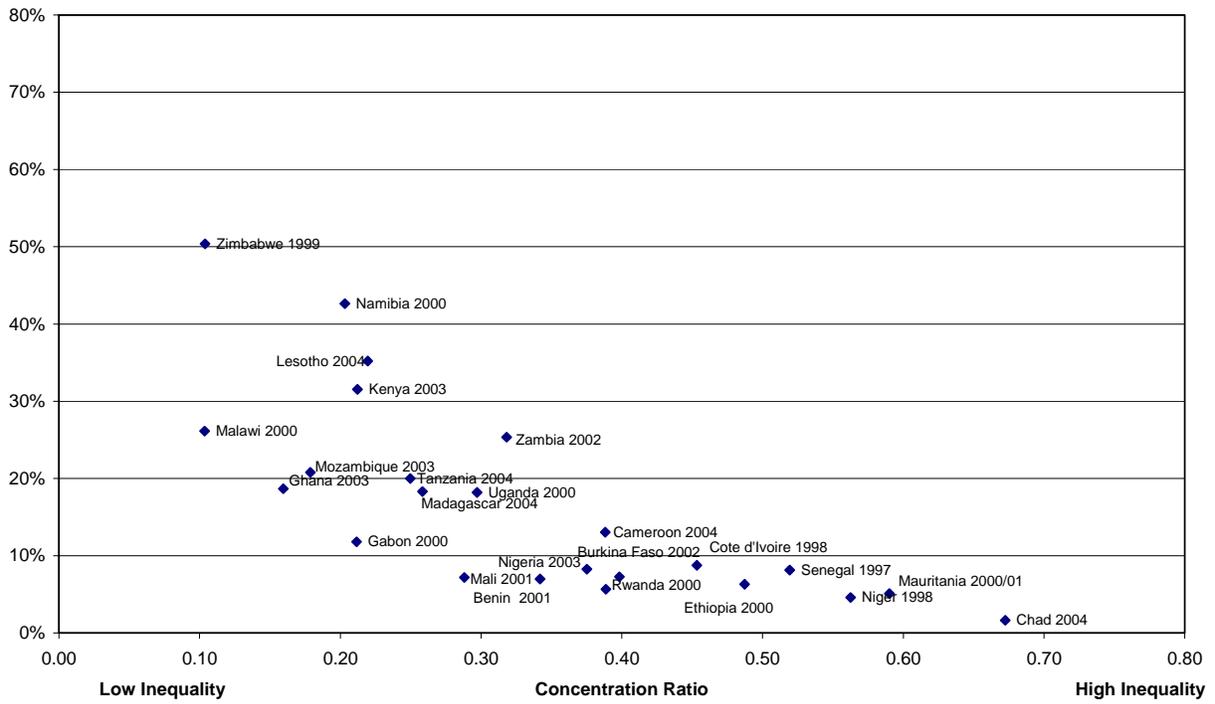
**Figure 1a. Use of modern family planning among married women ages 15–49: Asia and North Africa**



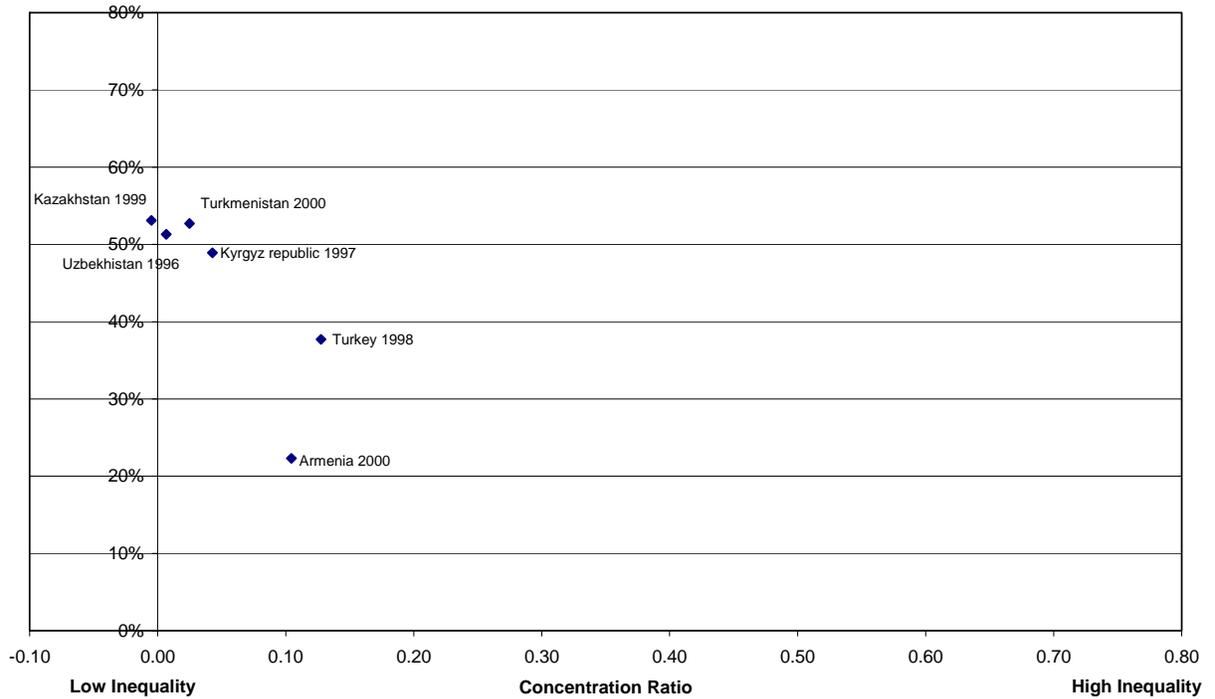
**Figure 1b. Use of modern family planning among married women ages 15–49: Latin America and the Caribbean**



**Figure 1c. Use of modern family planning among married women ages 15–49: Sub-Saharan Africa**



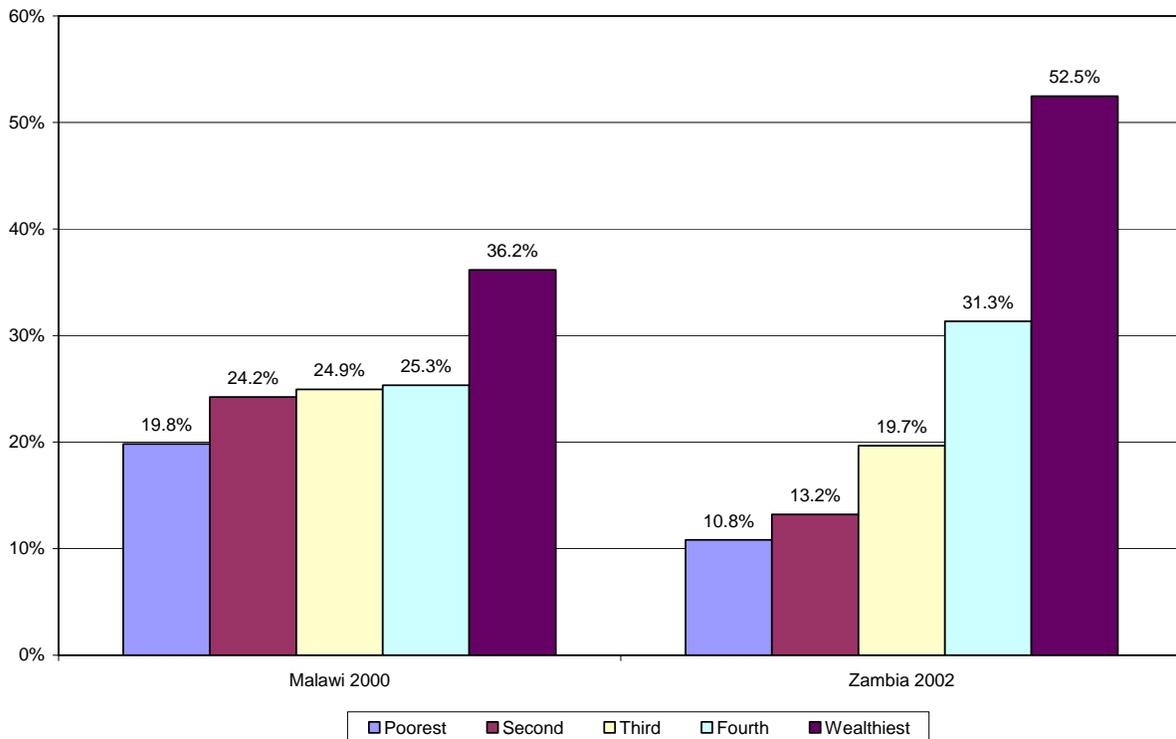
**Figure 1d. Use of modern family planning among married women ages 15–49: Europe and Eurasia**



This analysis provides additional evidence that inequality in FP use in developing countries is a significant problem that needs to be addressed. As can be seen in the regional figures, each region has countries with low, moderate, and high inequalities in FP use. No discernible regional patterns are evident from the analysis, and results on inequalities in FP use vary by country. Each region has countries that might be considered models for their low inequalities, such as Vietnam, Indonesia, and Bangladesh in Asia. It would be useful to analyze some of these countries more closely to determine key policy and program factors that led to low inequalities in FP use. There are many countries with moderate inequalities, such as India, that could benefit from such strategies. Each region also has countries with strikingly high inequalities in FP use, such as in Nepal, where attention to these inequalities is urgently required.

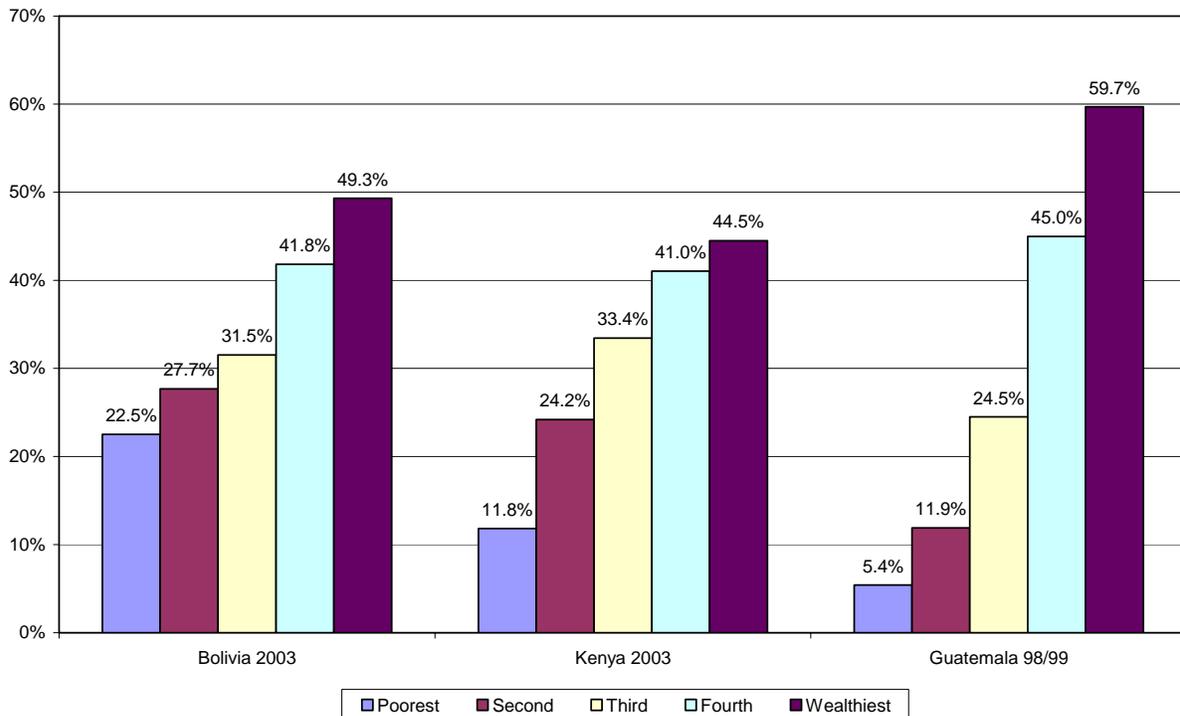
**Further analysis of FP use by socioeconomic groups at the country level found significant variation in levels of inequality.** For example, as Figure 2 indicates, although there is a low FP use rate of about 25 percent in both Malawi and Zambia, there are markedly different levels of inequality. In Zambia, the use rate of modern FP in 2002 among married women from the poorest socioeconomic group was about 11 percent, whereas the use rate among women from the highest group was almost five times higher at about 53 percent. In Malawi, FP use among married women from the poorest socioeconomic group was about 20 percent, while the rate in the wealthiest group was not even double at about 36 percent. The low, middle, and upper middle socioeconomic groups in Malawi all had about the same FP use rates. There appears to be less inequality in FP use among different socioeconomic groups in Malawi than in Zambia.

**Figure 2. Percent of currently married women ages 15–49 using a modern method of family planning**



**At any given level of FP use, there is a clear and necessary role for pro-poor policies and programs.** Relying on overall increases in FP use to eventually reach the poor may not be enough to address inequalities. For example, Bolivia, Kenya, and Guatemala all have FP use of modern contraceptives of approximately 30 to 35 percent of the population. However, as Figure 3 indicates, patterns of inequality can be very different even among countries with comparable levels of FP use. The figure compares modern FP use and illustrates that use in Bolivia and Kenya is more equal than in Guatemala, where inequalities are dramatic.

**Figure 3. Percent of currently married women ages 15–49 using a modern method of family planning**



Countries that have proactively pursued strategies to ensure access to family planning among the poor have succeeded in reducing inequality. For example, Bolivia has aggressively implemented social insurance schemes that guarantee access to RH and MH care services for women of reproductive age. Government reforms have resulted in decentralization of financial and management responsibilities in the health sector, but reforms include funding directed toward priority health interventions for women and children (Taylor et al., 2003). Bolivia has a well-functioning logistics system that ensures the arrival of products even to the most remote service delivery points, although additional resources are needed to strengthen the monitoring, supervision, and training necessary due to decentralization. These interventions have served to improve access to health services among the poorest Bolivian women and have resulted in marked decreases in inequality in use of family planning, antenatal care, and births in health facilities during the period of 1993–2003. According to this analysis, Bolivia still has moderate levels of inequalities in FP use. Although there is now evidence of progress in reducing these inequalities, the country will have to focus on addressing inequalities in service use for an extended period to achieve further progress.

Countries such as Guatemala, with high levels of poverty and limited access to family planning, have not pursued strategies to ensure access to family planning for the poor and have large inequalities in access and use. The majority of Guatemala's indigenous population lives below the poverty line and has limited access to healthcare services; little has been done in the past to address cultural, financial, and service-related barriers to access. The effects of these high levels of poverty and limited access are reflected in large disparities between Mayan and non-Mayan populations on key RH indicators, such as the maternal mortality ratio (MMR), total fertility rate (TFR), and unmet need, among others. However, this situation is now starting to change, with a law passed in 2004 mandating that 15 percent of the tax on alcoholic beverages be used for reproductive health, family planning, and alcoholism programs. Active community participation, particularly among women's groups, has created vocal champions for promoting reproductive health, including improved access to FP/RH services (POLICY, 2006).

## Findings on Unmet Need for Family Planning

To analyze unmet need for family planning in countries selected for this study, the standard definition employed by most USAID projects was adopted. Unmet need is represented by the percent of currently married women between the ages of 15 and 49 who are not pregnant, desire to postpone the next pregnancy for two or more years, or desire no more children but are not using family planning; and pregnant or amenorrheic women whose most recent pregnancy either was unintended or was desired at a later time.

The analysis of unmet need is complicated because it is determined by the evolution of two distinct factors. First, the *growth of unmet need* is based on statements by women that they may want to do something to space or limit their births.<sup>7</sup> Second, *decreases in unmet need* come from a completely different dynamic—unmet need decreases through the uptake of FP services to space or limit births.

**Unmet need for family planning at first increases and then declines, with a rapid increase in FP services.** The analysis revealed a general pattern of change in unmet need for family planning that occurs as FP use increases. At early stages with the introduction of information on the benefits of FP use as well as the evolution in gender and social norms, success in promoting the values of small, better-spaced families generally is accompanied by increases in unmet need.<sup>8</sup> As the desire for smaller families or better spaced births grows, unmet need will increase from an initial low level to higher levels of unmet need, as more women state that they would like to space or limit births. As FP use reaches more people, unmet need subsequently will decrease, as use of family planning accelerates and more women are planning and spacing births.

Based on the previous discussion, Table 2 attempts to categorize several countries by phase of meeting unmet need, where phases are defined as follows:

- **Phase 1:** Unmet need is low, but it is rapidly growing toward moderate levels; however, FP use continues to be low, or even stagnant, while total need is approaching moderate levels.
- **Phase 2:** Unmet need continues to grow. FP use is low but growing; however, it is not growing as fast as the growth in total need, which has increased to moderate levels.

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<sup>7</sup> Unmet need may also grow as a result of disruptions in service delivery, but it is assumed here that this has happened only infrequently. For example, many people feared that Indonesia would see a large decrease in FP use as a result of the economic crisis in the late 1990s. Yet, there was no systematic decrease in FP use or increase in unmet need. In Rwanda, probably as a result of the crisis, there was a decline in FP use between 1992 and 2000, but there was not an increase in unmet need.

<sup>8</sup> Improvements in family planning availability, such as reduced stockouts, improved financing of services, and continuity of service availability, may have an impact on increasing the numbers of women who would like to space or limit births.

- **Phase 3:** Unmet need is high, but is beginning to level off as FP use grows at a pace similar to the growth of total need. Total need for family planning is still growing.
- **Phase 4:** Unmet need for family planning is decreasing to moderate levels, as FP use accelerates rapidly, growing at a faster rate than total need, leading to a reduction in unmet need.
- **Phase 5:** Unmet need has decreased to low levels and use of FP is high, still accelerating, and approaching total need.

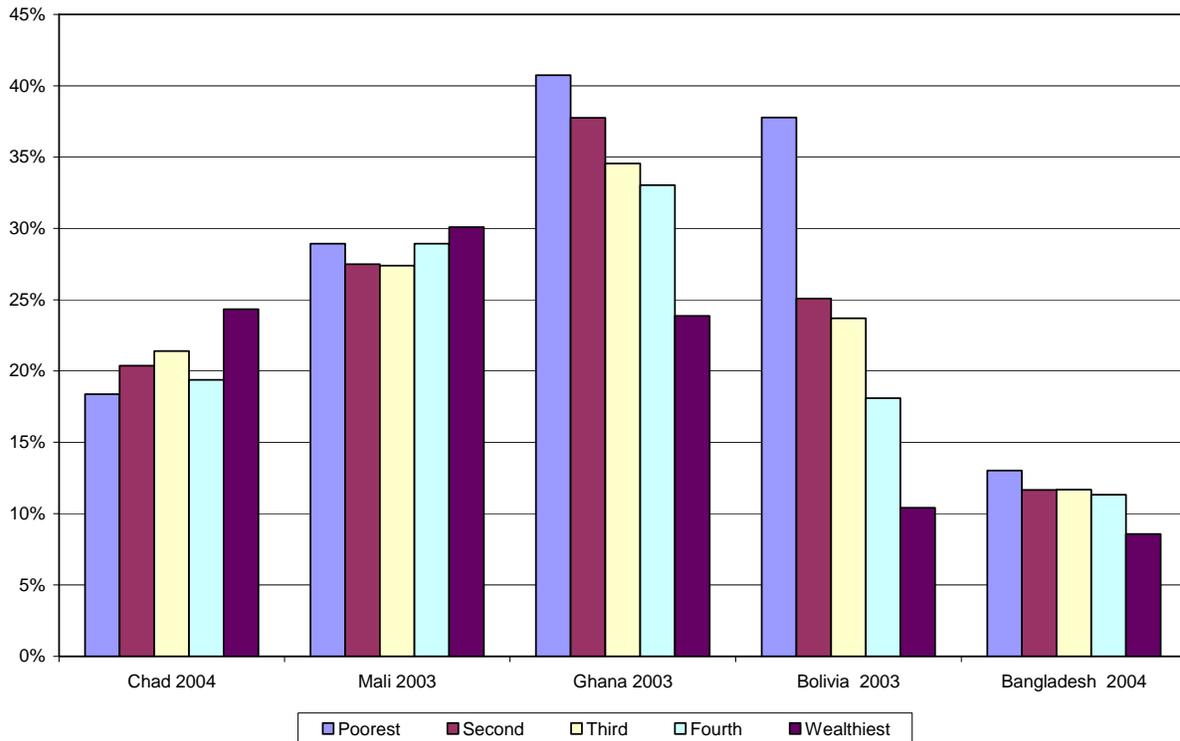
**Table 2. Representative Countries by Phase of Meeting Unmet Need**

	<b>Phase 1</b>	<b>Phase 2</b>	<b>Phase 3</b>	<b>Phase 4</b>	<b>Phase 5</b>
<b>Countries</b>	Chad <sup>9</sup>	Burkina Faso Mali Senegal Uganda	Haiti Ghana Malawi Zambia Tanzania Zambia	Bolivia Namibia Nepal Kenya	Bangladesh Egypt Indonesia Morocco Colombia DR Nicaragua
<b>Characteristic FP Use</b>	Low, stagnant	Low and growing	Low/ Moderate and growing	Moderate /High and growing	High
<b>Characteristic Unmet Need</b>	Growing from low levels	Growing	High, but leveling off	Falling	Low

**Unmet need among different socioeconomic groups changes and evolves along with the different phases of FP programs.** Results of the analysis of unmet need in different socioeconomic groups in the countries reviewed in this study confirm that it changes and evolves as countries move through different phases of FP use. Figure 4 compares unmet need for family planning in the most recent year that data were available with the findings disaggregated by socioeconomic groups across five countries.

<sup>9</sup> Other countries could potentially be described as Phase 1. However, these countries are not among the countries with two or more DHS. They would generally be described as extremely poor and as having untransformed gender and cultural norms.

Figure 4. Unmet need for family planning by socioeconomic group



Different patterns of inequality have different implications for how FP programs might be structured to address unmet need and FP use. Analysis of unmet need for family planning, and different patterns of inequality in unmet need, can provide useful information for strategic planning and implementation aimed at strengthening FP programs.

- When there is low use of FP services and low unmet need, for example in Chad, national FP programs ideally would focus efforts on raising overall awareness about the importance and benefits of child spacing and family planning, with special emphasis on ensuring that the message gets out to hard-to-reach groups. At the same time, in anticipation of emerging demand, these countries also should develop strategies and programs to meet FP needs.
- As unmet need for FP increases, broad-based efforts to convert unmet need into FP use are probably in order. The FP program may formulate strategies to target different types of FP service expansion to different socioeconomic groups. For example, expansion among the wealthiest may concentrate on social marketing of different contraceptives and training private sector physicians. Among the middle class and the poor, expansion might occur through strong public sector or voucher programs targeted toward increasing access to FP services. Information, education, and communication programs will be essential and should be segmented to address the different needs of these groups in terms of providing information on how to access to FP services.
- Where unmet need is concentrated among the poor and lower-middle socioeconomic groups, as shown in Figure 4 for Bolivia and Ghana, pro-poor strategies that target service delivery improvement and expansion to poverty groups are critical for reducing inequalities in FP use. Pro-poor strategies should draw on both the public and private sectors. As more poor and middle class women adopt family planning, the public sector's financial burden is likely to increase. A strong private sector program can help to relieve this strain by drawing in FP users who have the ability and willingness to pay for private services.

## Findings on Inequalities in the Use of Maternal Healthcare Services

Analysis was conducted on the relationship between use of maternal healthcare services and inequalities. Use of MH services included two components: use of antenatal care and use of institutional deliveries. Adequate antenatal care is defined as at least four antenatal care visits for the most recent birth. Figure 5 presents a scatter plot of the percent of most recent births preceded by four or more antenatal care visits versus the concentration ratio among women who gave birth in the last three or five years, as measured in the most recent survey available for these countries. As in Figure 1, each point in the scatter plot represents a single country. Moving from left to right in the figure indicates greater inequality; concentration ratios potentially range from 0 to 1, with 0 being perfect equality and 1 being perfect inequality. Moving from the bottom of the chart to the top indicates greater use of antenatal care services.

**As use of antenatal services increases overall, inequalities in use tend to decrease.** This is the same pattern that was observed with Figure 1 for FP use. There were no discernible regional patterns evident from the analysis, and results on inequalities in use of MH care services varied by country. At any given level of antenatal care in a country, there can be many different levels of inequality.

**Figure 5. Percent of most recent births preceded by 4 or more antenatal care visits versus concentration ratio (among women who gave birth in the last 3 or 5 years)**

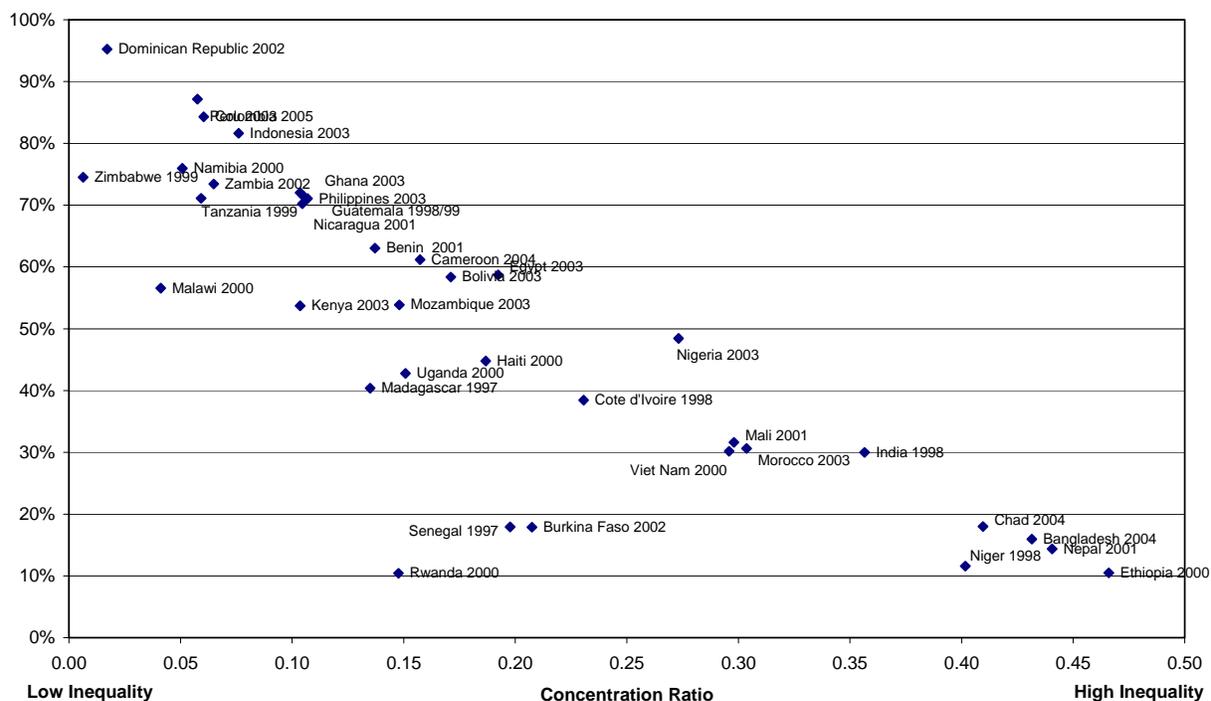
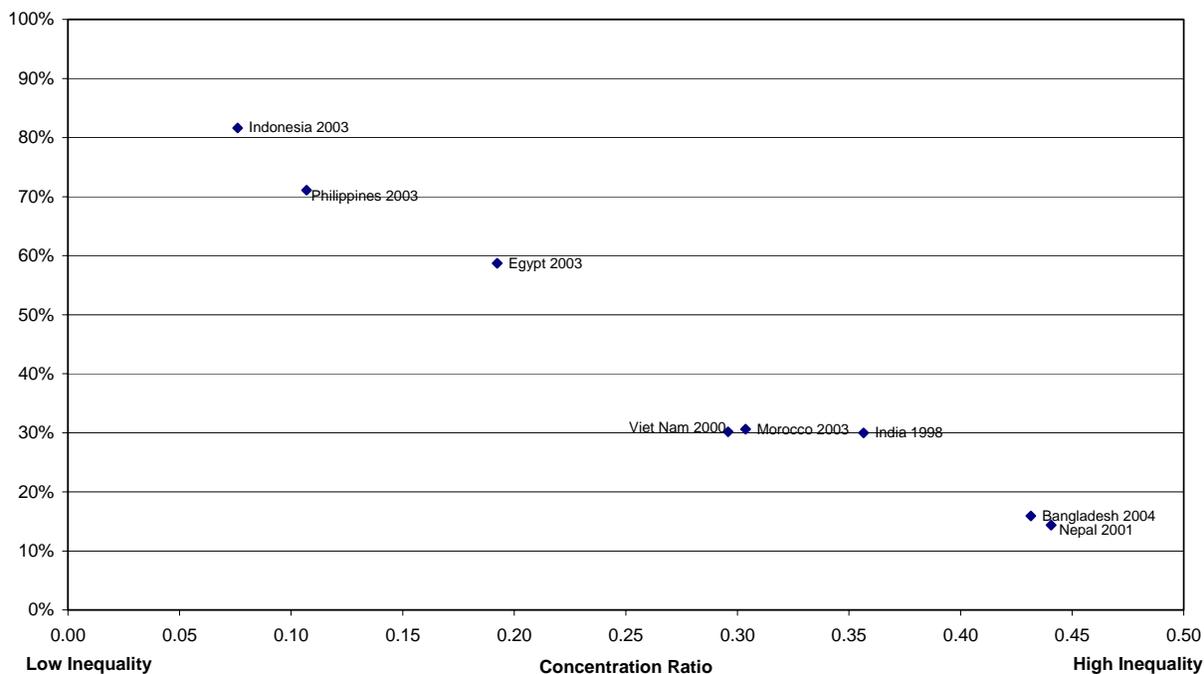


Table 3 presents notional ranges of relative inequality of antenatal care use by region as a guide to assess whether the level of inequality is relatively high or low, depending on the overall use of care. For example, according to this table, in Bolivia, where use of antenatal care is about 60 percent and the concentration ratio is 0.17 (2003 data), there is a high level of inequality *given the current use of antenatal care services*. Figures 5a, 5b, and 5c show the results from Figure 5 subdivided according to region (Asia and North Africa, Latin America and the Caribbean, sub-Saharan Africa).

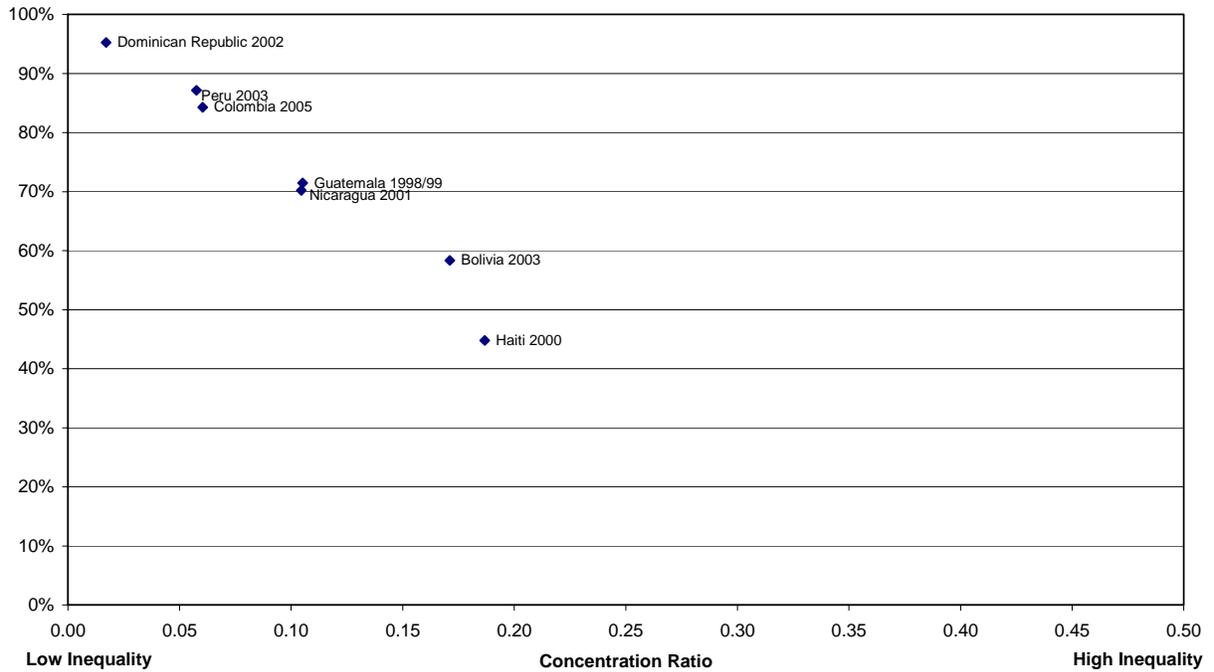
**Table 3. Notional ranges of relative inequality by region: Antenatal care use**

Region	Concentration ratio indicating <b>high</b> level of inequality	Concentration ratio indicating <b>moderate</b> level of inequality	Concentration ratio indicating <b>low</b> level of inequality
Asia and North Africa	0.25 or higher	0.10 to 0.24	0.09 or lower
Latin America and the Caribbean	0.15 or higher	0.05 to 0.14	0.04 or lower
Sub-Saharan Africa	0.25 or higher	0.10 to 0.24	0.09 or lower

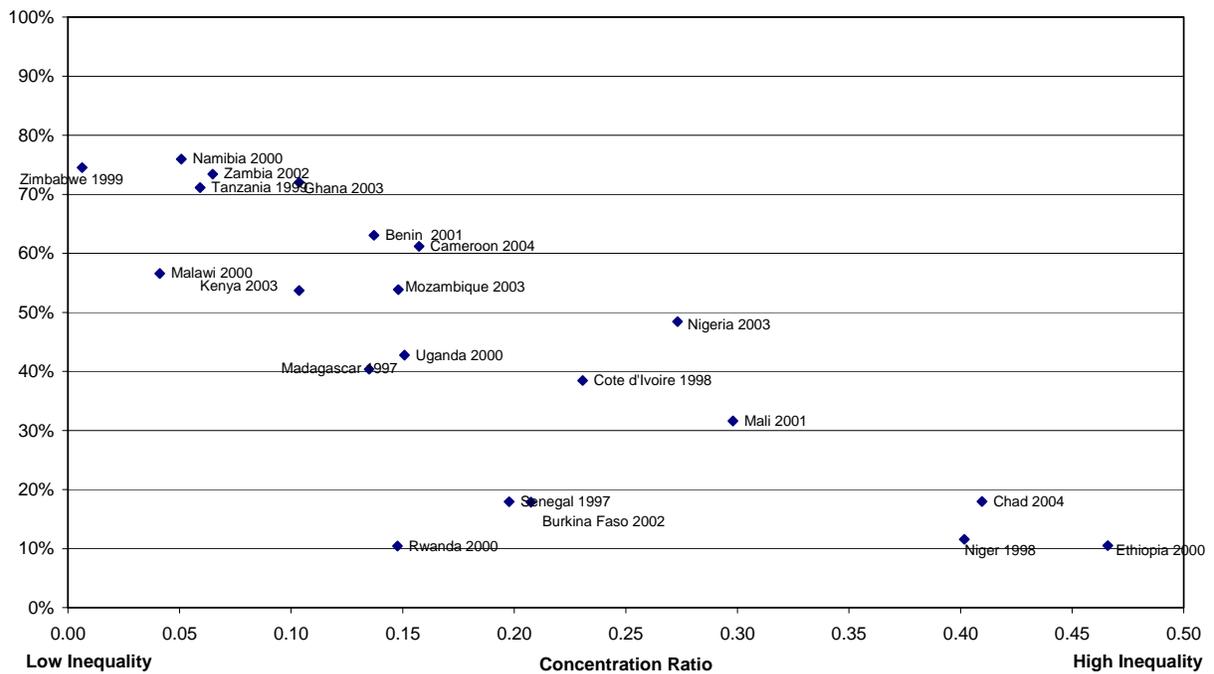
**Figure 5a. Percent of most recent births preceded by 4 or more antenatal care visits versus concentration ratio (among women who gave birth in the last 3 or 5 years): Asia and North Africa**



**Figure 5b. Percent of most recent births preceded by 4 or more antenatal care visits versus concentration ratio (among women who gave birth in the last 3 or 5 years): Latin America and the Caribbean**



**Figure 5c. Percent of most recent births preceded by 4 or more antenatal care visits versus concentration ratio (among women who gave birth in the last 3 or 5 years): Sub-saharan Africa**

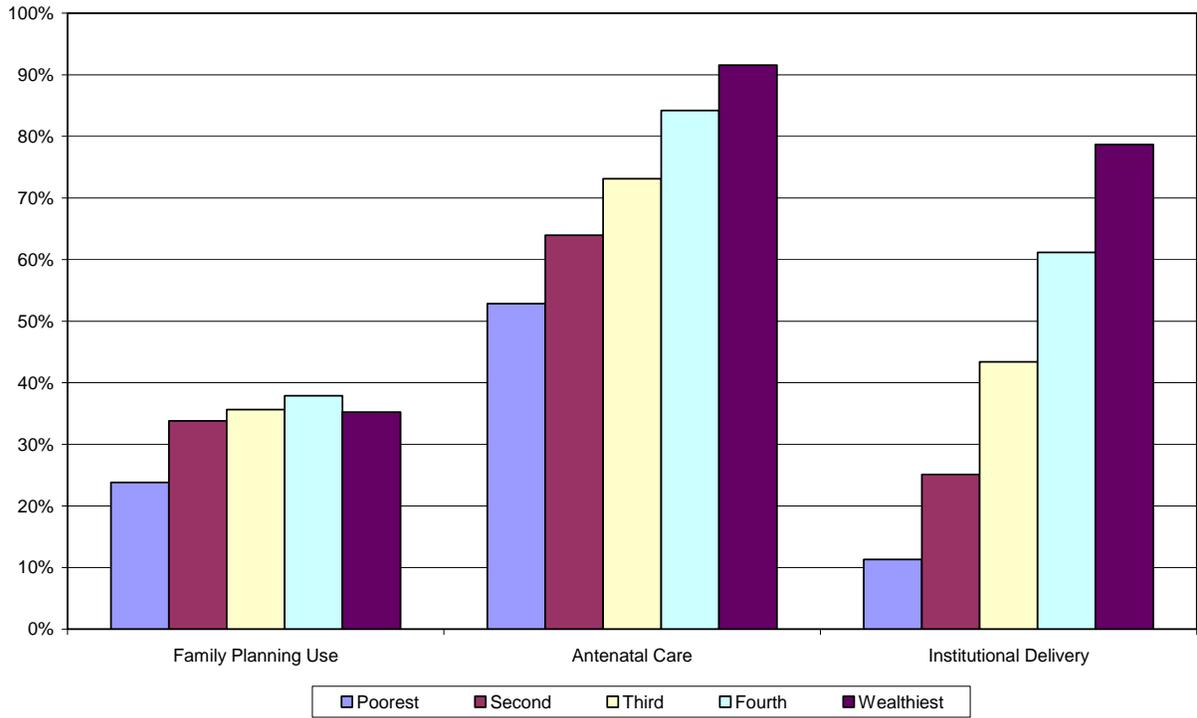


This analysis indicates that inequalities in use of antenatal care in developing countries need to be addressed. As can be seen in the regional figures, each region had countries with low, moderate, and high inequalities. There were no discernible regional patterns evident from the analysis, and results varied by country. Each region has countries that might be considered models for their low inequalities in antenatal care use, such as Indonesia in Asia and North Africa; the Dominican Republic in Latin America and the Caribbean; and Namibia, Zambia, Tanzania, Malawi, and Zimbabwe (1999) in Africa. It would be useful to analyze some of these countries more closely to determine key policy and program factors that led to low inequalities. There are many countries with moderate inequalities that could benefit from strategies to address them. Each region also has countries with strikingly high inequalities in antenatal use where attention to this problem is needed urgently to improve the health of women and children. These include India, Bangladesh, and Nepal in Asia; Morocco in North Africa; Bolivia and Haiti in Latin America; and Nigeria, Mali, Chad, and Niger in sub-Saharan Africa.

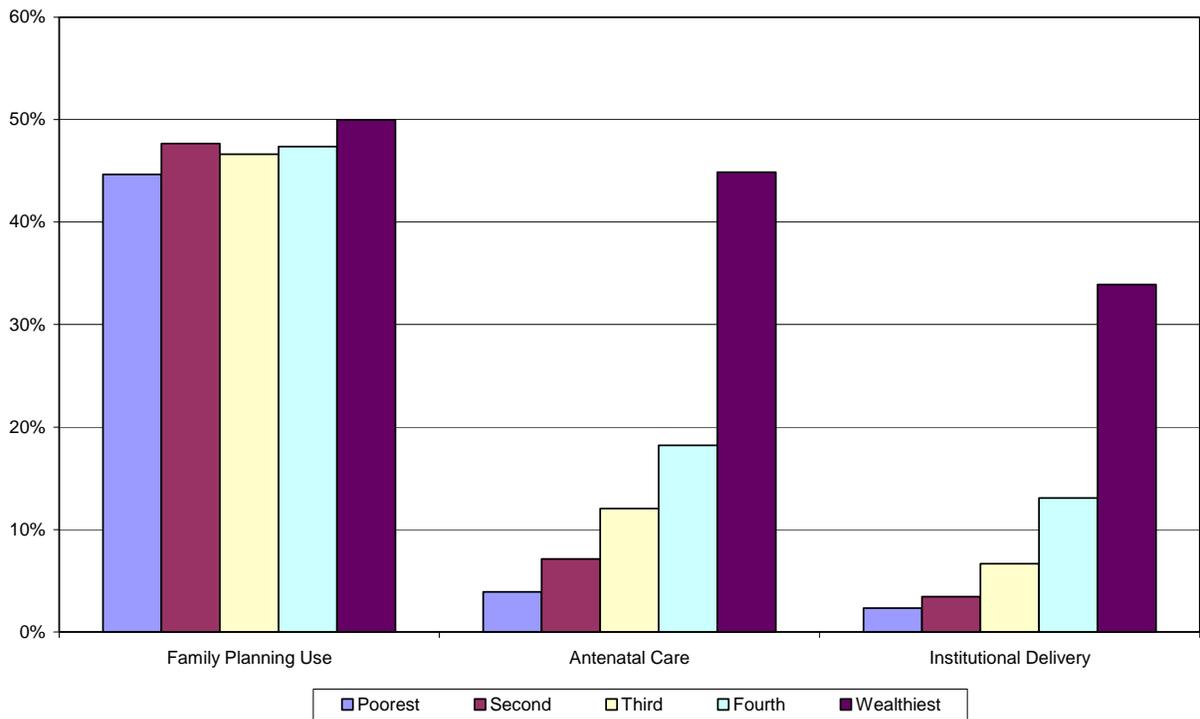
**In Latin America, patterns of inequality tend to vary between use of MH services and use of FP services.** Only one country in the Latin America region—the DR—has similar patterns of low inequality both for use of FP and use of MH services. Further information on how the DR has achieved low inequality could provide useful lessons for other countries in the region. Four of the seven countries analyzed in Latin America had moderate inequalities for the level of use of antenatal care services (Colombia, Guatemala, Nicaragua, and Peru). By comparison, only two countries had moderate inequalities for use of FP services (Peru and Bolivia). Peru is the only country where inequalities in FP use is moderate, and antenatal care use is moderate. Bolivia had high inequalities in antenatal care use for its level of service; clearly, although progress has been demonstrated in improving access to services for the poor, it remains a severe problem, particularly in antenatal care.

**In Asia, patterns of inequality are quite different between MH and FP use, depending on the country.** Figures 6 and 7 compare the patterns of inequality by socioeconomic group for use of family planning, antenatal care, and institutional delivery for the Philippines and Bangladesh, respectively. In both countries, FP use is relatively equal across socioeconomic groups, although the level of use is much higher in Bangladesh. In the Philippines, use of MH services is greater than that of FP services, and there is a moderate degree of inequality in MH service use. In Bangladesh, use of FP services greatly exceeds use of MH services, and there is a high level of inequality in use of MH care services.

**Figure 6. Percent of women using family planning, antenatal care, and delivery services in the Philippines, 2003**



**Figure 7. Percent of women using family planning, antenatal care, and delivery services in Bangladesh, 2004**



Integrating maternal healthcare and FP services in these contexts of differential and unequal use has many potential advantages. An integration of services could make FP services more appealing in a country like the Philippines, where contraceptive use has lagged relative to other countries in the region with similar levels of socioeconomic development. Most observers of the FP program in the Philippines attribute its low performance to the influence of conservative religious groups and weak political will. Addressing FP in the context of other less controversial health services, such as maternal healthcare, may serve to increase its uptake. These integrated services, if aggressively targeted to the poor, also could address the inequalities in access to antenatal care.

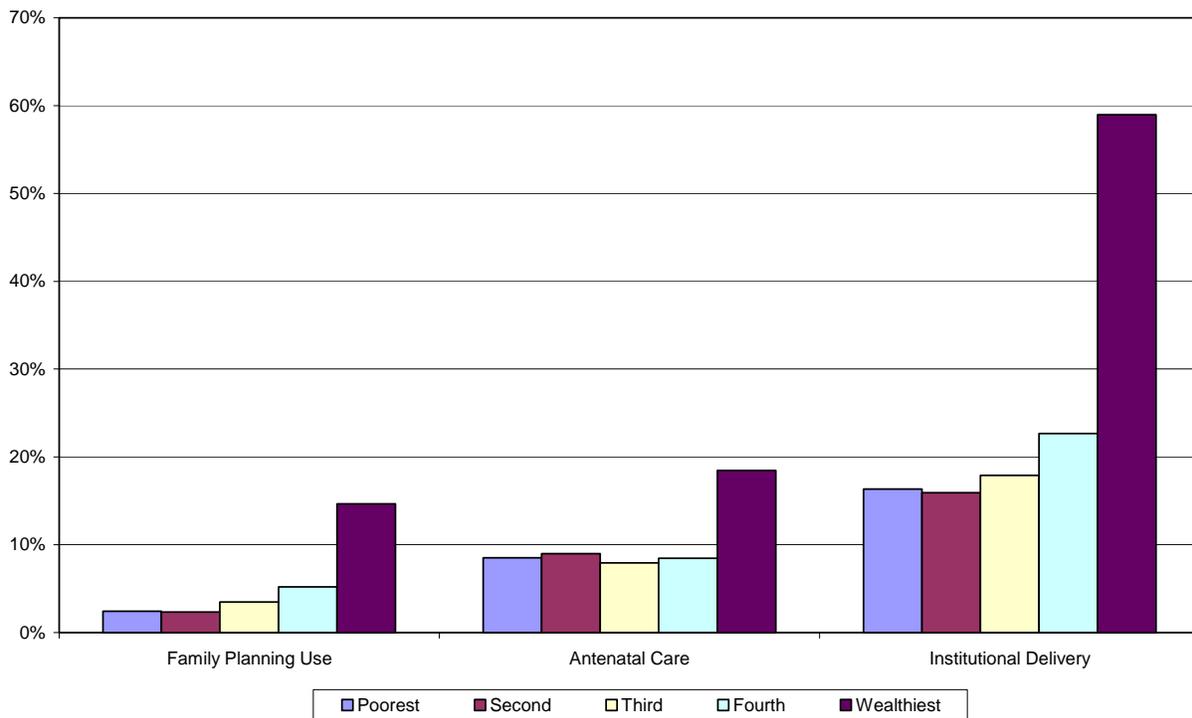
In Bangladesh, a vertical FP program with excellent outreach services—door-to-door delivery of contraceptives; community-based information, education, and information campaigns by NGOs; and the world’s largest social marketing program—has led to relatively high levels of FP use among all groups. However, FP workers, such as those trained by the company implementing the social marketing program, often restrict themselves to the distribution or sale of FP products and/or oral rehydration salts. If these workers were given further training to provide antenatal care and information about the benefits of institutional deliveries, the broad reach of the FP program could be extended to MH and potentially other public health-oriented interventions.

Linking FP and MH services may have immediate impacts on antenatal care use and possibly on the use of institutional deliveries. Efforts to strengthen MH services, for example, by improving the availability of trained personnel, medicines, and supplies, could include FP services and supplies. Possible disadvantages of integrating services would have to be explored, such as the need for additional funds to cover incremental costs of training, equipping, and supervising health and community workers to handle a broader array of services. There also could be program concerns about moving from a narrow to a broader program strategy.

**In sub-Saharan Africa, the patterns of inequality tend to be similar across FP and MH care use.** As seen in Figure 8, in Rwanda, virtually the same pattern of inequality exists for FP and MH services. In the lower socioeconomic groups, service use is relatively low. For each of the services, use in the wealthiest group is at least double that of any other group. Although levels of inequality may differ across countries in Africa for any given level of service use, the same pattern of inequality for FP and MH services use tends to exist within the same country. (Exceptions to this pattern include Ghana and Malawi.)

In sub-Saharan Africa, improving access to and the quality of all services may prove cost-effective. Targeting comprehensive efforts may be easier and more efficient than targeting individual services in a piecemeal fashion. For example, in Uganda, a new private sector initiative is marketing a broad range of services and products that address, among other things, family planning and maternal health. This strategy is innovative in that all of the products and services are marketed according to a comprehensive market segmentation strategy. Poor people are addressed with one class of services, products, and pricing strategies, while other strata are addressed with other strategies.

**Figure 8. Percent of women using family planning, antenatal care, and delivery services in Rwanda, 2000**



**Box 1. Note on inequalities of service use for institutional deliveries**

According to data analyzed for this paper but not presented here, levels of inequality are greater for use of delivery services in medical facilities than they are for antenatal care. In addition to having the greater degree of inequality, the levels of inequality for delivering in medical facilities have little variance; few countries vary from the norm of high inequality for delivery services. These inequalities are grounded in a complex set of factors. The uneven geographic distribution of services, weak referral systems, and high official or unofficial costs serve to exclude poor women from seeking and receiving professional delivery care. Providing complementary FP and MH services can be a means of improving awareness about the benefits of institutional deliveries. However, increasing the level of institutional deliveries among the poor will require other supply-side interventions, such as subsidies for those who cannot afford fees for delivery services, strong referral systems coupled with transport options, and delivery care that is sensitive to traditional/cultural practices.

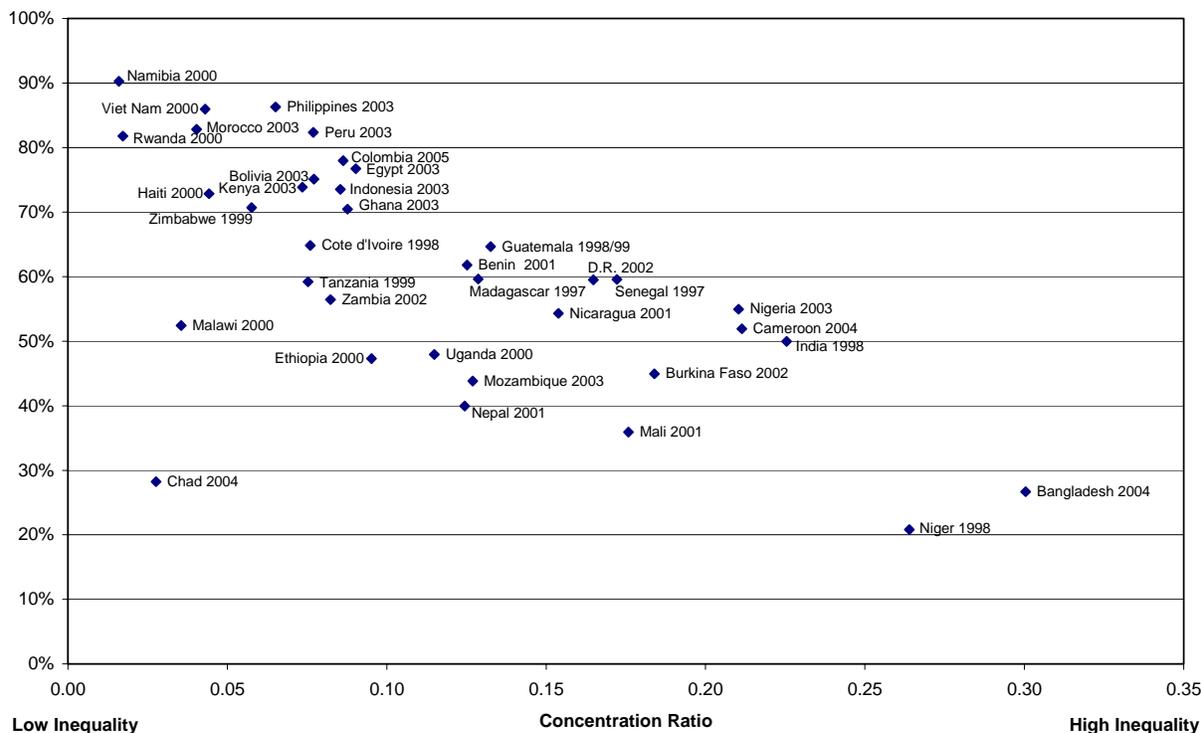
**Findings on Inequalities in Social Trends: Age at Marriage and Birth Spacing**

**Age at Marriage**

Postponing the age at marriage has the potential to accelerate fertility decline. The analysis examined the percent of married women ages 20–29 who waited until age 18 or older to marry. The age at marriage in any country is greatly influenced by cultural and social factors. It has varied from nation to nation or tribe to tribe, as well as across time, rising and falling depending on economic circumstances and changing social traditions.

Figure 9 presents a scatter plot of the percent of women ages 20–29 who waited until age 18 or older to get married, versus the concentration ratio of inequalities measured from the most recent surveys. The results on age at marriage do not appear to fall into any regional patterns and appear to vary by country. As a consequence, Figure 9 was not broken out by regions as for Figures 1 and 5. A number of countries with low levels of inequality in FP and MH service use, such as the DR and Indonesia, appear to have high levels of inequality in age at marriage, with the poor marrying much earlier than wealthier groups.

**Figure 9. Percent of women ages 20–29 first married at age 18 or older vs. concentration ratio**



**Early marriage may be contributing to stagnating fertility decline among the poor in certain countries.** Inequalities in age at marriage, where women in poorer socioeconomic groups tend to marry earlier than wealthier women and bear children at an earlier age, can have an important demographic impact. High levels of fertility are partially driven by early marriage, particularly among the poor, and are intimately connected with poverty and the ability to participate in economic progress. This perpetuates a vicious cycle of poverty that can be broken by promoting policies and action to delay age at marriage. Delaying marriage has implications for the number of children that a woman will have over the course of her lifetime. Delayed marriage most often means delaying the birth of a woman’s first child; analysis confirmed this contention, although the details are not presented here. To the extent that women do not use family planning or otherwise try to limit their births, delaying age at marriage and age at first birth will reduce overall fertility.<sup>10</sup>

The case of Bangladesh illustrates how early marriage among poor women may contribute to stagnating fertility decline among the poor. Figure 10 shows that Bangladesh has large inequalities across socioeconomic groups in the percentage of women who delay marriage until age 18. A similar pattern of

<sup>10</sup> However, if women are making effective decisions to limit their number of children via family planning, age at marriage should have a negligible impact.

inequality exists in the percentage of women who delay the birth of their first child until age 20. By contrast, use of modern family planning approaches equality across the socioeconomic groups. If family planning were the only factor contributing to reduced fertility, the TFR should be approximately equal across groups.<sup>11</sup> However, as indicated on the right hand side of Figure 10 where TFR is shown by socioeconomic group, the poorest group has the highest TFR: four children per woman. Women in the wealthiest groups have a fertility rate approaching replacement levels. Women in the poorest group have almost twice as many births as wealthier women, underscoring the effects on TFR of early marriage and young age at first birth.

**Figure 10. Percent of women in Bangladesh delaying marriage to age 18 or older and childbirth to age 20 or older, percent using family planning, and total fertility rate**

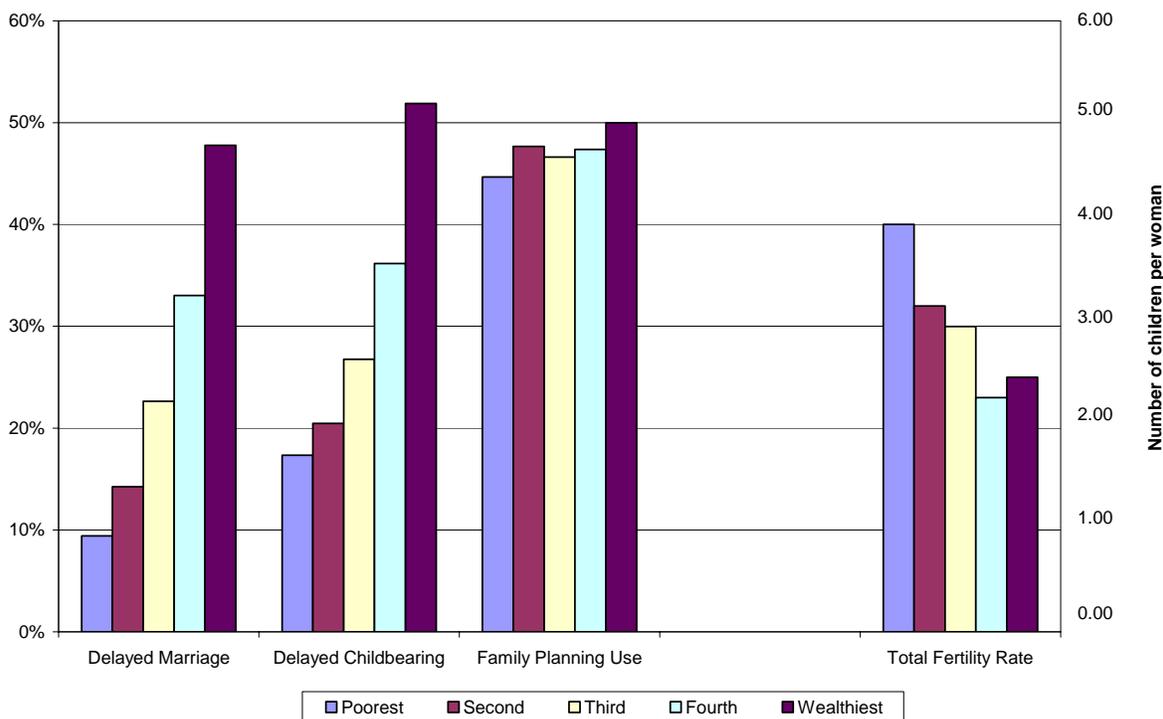
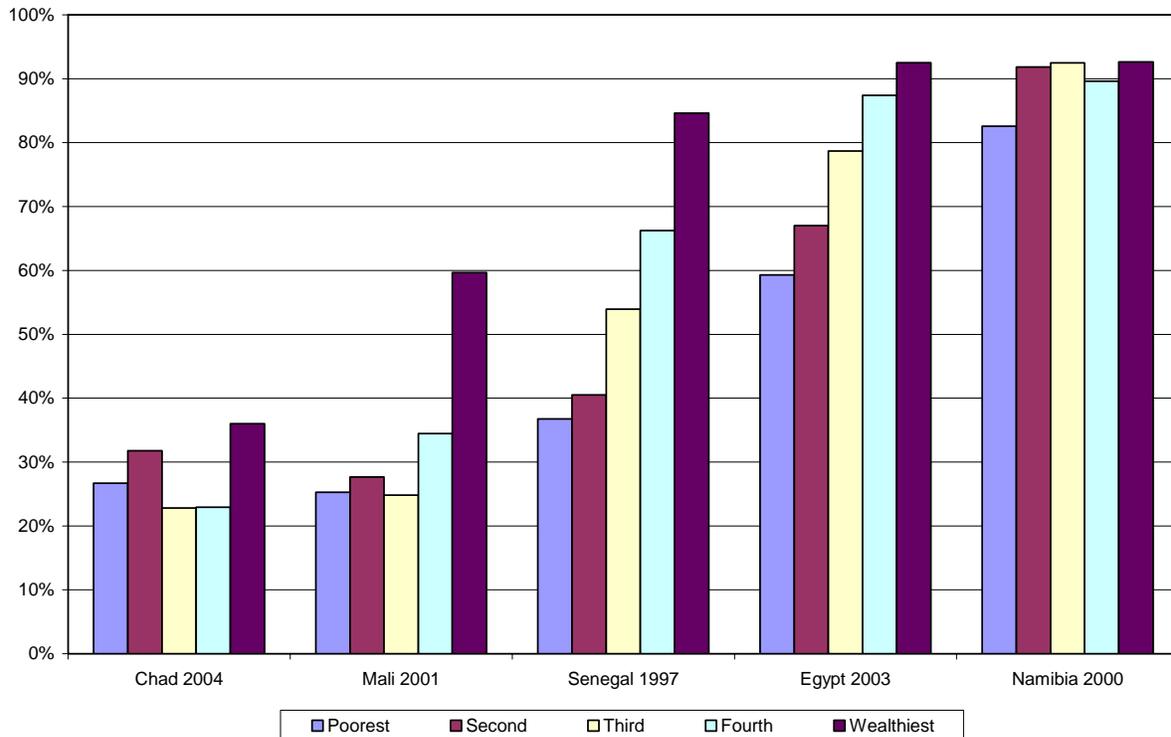


Figure 11 presents bar charts that show explicitly how the changing levels of inequality manifest themselves as more women delay their age at marriage in countries in Africa. Moving from left to right across the countries in the chart, the percentage of women who delay their age at marriage in the lowest socioeconomic group increases from a low of 28 percent in Chad to a high of 80 percent in Namibia. In Chad, the levels of delayed age at marriage are roughly similar in each of the groups, with the wealthiest more likely to delay marriage. In Mali, the wealthiest women are much more likely to delay marriage, while the other four groups remain at low levels similar to those in Chad. In Senegal, Egypt, and Namibia, there is a gradual movement across the groups toward a high level of delayed marriage at about 90 percent. In Senegal, only the wealthiest group is near the 90 percent level for delayed marriage. In Egypt, the two wealthiest groups are near that level. In Namibia, the poorest group has reached 80 percent of delayed marriage, while other groups are at or above a level of 90 percent.

<sup>11</sup> Other factors important for decreased fertility are the average length of postpartum insusceptibility, number of abortions, and primary sterility.

Age at marriage is country-specific. From the analysis, it appears that initially, relatively few women from any group delay their marriage; then the vanguard in a group of wealthier women begin to delay their marriages; and finally, due to a demonstration effect or the spread of the underlying cause of the delayed marriage among the poorer group,<sup>12</sup> these poorer women begin to delay their age at marriage as well. This change occurs differently over time in each country. Possible policy options to promote delayed marriage include revising or actively implementing policies in favor of delaying the age at marriage, including raising the minimum legal age. A multisectoral approach could involve the education and labor sectors, as well as the health sector.

**Figure 11. Percent of women ages 20–29 first married at age 18 or older**



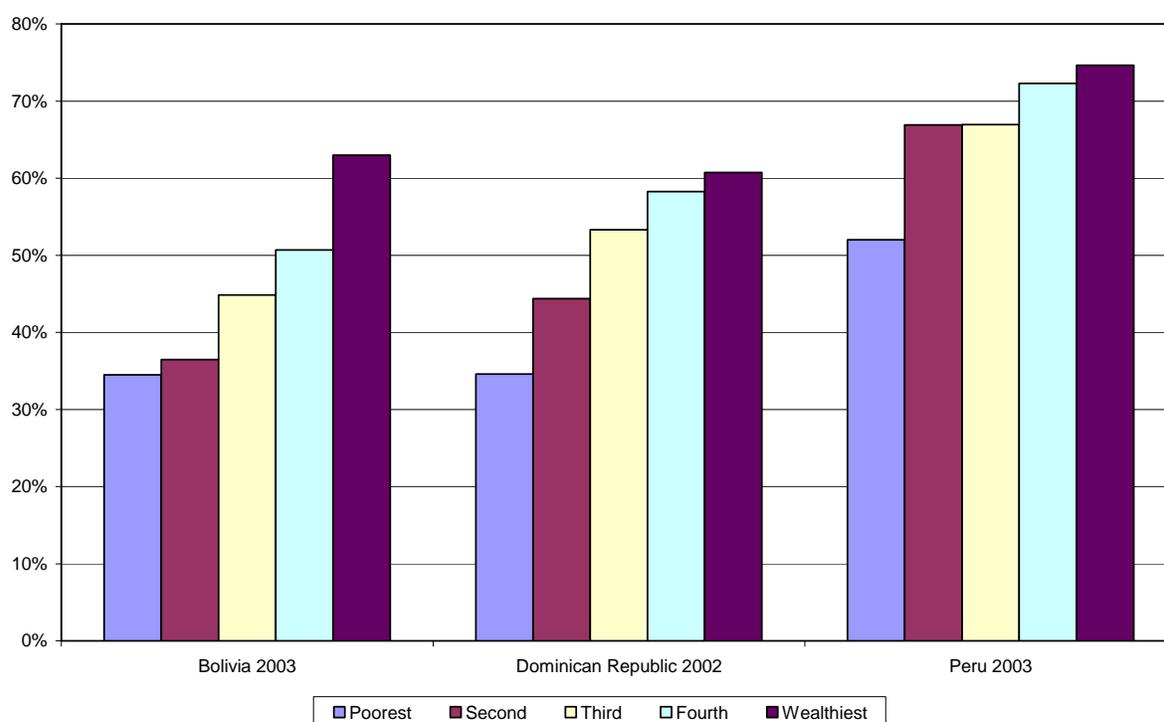
### ***Birth Spacing***

The length of birth intervals in any country is the result of many social, cultural, and health norms. For example, exclusive breastfeeding will extend the birth interval significantly. In addition, there are often cultural norms concerning when sexual relations may resume after the birth of a child. Finally, women can make conscious choices about extending the birth interval via the use of FP methods. As a result of this complicated set of factors, it is difficult to compare and interpret patterns of birth intervals across countries and over time. Strong and persistent cultural norms may lead to a situation in which birth intervals are longer among the poor than the wealthy. Conversely, where cultural norms have less importance, longer birth intervals, based on the use of modern contraceptives, will predominate among wealthier segments of the population. A healthy birth interval is assumed to be 36 months or longer.

<sup>12</sup> These underlying causes might include increased secondary school enrollment. A discussion of the underlying causes of delayed marriage is beyond the scope of this report.

The analysis points to two distinct global patterns in birth intervals: one for Latin America and the other for Africa and Asia.<sup>13</sup> In Latin America, there are inequalities in birth spacing. The poorest groups have the lowest percentage of healthy birth intervals, while the wealthiest groups have the highest percentage of healthy birth intervals. There is a clear progression from poor to wealthy groups in the countries analyzed—healthy birth intervals are more likely as wealth increases. Figure 12 illustrates this pattern for three countries: Bolivia, the DR, and Peru. In Bolivia and the DR, the wealthiest groups are almost twice as likely to have healthy intervals between births as the poorest groups. The greatest inequalities are in Bolivia and the DR, countries with the lowest overall level of healthy birth intervals. In Peru, there is still inequality, but almost half of the poorest group has healthy birth intervals; at the same time, three-quarters of the wealthiest women have healthy birth intervals. Programs that promote the benefits of healthy birth spacing for the poor could provide important information and education on the health and nutritional advantages of longer spacing between births.

**Figure 12. Percent of most recent closed birth intervals in the last 3 or 5 years that were 36 months or longer**



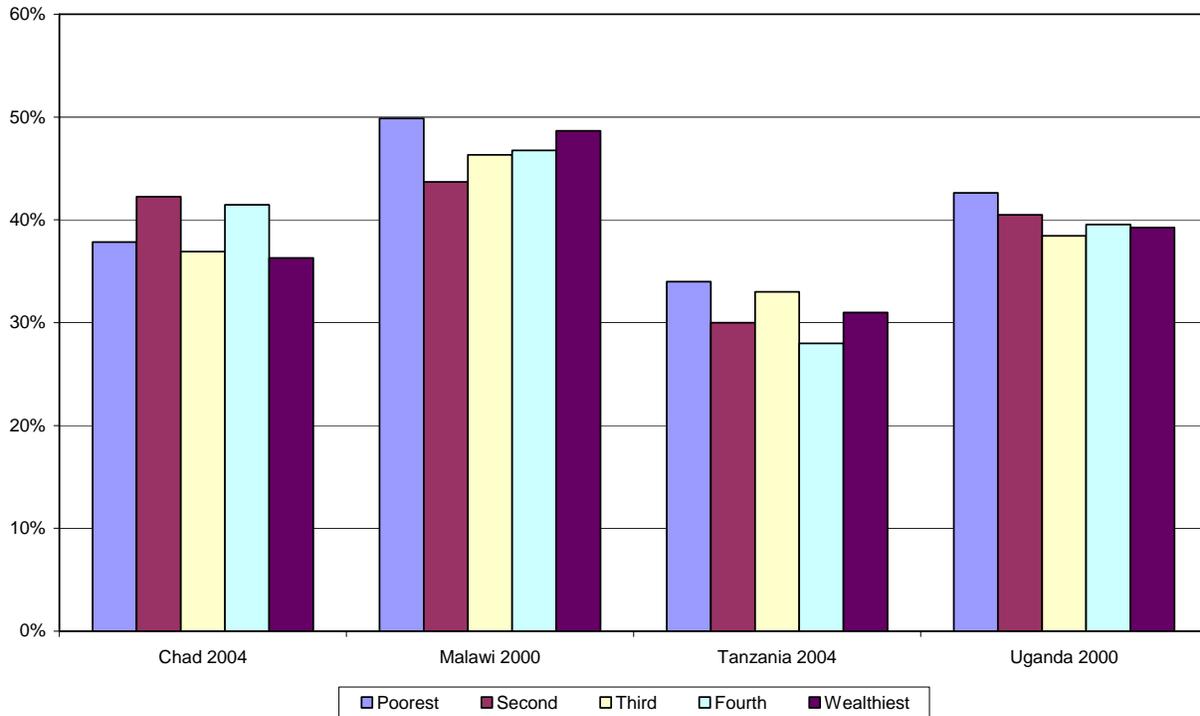
In many African and Asian countries, there is a mixed pattern in birth intervals. In some countries, analysis shows long birth intervals among the poorest groups at the same time there are long birth intervals among wealthier groups. Often there is little difference in birth intervals across the socioeconomic groups, and differences should be interpreted cautiously.<sup>14</sup> Qualitative analysis suggests that the poor may have relatively long birth intervals due to persistent cultural norms, such as extended breastfeeding or lengthy periods of postpartum abstinence. The wealthy groups may have long birth intervals due to uptake of family planning services. In the following countries, the poorest or second poorest socioeconomic groups had a higher proportion of healthy birth intervals than the richest group: India, 1998; Indonesia, 2003; Chad, 2004; Malawi, 2000; Niger, 1998; Nigeria, 2003; Rwanda, 2000; Tanzania, 2004; and Uganda, 2000. Figure 13 presents the results on healthy birth spacing of three years

<sup>13</sup> Haiti, although geographically close to Latin America, more closely follows the pattern of Africa and Asia.

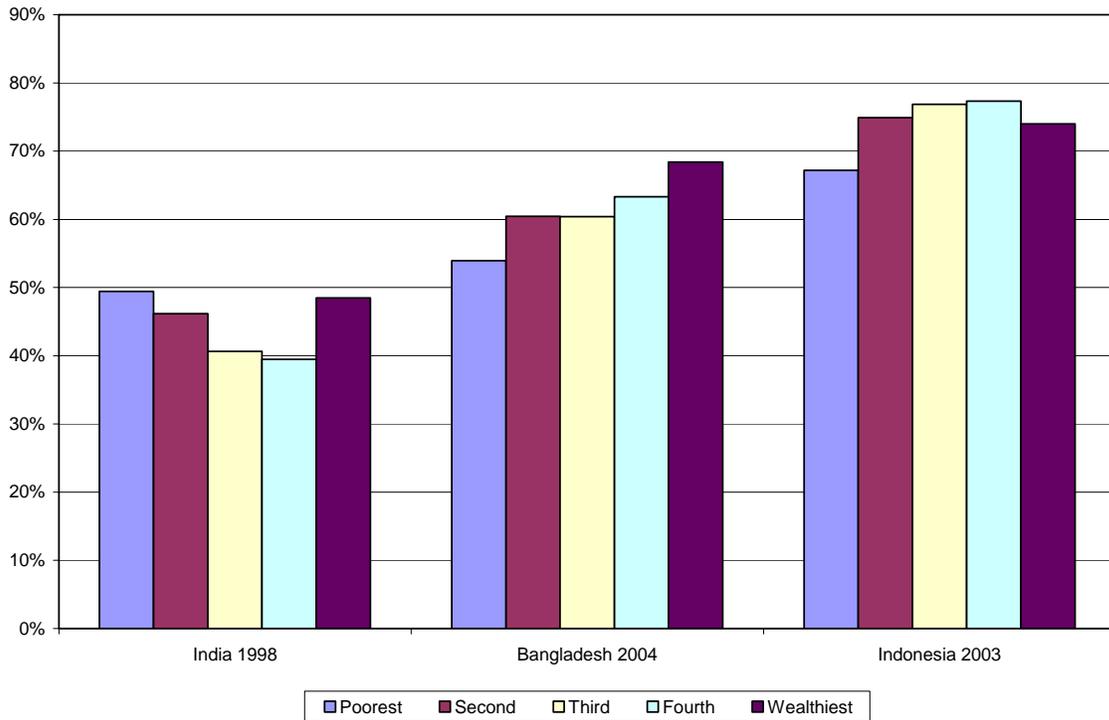
<sup>14</sup> Many of the differences between socioeconomic groups in Africa and Asia are not statistically significant.

or longer from four countries in Africa. In Chad, Malawi, Tanzania, and Uganda, the lower socioeconomic groups have longer birth intervals than the middle and upper groups, but differences between groups are not great. Figure 14 presents the results on healthy birth spacing of three years or longer in three countries in Asia (India, Bangladesh, and Indonesia). The differences between groups are not great. The degree of inequality in birth intervals is not as great in these Asian countries as those in the Latin American countries shown in Figure 12.

**Figure 13. Percent of most recent closed birth intervals in the last 3 or 5 years that were 36 months or longer**



**Figure 14. Percent of most recent closed birth intervals in the last 3 or 5 years that were 36 months or longer**



In terms of programming and policy, encouraging traditional cultural practices, such as extended breastfeeding, along with messages about modern FP practices, could have positive impacts on both fertility levels and birth spacing among the poor. This is particularly true in contexts where modern FP methods have yet to take hold. Programs designed to reach the poor could learn from the specific cultural context to ensure that healthy traditional practices are encouraged.

### III. IMPLICATIONS OF FINDINGS FOR POLICIES AND PROGRAMS

#### How much scope is there for FP and MH services to reduce inequalities?

There is considerable scope for reducing inequalities in service use. Inequalities exist in many countries. It is important to analyze data on a country-specific and subgroup basis to pinpoint inequalities in service use (e.g., urban vs. rural populations or indigenous vs. other populations).

*There is evidence that pro-poor policies and programs can be effective in reducing inequalities in service use.* This reduction in inequalities has far-reaching implications that go beyond improved health outcomes by reducing poverty and improving the quality of life, particularly of women.

*Implications of these findings for policymakers: At any given level of FP use, there is a clear and necessary role for pro-poor policies and programs.* Careful and periodic analyses of the interrelationships among poverty, inequality, and use of FP/MH services can provide important information to guide strategy and increase service use. Pro-poor financing strategies that reduce financial barriers to service use should be developed, along with strategies that address social and cultural barriers to service use for the poor. Analyses of inequalities also can inform advocacy efforts directed at improving access to health services and health outcomes of the poor.

#### Do inequalities in service use change as overall use increases?

There is evidence that inequality in service use changes over time, as overall use of services increases. The degree of inequality at any given level of FP and MH care use varies greatly.

*Implications of these findings for policymakers: An understanding of how inequalities in service use change can inform the design of policy options and program strategies.* Understanding changes in unmet need can contribute to the design of effective FP interventions. Close analysis of inequalities in unmet need will allow policymakers to make important decisions about how to target resources and plan programs for different socioeconomic groups. For example, the analysis of inequalities might help to identify groups of women who are not convinced that spacing or limiting births are healthy behaviors.<sup>15</sup> Awareness-raising activities directed at these women can help to create a demand for family planning. Similarly, unmet need analyses can show where total need has reached a peak indicating greater efforts can be put into service delivery expansion and overcoming barriers to use, such as fear of side effects, particularly among those groups that have high unmet need—typically the poorest women.

#### Does inequality in use for one type of service imply that other services are accessed unequally?

Inequalities in service use can be different or similar for FP and MH care services, depending on regional and country characteristics. Integrating MH care services with family planning could lead to greater FP use and improved equality in use of MH care services. Linking these services with family planning should be explored; for example, complementary activities and services can be provided, such as providing FP services with postnatal MH care. When health insurance covers core MH services, FP services also should be included. Countries in which inequalities in service use are low may provide lessons for other countries on how to reduce inequalities.

*Implications of these findings for policymakers: Pro-poor strategies that target service delivery improvement and expansion to poverty groups are critical where unmet need is concentrated among*

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<sup>15</sup> In other words, women who are not using family planning or do not have unmet need.

*the poor and lower middle classes.* As FP or MH programs evolve and service use increases, pro-poor strategies will become essential. These strategies help governments to continue increasing use/prevalence to meet the growing demands of the poor.

Much more is known now about the types of barriers that impede poor women from accessing needed RH care (see Box 2) and about the types of programmatic and policy approaches that can help to overcome these barriers. In their examination of why poor women are not accessing RH care, Oomman and others (2003) note that “a formidable combination of social, economic, and cultural barriers prevent poor women from obtaining easy access to health services and care, even when quality health services are geographically within reach.” The 2004 *World Development Report* (World Bank, 2003, pp.140–41) further elaborates on these barriers by noting that poor people have limited access to information and distribution networks for health commodities; that demand for certain kinds of services, such as immunization, may be low; that governments under-invest in public services so that services such as family planning often are of low quality; and that clinical services, such as those required for safe birthing, often are inaccessible to poor people, who cannot afford to pay for them or who are insufficiently covered by risk pooling or insurance schemes.

### **Box 2: Reasons why RH care does not reach poor women**

#### **Socioeconomic and cultural factors**

- Lack of accessibility
- Unaffordable services
- Low status of girls and women
- Cultural norms and practices

#### **Dysfunctional health systems**

- Limited skilled human resources
- Poor quality of services
- Poor referral systems

#### **Policy constraints**

- Lack of appropriate policies to improve girls’ education and health services
- Lack of political commitment to reach poor regions and provide safety nets, health insurance, and risk pooling, or to provide free maternal and child services for poor women
- Weak policies to address human resource issues and increase skilled provider coverage in rural areas

***Addressing inequalities in the use of RH care services must occur to achieve rapid growth of their use by the whole population.*** The analysis presented here indicates that rapid growth in the use of services goes hand-in-hand with rapid declines in inequalities.<sup>16</sup> The MDG health objectives have been criticized for not specifically addressing improved health of the poor. However, the results from this report are prima facie evidence that, at least in the last 15 years, no country has achieved rapid increases in FP or MH care use by targeting the wealthy. Programs that seek rapid growth in service use must address the poor. In some countries, integration of family planning and MH care services could contribute to improved access and reduced inequalities in service use.

### **Do more culturally determined behaviors, such as age at marriage and birth spacing, follow the same patterns of inequality as service use?**

Depending on the country, more culturally determined behaviors may have patterns of inequality that are different from or similar to service inequalities. Early marriage may be contributing to stagnating fertility decline among the poor in certain countries. In general, age at marriage tends to change over time, with wealthier women delaying marriage, followed by middle class groups, and finally the poor. In Latin America, inequalities in birth intervals follow the same patterns as inequalities in service use. In Asia and in Africa, inequalities in birth intervals generally do not follow the same patterns as inequalities in service

<sup>16</sup> We do not address causality here (i.e., it is not established whether a rapid decline in inequalities caused a rapid increase in overall RH service use or vice versa).

use, but change over time for different socioeconomic groups as service use increases. Women in the poorest group in Asia and Africa may have longer birth intervals than women in the wealthiest group. Given that FP use is lower among the poor than among the wealthy, the longer birth intervals among the poor probably are the result of cultural practices such as extended exclusive breastfeeding and postpartum abstinence.

***Implications of these findings for policymakers: Multisectoral policies and programming to delay age at marriage and contribute to fertility reduction are needed to address inequalities.*** A multisectoral approach would draw on the health, education, and labor sectors, to be effective in reducing fertility. However, where broad-based policy is not feasible, FP use can be promoted heavily, particularly among those marrying at an early age. In Latin America, pro-poor policies and programs to promote healthy birth spacing targeted toward the poor are needed. In Asia and Africa, policies and programming potentially can draw on cultural practices that lead to longer birth intervals.<sup>17</sup> Supporting healthy traditional African or Asian cultural practices that promote longer birth intervals, such as extended breastfeeding, along with messages about modern FP practices, could have positive impacts on fertility levels and birth spacing among the poor.

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<sup>17</sup> For example, behavior change communication might include messages such as “Listen to your grandmother—for better health, breastfeed your baby for six months.”

#### IV. RECOMMENDATIONS FOR COUNTRY-LEVEL RESEARCH

**Further analysis of DHS quantitative data for national and subnational RH strategic planning, with an analysis of policy environment.** There is great potential in a deeper examination of inequalities at the national and subnational levels. Such analysis could identify differences in inequalities of FP and MH service use, as well as other behaviors important to reproductive health and demographic change. The results could inform strategy development, contribute to operationalizing poverty reduction strategies in the context of improving reproductive health, and guide service implementation with greater attention to lowering inequalities in service use. In countries with multiple DHS data sets, time series analysis would prove useful to better understand changes over time, to identify key factors that affect changes in inequalities, and to draw lessons for policy and program directions that contribute to reducing inequalities.

**Qualitative research on access to services by the poor.** DHS data offer only limited understanding of the service delivery environment. In-depth analysis of operational barriers would improve understanding of how different social, economic, and cultural barriers to access affect the use of RH services by the poor. Qualitative research also could be conducted on the impact of programmatic variables on services for the poor, specifically addressing program design issues, such as vertical programs versus integrated programs, and how program design impacts services available to the poor.

**Research on pro-poor financing mechanisms.** Financial barriers are often important factors in the poor not obtaining FP and MH services. Some countries have experimented with different approaches to establishing pro-poor financing mechanisms, such as voucher schemes, and insurance. Researchers could review findings and recommend directions for policy and programs.

**Operations research on pilot-test mechanisms to reach the poor.** Research based on in-depth DHS analysis, together with qualitative research on operational and financial barriers, can inform pilot tests of strategies to reach the poor. Operations research should complement pilot tests in order to understand the programmatic implications of the tests' successes and failures and effectively move from pilot-test stages to full-scale operations in succeeding years.

## APPENDIX A. METHODS

### Measures of Inequality

In this report, inequalities are measured by segmenting a population into five equal groups on the basis of household amenities and ownership of household assets. From its inception, the DHS has collected information on the materials used in housing construction, sources of water and sanitation, and ownership of assets.<sup>18</sup> Although this information is collected for other purposes,<sup>19</sup> it can be aggregated into a summary measure of wealth via a statistical technique called factor analysis.

Factor analysis assigns weights to each asset or amenity identified in the survey. Each household is given a score that is the sum of the weights for the assets the household owns. These scores are an indication of the relative wealth of a household within the country. Researchers have found that these scores correlate well with other measures of socioeconomic status (Pritchett et al., 2001; see also Rutstein et al., 2004). Households are then ranked from lowest to highest based on these scores, and put into five equal groups called quintiles.

To demonstrate the relationship between the wealth index and several of its individual components, Figure A-1 categorizes the percent of women in households with (1) a radio, (2) improved flooring,<sup>20</sup> and (3) piped water—all according to the households' scores on the wealth index in Nigeria. No asset is owned by all households in any of the quintiles. It is impossible to conclude that all households in the highest quintiles have radios, piped water, cars, or any other asset or amenity. Rather, one would conclude that, on balance, households in the highest quintiles have a larger collection of assets and amenities than households in the lowest quintiles. More than 90 percent of the wealthiest households have radios, as opposed to slightly more than 40 percent for those in the poorest households. Less than 10 percent of the poorest households have improved floors, while more than 90 percent of the wealthiest households do. Although relatively few households have piped water, the wealthiest are 10 times more likely than the poorest households to have it (34% versus 3%).

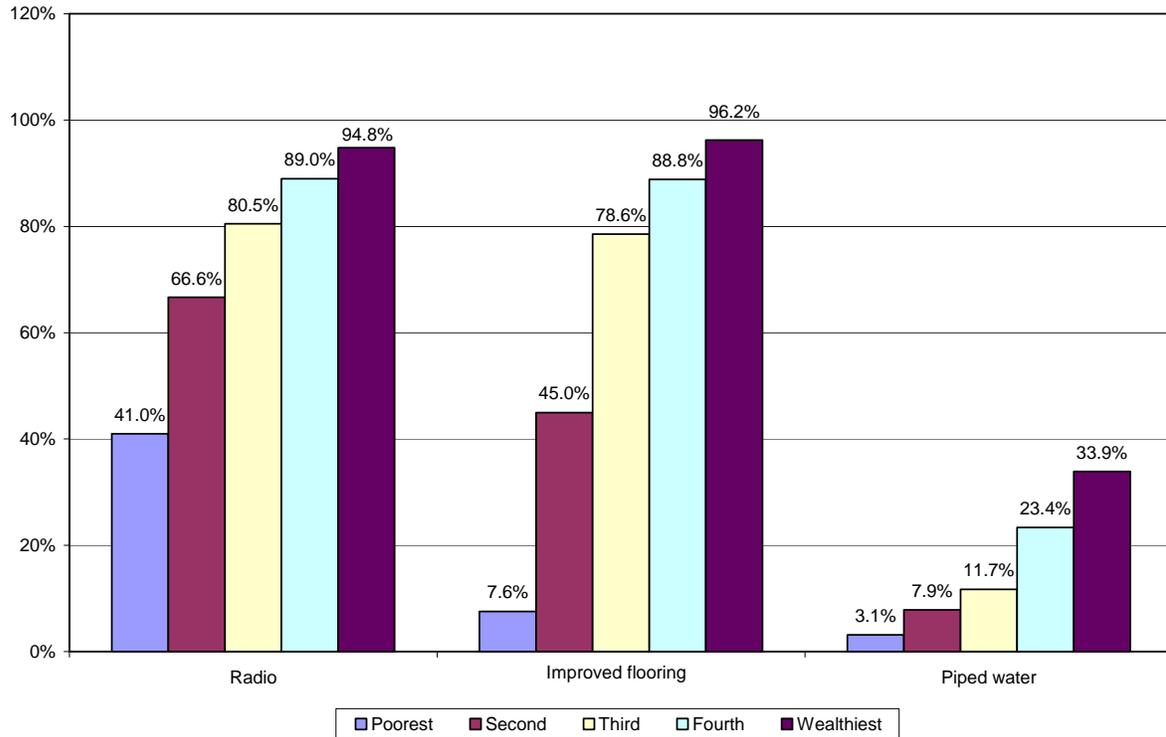
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<sup>18</sup> Typical amenities include water, electricity, toilet facilities, improved flooring material, wall material, and roofing material; typical assets include a bicycle, motorcycle, car, radio, television, and refrigerator. The list of amenities and assets for any country varies for every survey.

<sup>19</sup> For example, collecting information on the existence of a radio and television in a household is done as a means of establishing access to public health information. Water and sanitation data are collected to establish a household's access to clean water and efficient removal of waste.

<sup>20</sup> Improved flooring is defined as parquet, polished wood, tile, cement, or carpet.

**Figure A-1. Percent of women in Nigeria ages 15–49 grouped in a wealth index, by selected household assets or amenities**

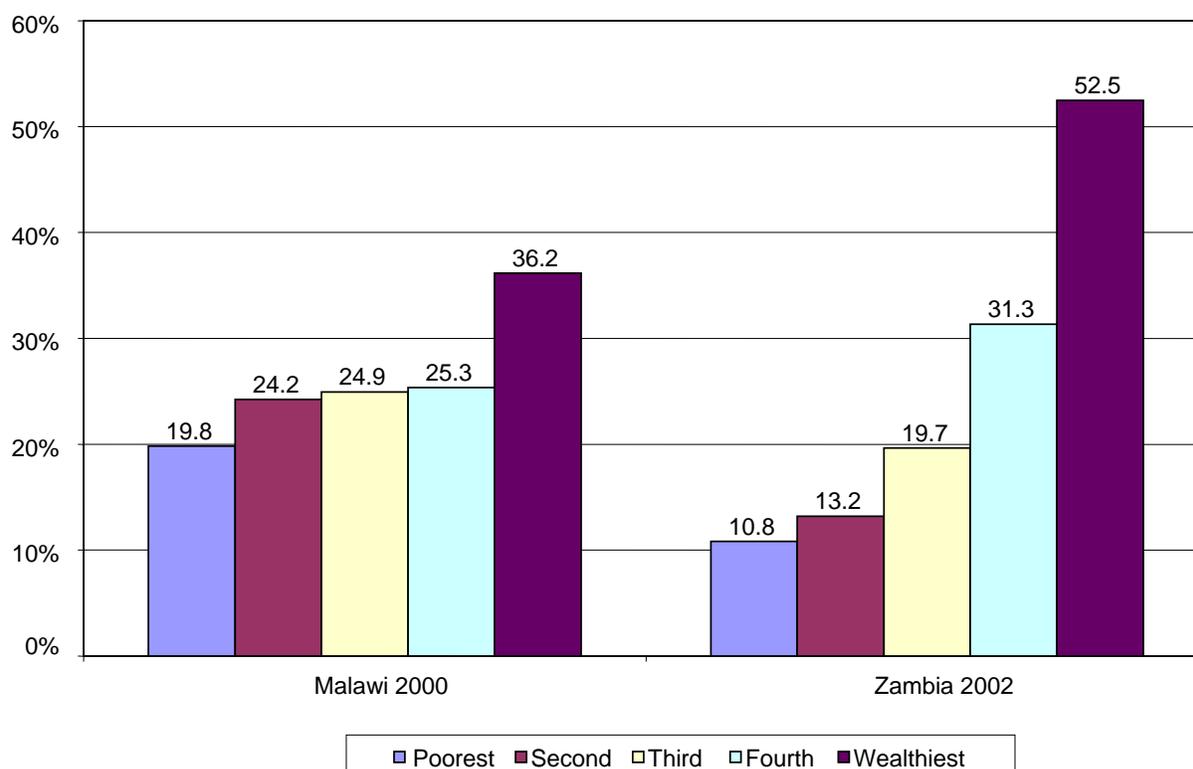


## Summary Measures of Inequality

### Bar charts

Throughout this paper, inequalities in various indicators are examined by comparing those indicators across the five wealth quintiles. The simplest and most visually appealing way to present data on inequalities is through bar charts similar to Figure A-2, which presents modern FP use in Malawi and Zambia, disaggregated by wealth quintile.

**Figure A-2. Percent of currently married women ages 15–49 using a modern method of family planning, Malawi and Zambia**



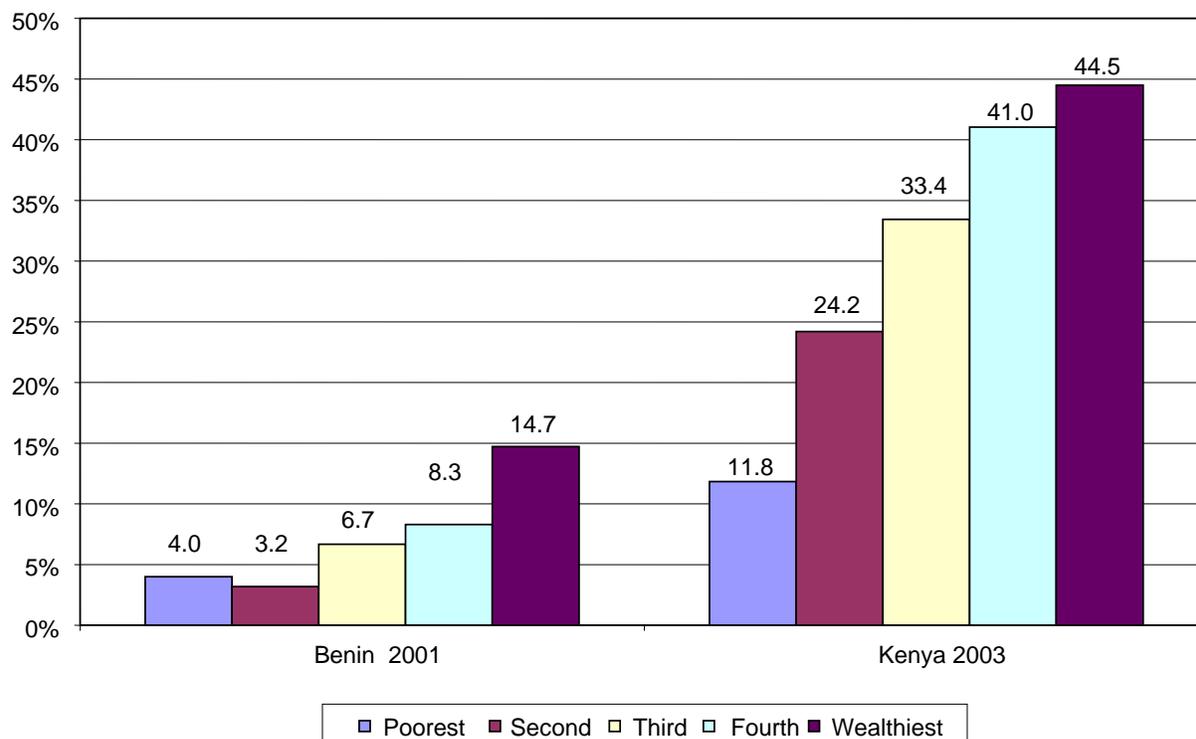
### ***Ratio of use among the poorest to use among the wealthiest***

In addition to bar charts, the paper relies on simple summary measures that indicate the degree of inequality. These measures facilitate comparisons of inequality across multiple countries. One such measure is the ratio of use among the poorest to use among the wealthiest. In the example given in Figure A-2, the ratio of the poorest to the wealthiest is 0.20/0.36 or 0.56 for Malawi and 0.11/0.52 or 0.21 for Zambia. The pattern is the smaller the inequality ratio, the greater the degree of inequality. With a simple summary measure, such as this ratio, it is possible to quickly assess the degree of inequality across dozens of countries without having to look at individual bar charts. (This ratio does not, however, provide any information on the three middle quintiles.)

### ***Concentration ratio***

A potential weakness of the inequality ratio is that two countries may have exactly the same inequality ratio but distinctly different patterns of inequality in the middle quintiles. For example, the most recent surveys in Benin and Kenya have FP use inequality ratios of 0.27. However, an analysis of the bar charts in Figure A-3 shows drastically different patterns of inequality in modern FP use. In both countries, there is a stair-stepped increase in use, moving from left to right. In Benin, however, the increase from the fourth quintile to the wealthiest is almost 50 percent (from 0.08 to 0.15). In Kenya, the increase from the fourth quintile to the wealthiest quintile is more modest—the increase is from 0.41 to 0.44. Thus, the pattern of use across quintiles in Benin is more unequal than in Kenya, although both countries have the same inequality ratio.

**Figure A-3. Percent of currently married women ages 15–49 using a modern method of family planning, Benin and Kenya**



Given this limitation of the inequality ratio, a more complicated measure, the concentration ratio, often is employed to get a more accurate description of inequality. A concentration ratio<sup>21</sup> is a more rigorous summary measure for establishing magnitudes of inequality. With outcomes that improve as conditions improve (such as increased contraceptive prevalence or use of services), concentration ratios range from 0 to 1, with 0 being perfect equality and 1 being perfect inequality. With outcomes that decline as conditions improve (such as maternal mortality or total fertility rates), concentration ratios range from -1 to 0, with 0 being perfect equality and -1 being perfect inequality.<sup>22</sup>

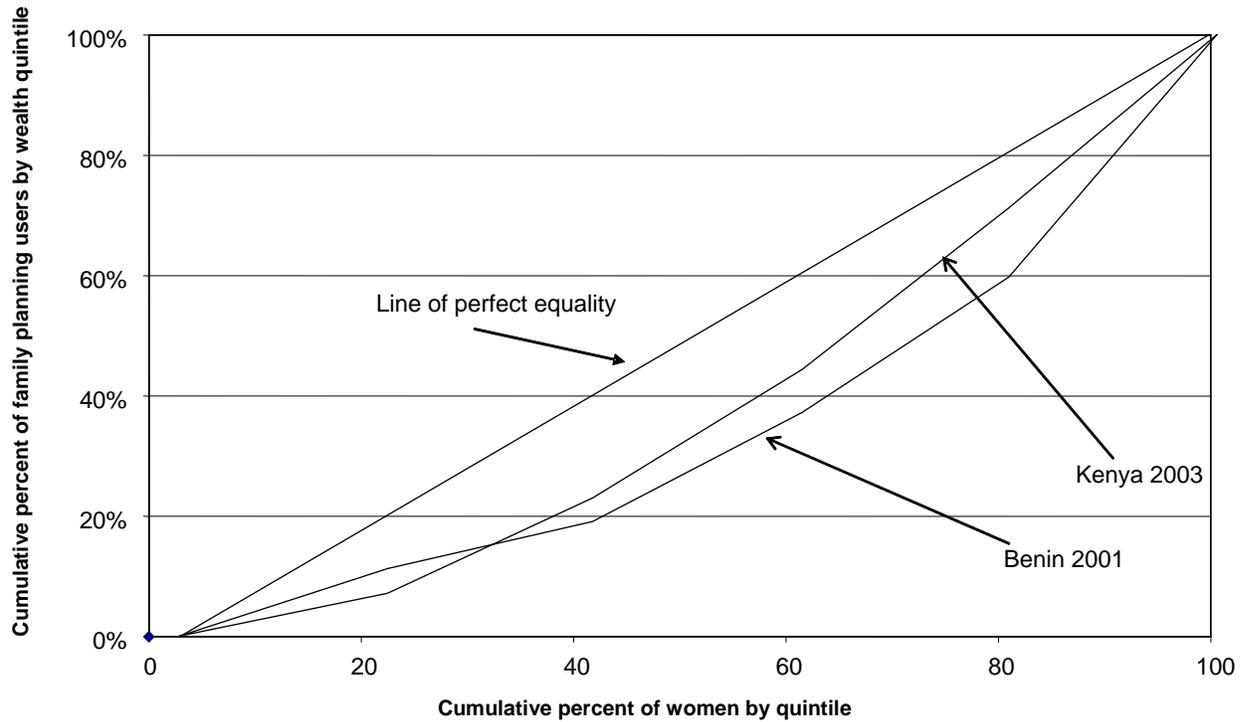
Concentration ratios are calculated using concentration curves. These measure the cumulative percent of service use or behavior by quintile, moving from the poorest to the wealthiest.<sup>23</sup> Figure A-4 shows the concentration curves that correspond to the data in Figure A-3. The diagonal line bisecting the graph is the line of perfect equality. The concentration curve for Kenya lies closer to the line of perfect equality, showing that FP use in Kenya in 2003 was more equitable than in Benin in 2001.

<sup>21</sup> Readers familiar with the economics literature on inequality may note that the concentration ratio is roughly analogous to Gini coefficients.

<sup>22</sup> Six of the seven indicators will increase as conditions improve. The seventh indicator, unmet need, follows a complicated pattern.

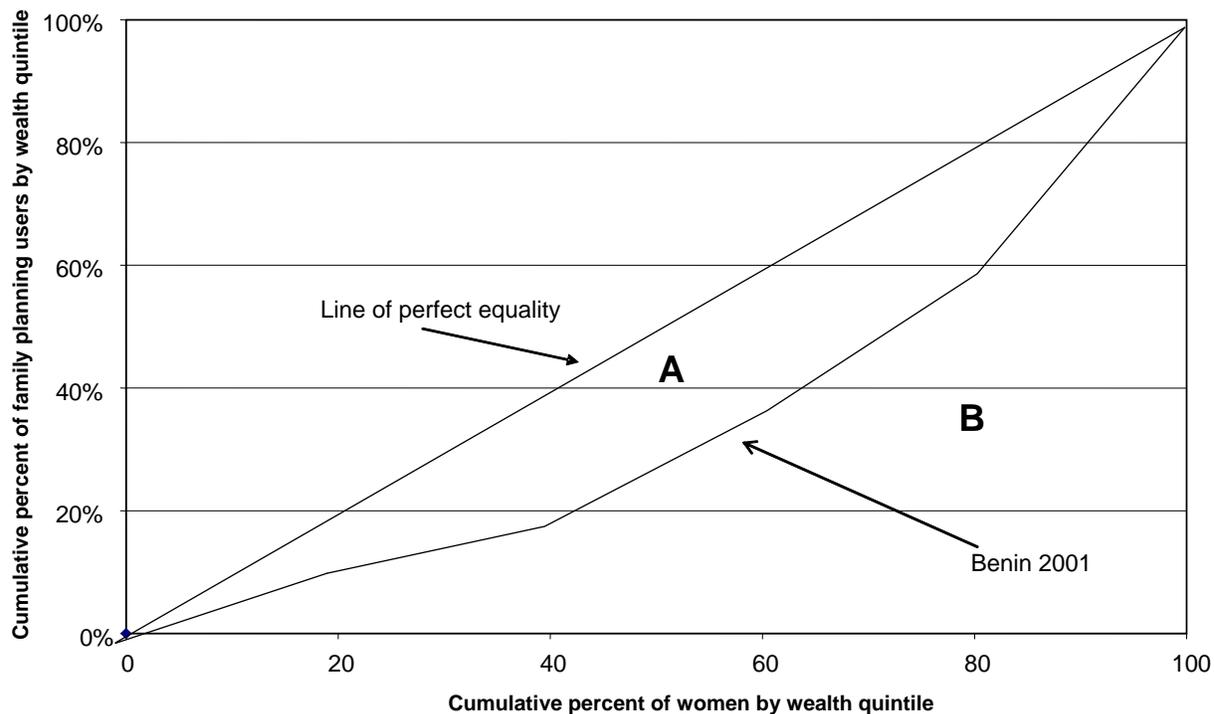
<sup>23</sup> Concentration curves correspond approximately to Lorenz curves from economics literature.

**Figure A-4. Concentration curves for currently married women using a modern method of family planning**



Concentration ratios convert the visual information of the concentration curves into a single summary number. The concentration ratio is equal to the ratio of the area between the concentration curve and the line of perfect equality (area marked A in Figure A-5) to the total area that lies below the line of perfect equality (sum of areas marked A and B). For Benin, as illustrated in Figure A-4, the concentration ratio is 0.29. As a point of reference, Kenya, presented along with Benin, has a concentration ratio of 0.21. Since the concentration ratio for Kenya is less than for Benin, Kenya is considered to have less inequality, which confirms the visual information of the concentration curves.

**Figure A-5. Concentration curves for currently married women using a modern method of family planning**



### Comparing the Use of Summary Measures

Comparing the bar charts that illustrate contraceptive use across quintiles is the best way to fully understand the relative levels of inequality either within a country or across several countries. It allows the analyst to know exactly how the inequality manifests itself. For example, the analyst can establish that inequality exists because the poorest quintile is lagging, because the two poorest quintiles are lagging, or because the four poorest quintiles are lagging relative to the wealthiest. Summary measures of inequality—the inequality ratio or the concentration ratio—lose almost all of that richness of detail.

The inequality and concentration ratios are good measures to use when many different countries need to be compared quickly and efficiently, since comparing dozens of bar charts is a daunting task. Of the two summary measures discussed here, the inequality ratio is the easiest to understand conceptually. However, the inequality ratio does not always accurately establish which pattern of use is the most unequal.<sup>24</sup> The concentration ratio is more accurate at depicting true inequality. This report uses both bar charts and concentration ratios to illustrate its points.

<sup>24</sup> Although not presented here, there are cases when comparing the ratio of the poorest to the wealthiest for two countries will produce incorrect assessments of relative inequality across the two countries.

## APPENDIX B. APPLIED DEFINITIONS

Indicators referenced in this paper are defined as follows:

**Antenatal care** is defined as the percentage of most recent births to women in the last three or five years<sup>25</sup> that were preceded by at least four antenatal care visits.

**Birth spacing** is the percentage of most recent closed birth intervals, in the last three or five years,<sup>26</sup> that were 36 months or longer in duration.

**Concentration ratio** is a rigorous summary measure to establish magnitudes of inequality. (A detailed description of how concentration ratios are derived can be found in Appendix A.) The scatter plot provides a means of cross-country comparison of inequality levels.

The **contraceptive prevalence rate** is the percentage of currently married women between the ages of 15 and 49 using a modern method of family planning as normally defined by USAID and the DHS.<sup>27</sup>

**Delayed childbirth** is the percentage of women between the ages of 20 and 29 who first gave birth at age 20 or older.

**Delayed marriage** is the percentage of women between the ages of 20 and 29 who were married at age 18 or older.

**Equity** is linked with societal values and principles of social justice that promote equality. The World Bank (2005) defines equity based on two basic principles: (1) equal opportunity and (2) avoidance of absolute deprivation. As the Bank (2005) notes, “equity relates to fairness, whether locally in families and communities, or globally across nations.” Inequity in health has been frequently related to differences in the ability to obtain healthcare, or to concerns about how financing healthcare impacts different groups, particularly the poor. Large inequalities in use of healthcare and in health outcomes exist throughout the developing world, both within and across countries.

**Health inequality** is defined by variations in health status across individuals in a population (WHO, 2000). Health inequalities are determined by empirical observation. The MDGs have created increased interest in the distribution of health in populations, because the target goals are formulated around country averages that make it difficult to understand the health of the poor. Averages may hide differences in health status, healthcare, and the impact of health financing on the poor (Gwatkin, 2002). Health inequalities often translate into inequalities in economic outcomes and the inability to lead a happy and productive life. Income is a large factor in these inequalities, but ethnicity, race, and location (e.g., urban vs. rural) also are important (World Bank, 2005). Inequalities in this analysis are measured by segmenting the population into five equal groups on the basis of household amenities and ownership of household assets. (See Appendix A, Methodology, for an explanation of how this is derived.)

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<sup>25</sup> The three- or five-year qualification is contingent on which survey dataset is being analyzed. Depending on the decisions of the DHS country implementing team, women were asked to recall details of child and maternal health during either a three- or five-year period.

<sup>26</sup> We chose the definition for this indicator to match the time interval considered for use of antenatal care and births in medical facilities.

<sup>27</sup> As a point of clarification, breastfeeding is included in our data analyses as a modern method, even when it was not defined specifically as the lactational amenorrhea method in the survey questionnaire. This will cause some differences between the rates calculated and those reported in the final reports of the DHS.

**Institutional birth delivery** is the percentage of most recent births to women in the last three or five years that occurred somewhere other than their home, a friend's home, or a relative's home. Most often, this translates into the percentage of most recent births that occurred in a medical facility.

**Poverty and poverty reduction** are described in the 2000/2001 World Development Report (World Bank, 2000), which states that poverty is multidimensional and encompasses "not only material deprivation but also low achievements in education and health, as well as vulnerability and exposure to risk." In practice, the measurement of poverty has focused on standards of income, wealth, or consumption; and poverty is expressed as the number of poor people or the share of the population that is impoverished. Nations typically set goals for poverty reduction based on of the proportion living in poverty. For example, the poverty reduction strategy in Bangladesh aims to reduce the share of people living below the poverty line by half, from 50 percent to 25 percent, between 2002 and 2015 (General Economics Division, 2005).

**Reproductive health** includes fertility and family planning, maternal healthcare, and treatment of reproductive tract infections and diseases.<sup>28</sup> The analyses presented in this paper cover the following RH topics: FP use and unmet need, early childbearing, antenatal care, age at first marriage and first birth, and closed birth intervals. It does not include abortion in this context.

**Unmet need** is the percent of currently married women between the ages of 15 and 49 who fall into one of the following categories (the standard definition of unmet need employed by most USAID projects): Women who are not pregnant, not amenorrheic, not using family planning and not infecund, and who do not want any more children or want to wait at least two years before the birth of their next child; and women who are either pregnant or amenorrheic, not using family planning, and not infecund, and whose most recent pregnancy was unintended or desired at a later time.

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<sup>28</sup> HIV/AIDS, despite its relevance to reproductive health, is not discussed in this paper. Ample literature exists on the relationships among HIV/AIDS, economic growth, and poverty. See, for example, Haacker (2004).

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