



USAID
FROM THE AMERICAN PEOPLE

**HEALTH POLICY
INITIATIVE**

DISENTANGLING THE EFFECTS OF POVERTY AND PLACE OF RESIDENCE FOR STRATEGIC PLANNING

SEPTEMBER 2010

This publication was produced for review by the U.S. Agency for International Development (USAID). It was prepared by Karen Foreit, Mahesh Karra, and Tanvi Pandit-Rajani of the Health Policy Initiative, Task Order I.

Suggested Citation: Foreit, Karen, M. Karra, and T. Pandit-Rajani. September 2010. *Disentangling the Effects of Poverty and Place of Residence for Strategic Planning*. Washington, DC: Futures Group, Health Policy Initiative, Task Order I.

USAID | Health Policy Initiative, Task Order I is funded by the United States Agency for International Development (USAID) under Contract No. GPO-I-01-05-00040-00, which commenced on September 30, 2005. Task Order I is implemented by Futures Group International, in collaboration with the Centre for Development and Population Activities (CEDPA), White Ribbon Alliance for Safe Motherhood (WRA), and Futures Institute.

DISENTANGLING THE EFFECTS OF POVERTY AND PLACE OF RESIDENCE FOR STRATEGIC PLANNING

SEPTEMBER 2010

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

TABLE OF CONTENTS

Acknowledgments	iv
Executive Summary	v
Abbreviations	vii
Introduction	1
Study Purpose.....	1
Linking Health to Poverty and Development	1
Poverty, Inequality, and Equity	1
Poverty and Health	2
Targeting Assistance and Health Interventions to the Poor.....	3
Using National Survey Data to Determine Poverty Status	3
Urban-Rural Disaggregation and Differences in Wealth by Place of Residence	3
Secondary Analyses of 16 Countries	5
Countries and Surveys	5
Selected Findings.....	5
Global Trends	11
The Kuznets Curve and Applications to Health Outcomes	12
Is the Kuznets Curve Inevitable?.....	16
Sources for Family Planning/Reproductive Health Goods and Services	18
Use of Public Sources of Family Planning by Place of Residence and Relative Wealth	19
Programmatic Considerations	20
Conclusions	21
Annex 1: STATA Code for Urban-Rural Wealth Quintiles	22
Annex 2: SPSS Code for Urban-Rural Wealth Quintiles	24
References	26

ACKNOWLEDGMENTS

The authors thank the USAID | Health Policy Initiative, Task Order 1 team in Washington, D.C., and the team's regional partners and associates for sharing their insights and experiences. The authors particularly recognize:

- Suneeta Sharma, Health Policy Initiative, Futures Group
- Rachel Sanders, Health Policy Initiative, Futures Group
- William Winfrey, Futures Institute
- Kiersten Johnson, MEASURE DHS, Macro International

EXECUTIVE SUMMARY

National surveys contain a wealth of family planning (FP), reproductive health (RH), and maternal and child health (MCH) indicators. A comparison of these indicators across subnational groups, such as urban versus rural populations or by relative poverty, can pinpoint inequalities and gaps in coverage and assist policymakers and program planners in developing more effective and efficient interventions.

Current poverty-equity analyses typically consider a country as a whole. In most developing countries, however, poverty is highly correlated with place of residence; that is, urban households tend to concentrate among the highest-wealth groups, while rural households tend to concentrate among the poor. Thus, any national comparison of the least poor with the most poor tends to compare the bulk of the urban population with the poorest of the rural poor, making it impossible to determine to what degree the findings reflect inequalities by wealth and/or inequalities by geography. The development of separate urban and rural wealth indices provides a way out of this dilemma.

This report summarizes findings from secondary analyses of Demographic and Health Survey (DHS) data sets from 16 countries. We constructed separate wealth classifications for urban and rural women to examine inequalities in key population and reproductive health indicators, including family planning, antenatal care, and location of last birth. We undertook both within- and between-country comparisons by wealth and place of residence for the following 16 USAID priority countries: Bangladesh, Bolivia, Democratic Republic of the Congo (DRC), Ethiopia, Haiti, India, Kenya, Madagascar, Malawi, Nigeria, Pakistan, Peru, Rwanda, Tanzania, Uganda, and Zambia.

The analyses demonstrate that disaggregating relative wealth by place of residence may reveal patterns obscured by national trends. The patterns, in turn, may suggest possible programmatic implications and general rules of thumb for consideration in the design and assessment of program interventions.

- **Wealth and residence differentials are probably inevitable at some point in program evolution.** In no case did any country improve health outcomes at the same rate and during the same period in both its urban and rural areas and across all wealth groups.
- **Wealth differentials in the early stages of program scale-up may be a “good” sign.** Differentials might indicate that groups likely to be innovators or early adopters are engaging in the desired behavior change or achieving the desired health outcomes.
- **Persistent wealth and/or residential differentials, especially as privileged groups achieve moderate to high levels of the desired behavior change or health outcomes, should be a matter of program concern.** If two or more successive surveys continue to show wealth- or residence-related inequalities, then advocates, policymakers, and program planners should consider a targeting strategy and decide which population groups warrant special attention.
- **Policymakers and program planners may find it useful to establish a priori minimum thresholds below which a “general population” approach is preferable to targeting.** If, for example, no residence quintile achieves the minimum threshold for modern contraceptive use, the national family planning program should promote small-family norms, stress the health benefits of birth spacing, and increase access to family planning to all segments of the population *regardless of any wealth gradient from the poorest to wealthiest quintile.*
- **Compare the urban poorest and rural wealthiest populations.** If the poorest of the urban population show comparable or better outcomes than the wealthiest of the rural population, geographic targeting to rural areas should be a program priority, whether or not pro-poor

strategies are also considered. Improved access to services in rural areas might also help reduce migration into urban slums.

- **Compare family planning use with maternal health coverage.** Health system strengthening, a core principle of the Millennium Development Goals and of the new USG Global Health Initiative, stresses the integration of services. Antenatal care is an especially appropriate indicator that lends itself to a comparison with family planning. If family planning lags behind antenatal care, programs should look for barriers to family planning among MCH service providers and/or opportunities to promote post-partum family planning. If family planning coverage is higher than use of antenatal care, the family planning program should consider integration of safe motherhood into its services.
- **Additional information will be needed to design the targeting approach.** If and when geographic and/or pro-poor targeting emerges as a priority strategy, targeting to poverty groups, especially if not concentrated in discrete geographic areas such as urban slums, can pose an enormous challenge.
- **Monitoring the uptake of pro-poor interventions by the poor requires different indicators than those used to assess poverty-related inequalities.** Programs can disaggregate service statistics by location of service outlet or use client intercept surveys to assess clients' poverty status.

ABBREVIATIONS

DHS	Demographic and Health Survey
FP	family planning
MCH	maternal and child health
PCA	principal component analysis
PPP	purchasing power parity
RH	reproductive health
RHS	Reproductive Health Survey
WRA	women of reproductive age

INTRODUCTION

Over the last decade, the Millennium Development Goals and other global initiatives have spearheaded renewed national efforts to combat poverty and reduce inequalities in health status. A range of tools and approaches is available to help analysts understand the level and degree to which poverty affects health service utilization and health outcomes. National population-based surveys, such as the Demographic and Health Survey (DHS) and the Reproductive Health Survey (RHS), include detailed health outcome and impact indicators. Most recent surveys derive a national wealth score as a background characteristic of surveyed households and disaggregate key indicators by wealth quintile (i.e., from the poorest 20 percent of the population through the wealthiest 20 percent).

One limitation of the national quintile approach is that relative wealth typically varies by place of residence, since the wealth index is measured by assets. Urban households often cluster in the highest wealth group (quintile 5), while rural households are spread out across the lower wealth groups (quintiles 1 through 4). The relationship between wealth and residence can therefore lead to ambiguity in the interpretation of findings of inequalities, especially when comparing the lowest quintile to the highest quintile. In addition, the clustering of urban households in the single, highest quintile makes it difficult to distinguish the urban poor from less poor urban residents. The residence bias in national quintile rankings can, however, be corrected by creating separate quintile rankings for urban and rural populations, permitting—within a single analysis—comparisons of the impact of relative poverty within urban and rural strata and comparisons of urban and rural populations.

Study Purpose

The purpose of this study is to analyze trends in various health indicators by place of residence (urban and rural) and by relative wealth for 16 countries. The analysis builds on the MEASURE Evaluation poverty assessment manual titled *Addressing Poverty: A Guide for Considering Poverty-Related and Other Inequities in Health*. The study's primary objectives are to identify inequalities by place of residence and residence-specific wealth categories that might be obscured by national wealth quintile analysis; to examine cross-country and time trends and suggest ways that policymakers and program planners might use the findings to inform poverty assessment approaches; to design strategies and allocate resources to address identified health needs; and to track progress toward achieving national health and development goals.

LINKING HEALTH TO POVERTY AND DEVELOPMENT

This section defines poverty, inequality, and equity as they relate to health and development and then examines the notion of promoting health equity by targeting health services and interventions to the poor.

Poverty, Inequality, and Equity

We begin by defining poverty, inequality, and equity within a health context.

Poverty is a multidimensional concept that encompasses both economic conditions and their consequences. The 1995 United Nations World Summit on Social Development described *overall poverty* as a “lack of income and productive resources [conditions] to ensure sustainable livelihoods; hunger and malnutrition; ill health; limited or lack of access to education and other basic services; increased mortality and morbidity from illness; homelessness and inadequate housing; unsafe environments and social discrimination and exclusion [consequences]” and expands on this theme to distinguish *absolute poverty* as “severe deprivation of basic human needs, particularly food, safe drinking water, sanitation facilities, health, shelter, and education” (Gordon, 2005, slide 3).

Classic measurements of poverty focus on income and/or expenditures. A country's *poverty line* or *poverty threshold* is the minimum income level needed to achieve an adequate standard of living in that country (Ravallion, 2008). To compare across countries, economists have constructed an *international poverty line* that integrates income and consumption levels; it is set at \$1.00 per day or \$1.25 per day at the 2005 purchasing power parity (PPP) income level or \$2.00 per day or less (see Ravallion et al., 2009).

Inequality and *inequity* arise when different groups or individuals show different health outcomes (such as use of health services, morbidity, or mortality). *Inequalities* in health are disparities in health status between two or more groups or individuals; on the other hand, *inequities* in health are differences that are *unnecessary, unfair, avoidable, and unjust* (Whitehead, 1990). Therefore, by definition, all inequities imply inequality, but not all inequalities may be considered inequitable.

Poverty and Health

Previous studies examining the relationship between poverty and other forms of social disadvantage and poor health status have established many of the causal pathways and significant linkages between health improvements and both positive national economic growth and increased household productivity and wages. The correlations between health status and poverty may be summarized as follows:¹

- **Improved health status contributes to economic growth through several mechanisms.** A healthier population and labor force is likely to be productive. Improved health status directly affects savings and investment decisions, and foreign investment is higher in countries with a low disease burden and low infection risk.
- **Poor health status impedes economic growth by creating a vicious cycle.** High-mortality environments create economic disincentives for saving and investing in education and other productivity factors. Thus, poor health status suppresses economic growth, which, in turn, can lead to a decline in health status as fewer resources are available for health reinvestment. This downward cycle adversely affects health, economic growth and development, and poverty status.
- **Sustained health improvements stimulate economic growth through virtuous cycles.** Continued efforts to promote and invest in health contribute to economic growth, which consequently leads to further expansions and improvements in health.
- **While overall health status may increase economic potential, disparities between the wealthiest and poorest impede sustainable health and development efforts.** Inequities in healthcare between the wealthiest and poorest and between urban and rural populations can inhibit health improvements; in addition, studies have shown that income inequalities between the wealthiest and poorest weaken economic growth potential, labor productivity, and overall development.

While previous explorations have successfully described the causal relationship among overall health status, economic growth, and poverty, the evidence base supporting correlations between reproductive health outcomes and poverty reduction is far less robust. While it seems logical that poor RH status (unintended pregnancy, excess fertility, high unmet need for FP and RH services, among others) adversely affects the chances that poor women and their families will escape poverty, little empirical evidence is available to support such an argument. Greene and Merrick, making the case that failure to address poor women's RH needs will undermine poverty reduction efforts, propose an agenda for further research (Greene and Merrick, 2005).

¹ See USAID, 2007. Issue Briefs: Latin American and Caribbean Health Programs Affect Economic Growth. Promoting Virtuous Cycles and Preventing Vicious Cycles.

Targeting Assistance and Health Interventions to the Poor

Despite the best of intentions and for a variety of reasons, health services often fail to reach those most in need, while government health expenditures tend to benefit the better-off. Targeting or focusing assistance to specified groups based on predefined criteria is most commonly employed when the intended beneficiaries have not profited from previous interventions or have been excluded relative to other groups.

When resources are scarce, targeting strategies can help ensure the allocation of public resources to those who need them most. In addition, targeting public assistance to the poor can help alleviate crowding out of the private sector by encouraging better-off individuals to utilize private sector health channels (assuming that private sector prices are reasonable). Previous studies have confirmed that targeting assistance to the poor can be a particularly effective method to increase equity.² In particular, the 2004 World Development Report titled *Making Services Work for Poor People* suggests that greater equity will be achieved “by examining and strengthening the relationships between poor people, policymakers, and service providers and by strengthening accountability mechanisms” (World Bank, 2003).

USING NATIONAL SURVEY DATA TO DETERMINE POVERTY STATUS

Most definitions of poverty are based on income and/or expenditures. However, the collection of enough data to reliably estimate of household income or expenditures is an enormous undertaking beyond the scope of most national health surveys. However, the DHS and similar surveys do collect information on household infrastructure and ownership of durable assets.³ Filmer and Pritchett demonstrated that it is possible to construct measures of relative wealth from these household data, which correlate in the expected ways with health and education indicators (Filmer and Pritchett, 2001). As a result, the DHS and other national surveys now routinely construct household wealth scores by using principal component analysis (PCA) of asset data from the household questionnaire (e.g., roof and floor material, electricity, water supply, possession of goods such as a bicycle and television, and so forth). The household’s wealth score is assigned to all its members, and the population is ranked by wealth scores from lowest to highest. Finally, the resulting distribution is ranked into five equal-sized quintiles. The lowest 20 percent of the population constitutes quintile 1, the second 20 percent falls into quintile 2, and so forth; the highest 20 percent of households represents quintile 5.⁴

Urban-Rural Disaggregation and Differences in Wealth by Place of Residence

The rationale for urban-rural disaggregation

Most national wealth quintiles are inherently biased given that many of the household assets used to infer wealth are likely to be found in urban households. In addition, other characteristics may denote poverty in

² For an examination of targeting assistance and equity in FP/RH, refer to Sine, J. 2003. “Targeting: A Key Element of National Contraceptive Security Planning.” *Policy Issues in Planning and Finance* No. 3.

³ Historically, items such as ownership of radio or television were included to assess potential exposure to mass-media health messages; running water and waste disposal to assess risk factors for diarrheal disease; and so forth.

⁴ While the quintile scores are now commonly accepted measures of relative wealth (i.e., individuals in quintile 5 are assumed as a group to be less poor than individuals in quintile 4), there is no necessary correspondence between wealth scores/quintiles and poverty lines based on income or expenditures. Moreover, it is entirely possible that some households classified as quintile 5 fall below a country’s income-based poverty line and that some households classified in quintiles 1 or 2 fall above the national poverty line.

urban households but wealth in rural households (for example, a concrete floor in an urban residence may be a sign of relative poverty if most urban households have tile floors, whereas a concrete floor in rural residences could indicate relative wealth if the majority of rural households have dirt floors). The resulting correlation between national wealth quintiles and place of residence makes it impossible to determine how much of an observed inequality between the lowest and highest quintiles is attributable to poverty as opposed to place of residence.

We take the following steps to disentangle the effects of poverty and place of residence:

- Separate the national sample by place of residence (i.e., urban versus rural)
- Re-rank individuals within each place-of-residence subsample (urban and rural) according to their household wealth scores
- Divide urban and rural subsamples into their respective quintiles⁵

⁵ See Foreit (2008) for a full discussion of why creating separate rankings for urban and rural samples is preferable to cross-tabulating national wealth quintiles with place of residence. Foreit also compared re-ranked urban/rural quintiles with urban/rural quintiles derived from separate analyses of rural and urban households and concluded that, despite some differences between wealth scores, the two measures were highly correlated and that “unless the Mission has reason to believe that re-ranking national wealth index values will produce erroneous results,” recalculating separate urban-rural wealth scores for households was unnecessary. Rustein (2008) arrived at the same conclusion.

SECONDARY ANALYSES OF 16 COUNTRIES

Countries and Surveys

For the study, we selected 16 countries for analysis and downloaded standard recode files from the DHS website. We selected 13 of the 16 countries based on USAID priorities and added the other countries to broaden the study's scope and balance regional sampling. We constructed separate wealth classifications by place of residence by following the procedures described above and compared them with key population and reproductive health indicators among women of reproductive age (WRA). Table 1 lists the 16 countries and their respective DHS data sets used in the study; see Annex 1 for the STATA code used to create the urban and rural wealth quintiles.

Table 1: Countries and Surveys Selected for Analysis

Country	DHS Data Sets
Bangladesh	1994, 1997, 2000, 2004, 2007
Bolivia	2003, 2008
Democratic Republic of the Congo	2007
Ethiopia	2000, 2005
Haiti	2000, 2006
India	2006
Kenya	2003, 2008
Madagascar	2004, 2009
Malawi	2000, 2004
Nigeria	2003, 2008
Pakistan	1990, 2007
Peru	2000, 2008
Rwanda	1992, 2000, 2005, 2007
Tanzania	2004
Uganda	2000, 2006
Zambia	1996, 2002, 2007

Selected Findings

Urban-Rural Trends by Health Outcome: Country Examples

The following subsections examine the impact of relative poverty, disaggregated by place of residence (urban versus rural), on various health outcomes. We selected country cases to illustrate overarching trends observed across countries and focused on the following health outcome variables:

- Use of family planning
- Antenatal and maternity care
- Sources of FP goods and services

Use of Family Planning

Modern method use

The following analyses examine the relationships between residence and wealth and the use of modern contraception.⁶ We cross-tabulated modern method contraceptive use by wealth quintile separately for urban and rural women and, as a further indicator of urban/rural disparity, compared modern method use among the wealthiest rural quintile (Rural Quintile 5) to modern method use among the poorest urban quintile (Urban Quintile 1). In all of the countries studied, urban women showed consistently higher use of modern contraceptives than rural women. Table 2 summarizes findings within residence zone and the Rural 5-Urban 1 comparison.

Table 2. Country Findings

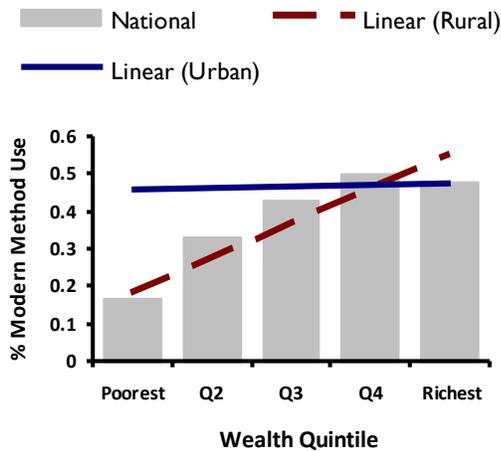
Country/Survey Year	Wealth Differential (trends)		Rural 5 versus Urban 1 ⁷
	Urban	Rural	
Africa			
DRC 2007	Increase with wealth	Flat	Rural 5 ~ Urban 1
Ethiopia 2005	Increase with wealth*	Increase with wealth	Rural 5 ~ Urban 1
Kenya 2008	Flat	Increase with wealth	Rural 5 > Urban 1
Madagascar 2009	Flat*	Increase with wealth	Rural 5 ~ Urban 1
Malawi 2004	Increase with wealth	Flat**	Rural 5 > Urban 1
Nigeria 2008	Increase with wealth	Increase with wealth	Rural 5 > Urban 1
Rwanda 2005	Increase with wealth	Flat**	Rural 5 > Urban 1
Tanzania 2004	Increase with wealth	Increase with wealth	Rural 5 ~ Urban 1
Uganda 2006	Mixed***	Increase with wealth	Rural 5 > Urban 1
Zambia 2007	Increase with wealth	Mixed ****	Rural 5 ~ Urban 1
Asia			
Bangladesh 2007	Flat	Flat	Rural 5 < Urban 1
India 2006	Increase with wealth	Increase with wealth	Rural 5 > Urban 1
Pakistan 2007	Increase with wealth	Increase with wealth	Rural 5 > Urban 1
Latin America and Caribbean			
Bolivia 2008	Increase with wealth	Increase with wealth	Rural 5 ~ Urban 1
Haiti 2006	Flat	Increase with wealth	Rural 5 > Urban 1
Peru 2008	Flat	Increase with wealth	Rural 5 < Urban 1
Notes: * Decline in wealthiest quintile (Q5)		** Increase in wealthiest quintile (Q5)	
*** Inverted U-shape (highest in Q3)		**** U-shape (lowest in Q3)	

⁶ Lactation amenorrhea method is not included in these analyses.

⁷ Because confidence intervals were not computed, differences in prevalence of 3 percent or less were considered equivalent.

What is striking about the comparisons is that, despite the general tendency of increased use of modern contraceptive method with increased wealth at the national level (with the striking exception of Bangladesh), disaggregation of relative wealth and place of residence results in highly variable residence-specific patterns. In fact, only 5 of the 16 surveys summarized in Table 2 show monotonically increasing prevalence with increasing wealth in both urban and rural populations. Furthermore, 8 of the 16 surveys showed extreme urban/rural disparities, evidenced by prevalence in the wealthiest rural quintile that was lower or no higher than prevalence in the poorest rural quintile.

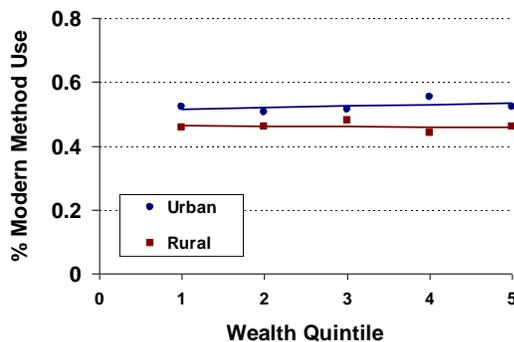
Figure 1. Kenya, 2008



The Kenya 2008 DHS clearly demonstrates how national wealth quintiles may obscure different urban and rural trends. The columns in Figure 1 present modern method use by national wealth quintiles: prevalence increases with increasing wealth, with the two highest wealth quintiles showing comparable levels of use. Linear trend lines for urban and rural prevalence show dramatic differences: urban prevalence is essentially the same across all five wealth quintiles, while rural prevalence increases as wealth increases.

The figures below illustrate the different patterns by fitting linear trend lines to urban and rural prevalence rates.

Figure 2. Bangladesh, 2007



The figures below illustrate the different patterns by fitting linear trend lines to urban and rural prevalence rates.

In Bangladesh, once we disentangle place of residence and relative wealth, we note that prevalence in both urban and rural areas is equal and uniform across wealth quintiles; that is, we observe little if any difference in prevalence between poorer and wealthier groups. However, urban-rural differences are clear. Urban prevalence is approximately 6 percent higher than rural prevalence across all wealth quintiles. Moreover, the *poorest urban quintile* shows higher modern method use than the *wealthiest rural quintile* (52 versus 46%, respectively).

Nigeria and India both show increasing modern method use with increasing wealth, although at different levels of prevalence. Nigeria's urban-rural gap appears to increase with increasing wealth, whereas India's urban-rural gap appears to diminish at the highest wealth quintiles.

Figure 3. Nigeria, 2008

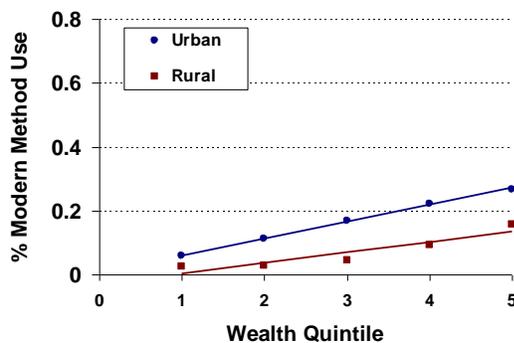
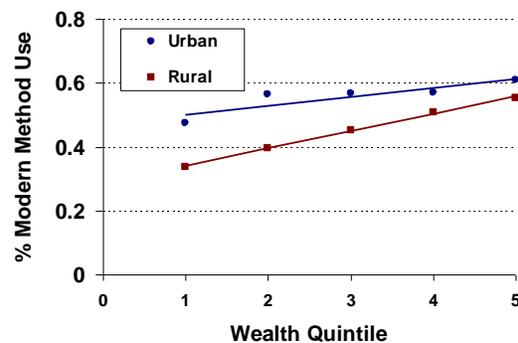


Figure 4. India, 2006



Malawi and Peru both show wealth differentials in one zone, though to a smaller degree in the other. Peru shows little variation by wealth quintile in urban areas while Malawi shows little variation in rural areas.

Figure 5. Malawi, 2004

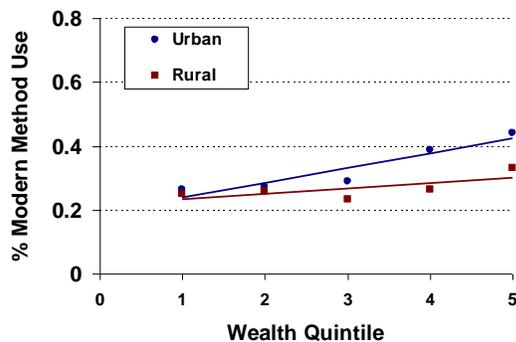
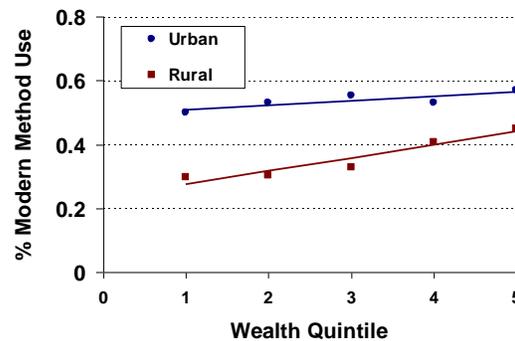


Figure 6. Peru, 2008



Other Health Indicators (antenatal care, location of last birth)

A potential ambiguity in interpreting differences in family planning prevalence is that rates of use are affected not only by access to and ability to pay for modern contraceptives but also by women's interest in and motivation to regulate their fertility (i.e., to space/delay or terminate childbearing). In settings marked by cultural differences and/or variation in educational and economic opportunities for women and girls, it is possible that rural and poorer women want more children than their urban and wealthier counterparts.⁸

Maternity care is a less ambiguous health outcome. Motivation for good outcomes (i.e., healthy mother and healthy child) is unlikely to be subject to cultural factors that may influence family planning and fertility regulation. Findings that differentials in use of critical maternity services parallel those found for family planning would underscore the need for pro-poor and/or pro-rural FP/RH strategies and interventions. We examined the following indicators by urban-rural wealth quintiles:

- Number of antenatal care visits for the last birth (four or more visits as recommended by WHO and UNICEF)
- Location of the last birth (medical facility versus woman's residence)

For all countries in the study, we found pronounced urban/rural and wealth differentials in maternity care. Urban women were more likely than rural women to have made four or more antenatal visits and deliver in a medical facility, as were wealthier women regardless of residence. We found comparable results for birth in a medical facility, with a tendency for birth attendance in medical facilities to lag behind minimum antenatal care. We then compared residential and wealth differentials in family planning use with minimum antenatal care.

The patterns in use of antenatal care in Bangladesh contrast sharply with the use of family planning in terms of overall levels, urban/rural differences, and wealth differentials. With the exception of the wealthiest urban women, none of the other groups comes close to the Millennium Development Goal of universal access to antenatal care—a finding that is especially troubling because antenatal care does not require complex physical infrastructure and can even be provided during a home visit by a fieldworker.

⁸ Findings of rural/urban and/or wealth differentials in contraceptive use should be supplemented with analyses of ideal family size, wantedness of the last birth and future fertility preferences, gender norms, and so forth—all included in the DHS. Analytic techniques could include multiple regression analyses to assess the relative importance of structural factors (e.g., residence, poverty) against personal factors (e.g., fertility preferences).

Figure 7. Modern Method Family Planning (Bangladesh, 2007)

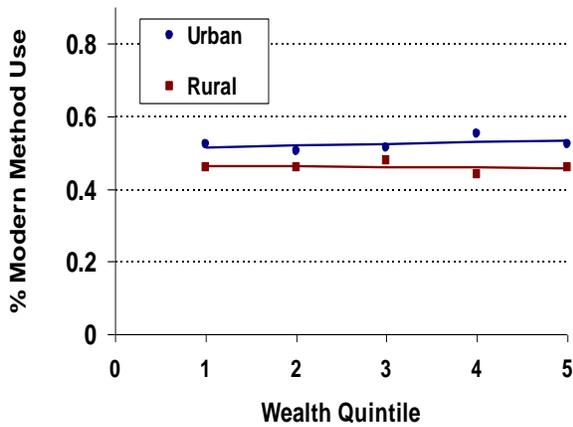
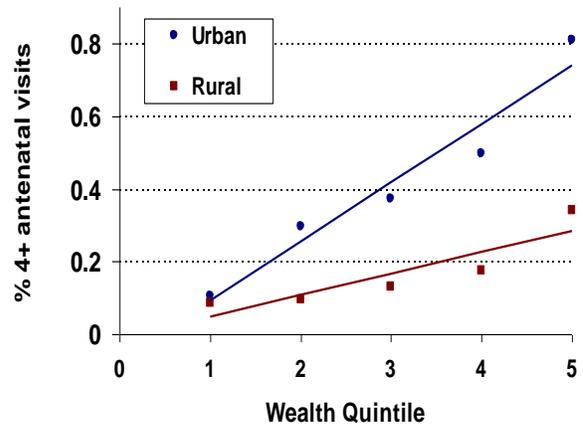


Figure 8. Antenatal Care (Bangladesh, 2007)



In contrast to Bangladesh, Nigeria—with half the modern contraceptive use found in Bangladesh—has achieved higher than 80 percent coverage of antenatal care among the top three quintiles in urban areas and the top rural quintile.⁹ While the country still has far to go to reduce its urban-rural disparities and differentials by relative wealth, Nigeria’s high levels of antenatal care raise the issue of why the health system has not reached or attracted larger numbers of family planning users.

Figure 9. Modern Method Family Planning (Nigeria, 2008)

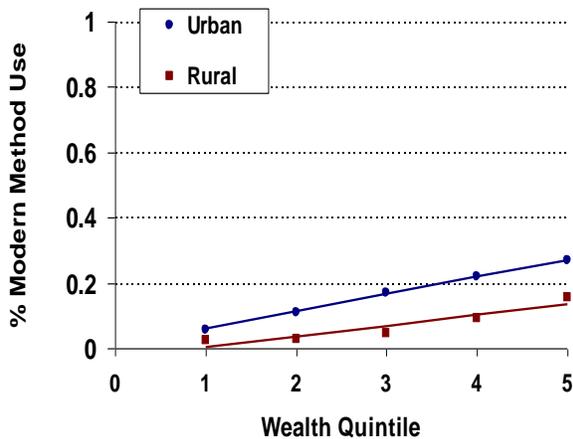
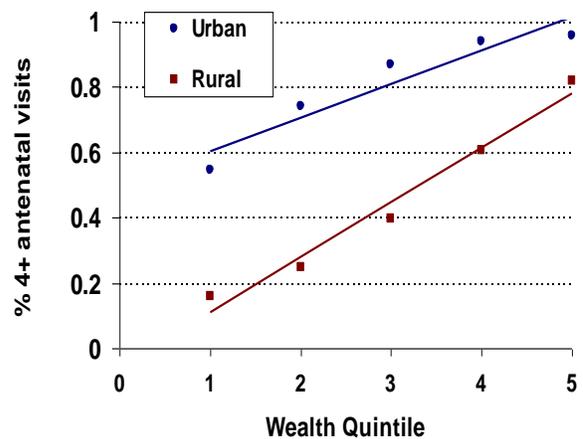


Figure 10. Antenatal Care (Nigeria, 2008)



Peru, with urban modern contraceptive prevalence comparable to that of Bangladesh, has also achieved admirable coverage of antenatal care. Yet, urban-rural differences persist in both family planning and safe motherhood, especially among the rural poor.

⁹ Coverage was 74 percent, 87 percent, 94 percent, and 96 percent among urban quintiles 2–5, respectively, and 82 percent among rural quintile 5 (80% coverage arguably could be considered minimum threshold for universal coverage).

Figure 11. Modern Method Family Planning (Peru, 2008)

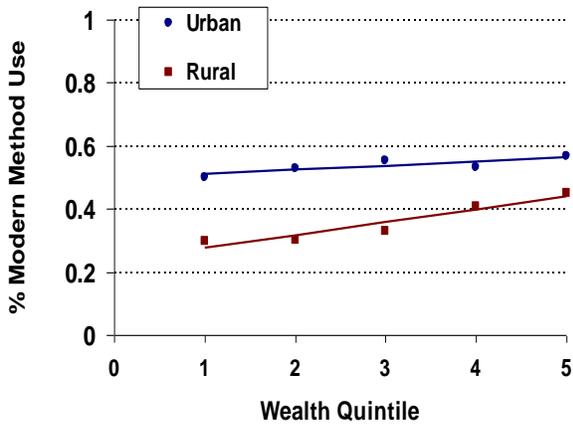


Figure 12. Antenatal Care (Peru, 2008)

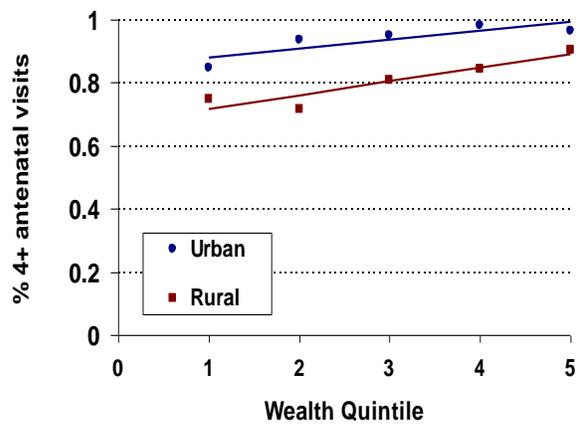


Figure 13. Modern Method Family Planning (Rwanda, 2005)

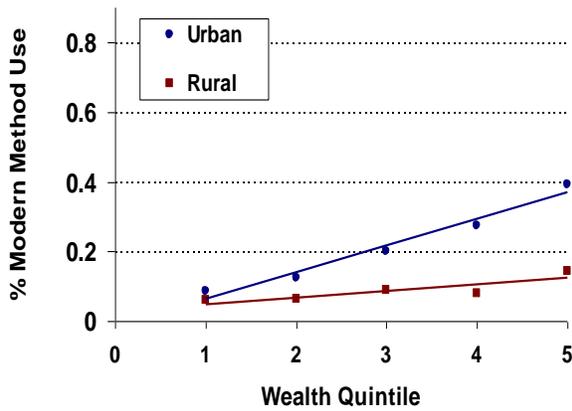
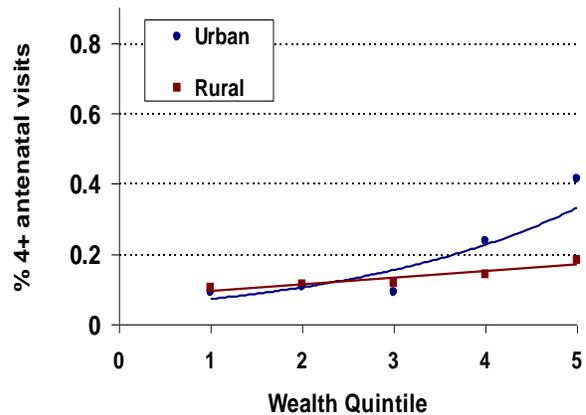


Figure 14. Antenatal Care (Rwanda, 2005)



At the other end of the spectrum, Rwanda shows comparably low levels and differentials in both the use of modern contraceptives and provision of antenatal care.

Finally, rural populations in Ethiopia resemble those in Rwanda in terms of use of modern contraception and coverage of antenatal care, but the urban populations differ markedly between the two countries. In fact, antenatal coverage of the two highest urban quintiles in Ethiopia meets the Millennium Development Goals.

Figure 15. Modern Method Family Planning (Ethiopia, 2005)

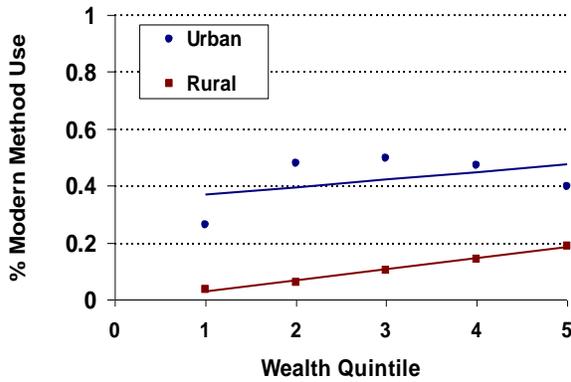
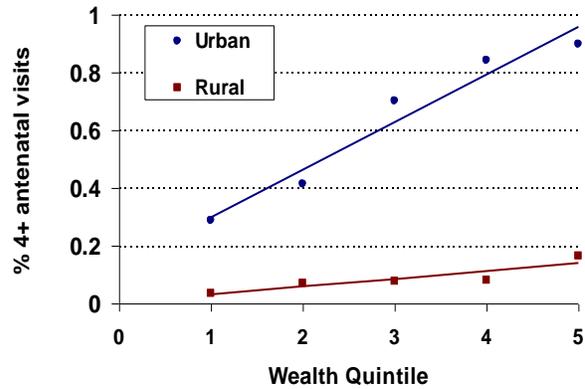


Figure 16. Antenatal Care (Ethiopia, 2005)



GLOBAL TRENDS

None of the developing countries included in this paper appears to have totally overcome wealth and urban/rural differentials in good health outcomes, but the magnitude of and patterns in the differences vary substantially from country to country, especially in the case of family planning. The countries also vary in terms of overall contraceptive prevalence. In this section, we attempt a cross-country comparison to analyze the relationship between poverty-related inequalities and overall health status.

Clearly, we would expect few poverty-related or urban/rural differences in countries characterized by very low overall health status (in which virtually everyone is badly off) or in countries with very high overall health status (in which virtually everyone exhibits positive outcomes). But what happens as countries in the middle begin to develop economically and raise their standards of living?

- Does the “rising tide” lift all boats equally, or do some (the wealthy, the urban) benefit first?
- If the wealthy and the urban benefit sooner than the poor and the rural, are these inequalities inevitable?
- Can governments take action to reduce inequality?

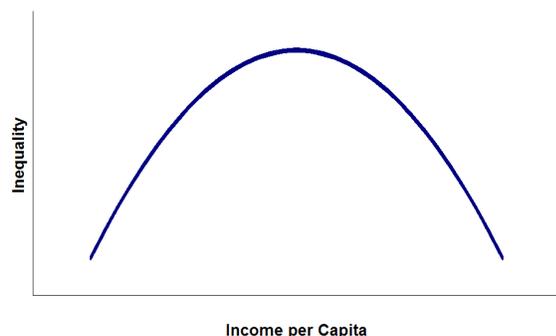
To answer these questions, we turn to Kuznets’ (1955) specification of income inequalities and effects on pro-poor economic growth and apply his analytic framework to family planning and reproductive health variables.¹⁰

¹⁰ In the two decades following Kuznets’ seminal paper, his hypothesis was a staple in the debate on the relative efficacy of family planning programs vs. economic development in bringing down fertility rates (see, for example, Berelson, B. “Beyond Family Planning,” *Science*. 1969, 163, 533-543. In the last decade, the Kuznets curve has received only sporadic mention in the FP/RH literature, although it continues to be widely cited in other areas such as environmental degradation.

The Kuznets Curve and Applications to Health Outcomes

In its simplest form, Kuznets' hypothesis posits that economic inequality will increase while a country is undergoing development and then begin to decrease after the country attains a certain average income per

Figure 17. The Kuznets Curve



capita. Plotting the relationship between development (on the x-axis) and inequality (on the y-axis) yields an inverted U-shaped curve. The inverted U occurs because when overall development is low, income inequality will also be low since most people are equally poor. As the country becomes more industrialized, income inequalities will increase until income inequality reaches a maximum. Inequalities then begin to decrease when social policies and economic priorities call for income redistribution. Finally, at high levels of development when most people are generally well off, we again expect low levels of income inequality.¹¹

Below, we test the Kuznets hypothesis with the family planning outcomes reported in the 35 DHS surveys listed in Table 1 (16 countries, many with multiple surveys). Where Kuznets plotted income per capita on the x axis, we plot the percentage of women in union of reproductive age who use modern methods of contraception. On the y-axis we plot inequality in modern method prevalence as measured by the percentage difference in prevalence between the highest and lowest quintiles (i.e. Quintile 5 minus Quintile 1). To test the hypothesis of rising and falling inequality with increasing modern method prevalence, we fit a quadratic regression to the data points and calculated its corresponding r-squared value. We conducted three analyses: national prevalence (using national wealth quintiles), urban prevalence (using urban wealth quintiles), and rural prevalence (using rural wealth quintiles).

The results of the analyses are presented in Figures 18–20. The data point for each country/survey is shown and labeled. The curved line shows the best-fitting quadratic curve. The formulas present the “goodness of fit” of the curve to the data: the negative coefficient of x^2 means that the curve is inverted (downward-facing); the size of the coefficient of x^2 demonstrates how pronounced the curve is (the closer to zero, the less of a curve); and the regression r^2 shows the percentage of variance among data points that is accounted for by the Kuznets curve.

As shown in Figure 18, at the national level, we observe virtually no relationship between inequality and national modern method use: despite the appearance of an inverted U-shaped curve, the quadratic regression accounts for only 6 percent of the variance among surveys. When we disaggregate by place of residence, as shown in Figures 19 and 20, the inverted U-shaped curve becomes more pronounced and the r^2 values increase ($r^2 = 0.17$ for both urban and rural women). These findings once again demonstrate the importance of disaggregating urban and rural wealth analyses: national wealth quintiles show only a weak Kuznets tendency, but the curvilinear relationship between inequality and increasing prevalence is revealed when we control for place of residence.

¹¹ Further examples and explanations may be found in Kuznets (1955).

Figure 18. Prevalence Gap versus Modern Method Use across 16 Countries (national wealth quintiles)

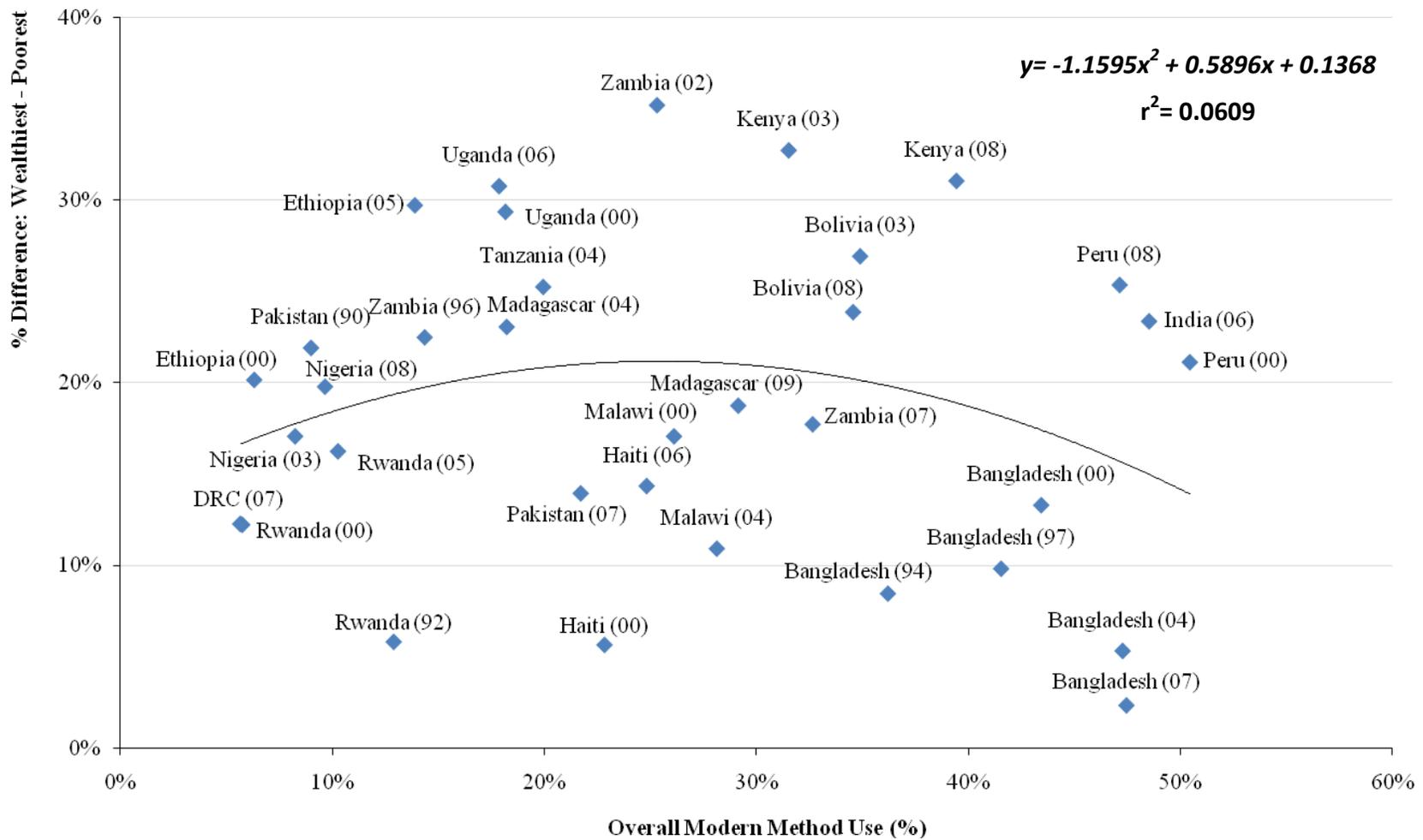


Figure 19. Prevalence Gap versus Modern Method Use across 16 Countries (urban wealth quintiles)

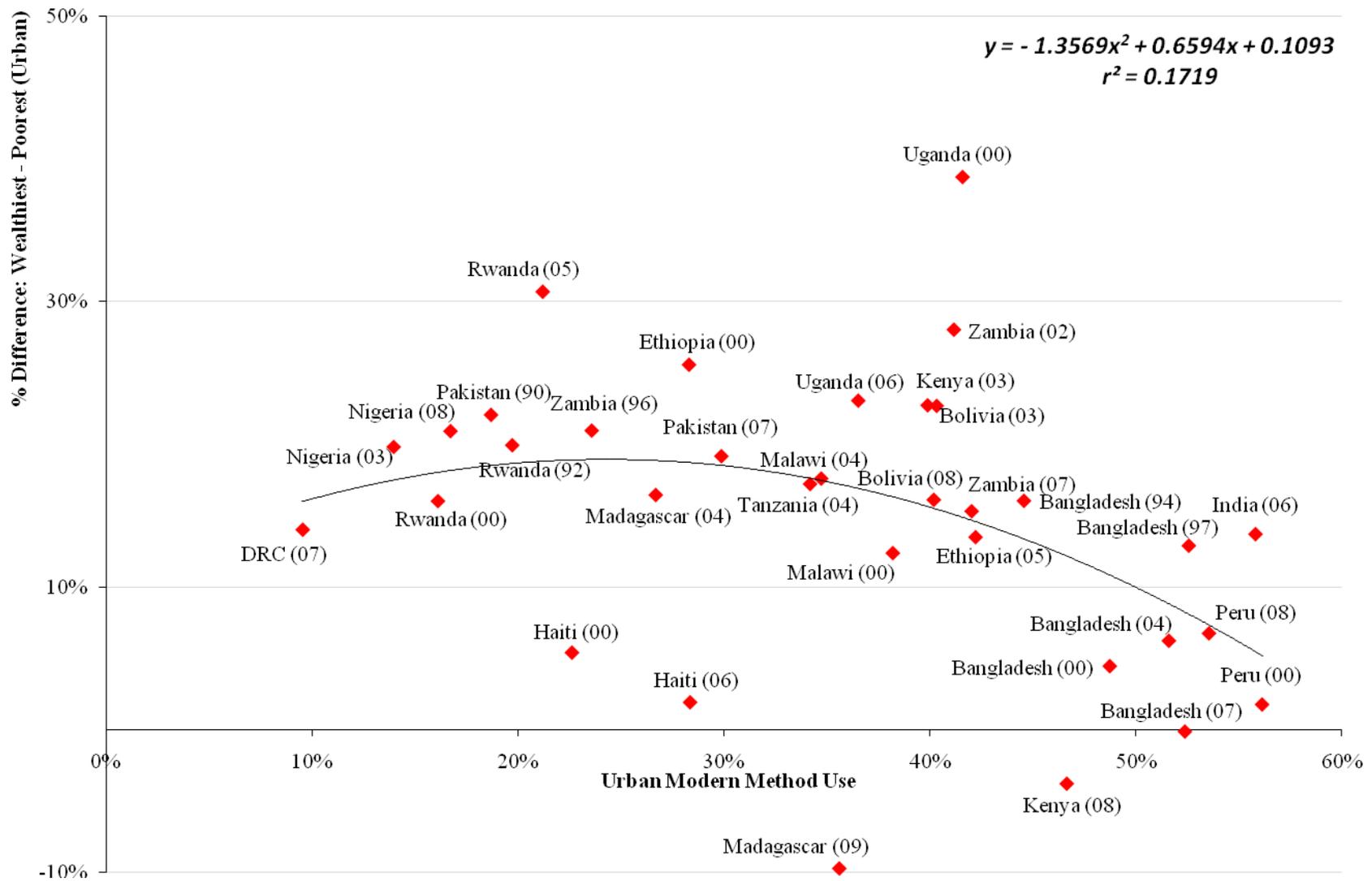
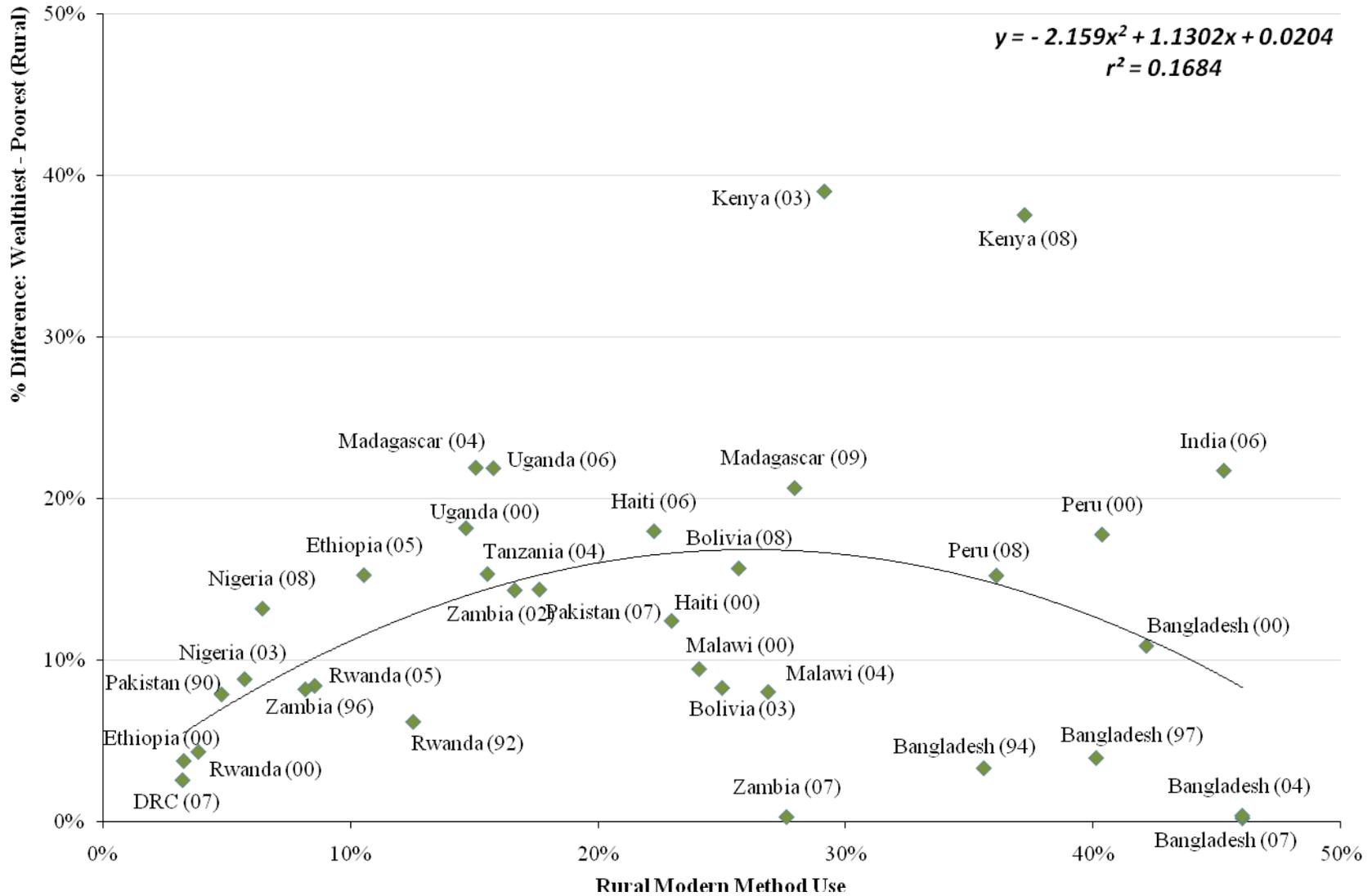


Figure 20. Prevalence Gap versus Modern Method Use across 16 Countries (rural wealth quintiles)



Is the Kuznets Curve Inevitable?

Do the findings imply that all countries must undergo a period of high inequality between wealth groups before they reach a threshold after which inequalities decrease? More precisely, does every country have to follow the Kuznets curve as total prevalence increases?

It has long been noted that behavior change does not spread evenly through society. Diffusion-of-innovation theory, first developed by rural sociologists and consolidated by Rogers (2003), posits that the first individuals to adopt an innovation (“innovators” and “early adopters” in Rogers’s terminology) tend to be younger, of higher social class, wealthier, and with higher formal education than those who adopt later. At the group level, cumulative adoption of innovation follows an S-shaped curve, with the curve accelerating after a “critical mass” has been reached.

Time-series data from the DHS offer some support for a diffusion theory explanation of the Kuznets curve. We begin with two surveys from Ethiopia. In 2000, modern method use in Ethiopia’s rural areas was 3 percent, and relative wealth made very little difference in contraceptive use among rural women. Five years later, rural modern method use had grown to 10 percent, and a wealth gradient was clearly observable. In contrast, urban areas showed wealth gradients in both surveys as modern method prevalence grew from 28 to 42 percent.

Figure 21. Ethiopia, 2000

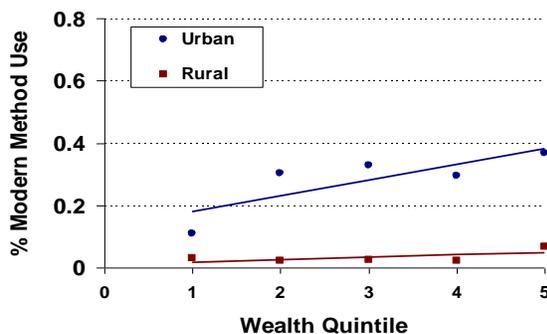
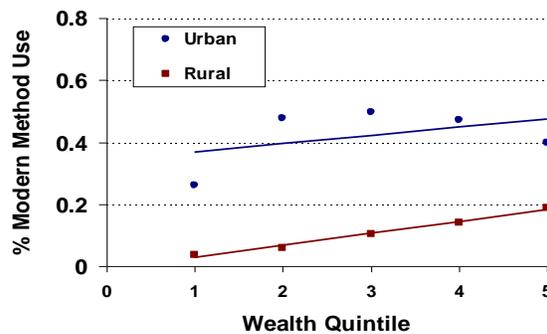


Figure 22. Ethiopia, 2005



Kenya shows a different pattern that also supports a diffusion theory explanation. Between 2003 and 2008, urban modern method prevalence increased from 40 to 47 percent due to rapid growth among the poorest quintiles. Rural modern method prevalence grew from 29 to 37 percent, but wealth differentials persisted.

Figure 23. Kenya, 2003

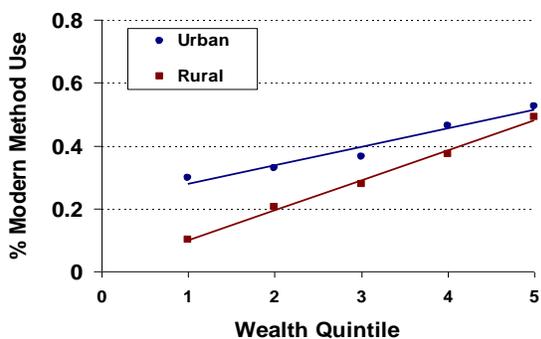
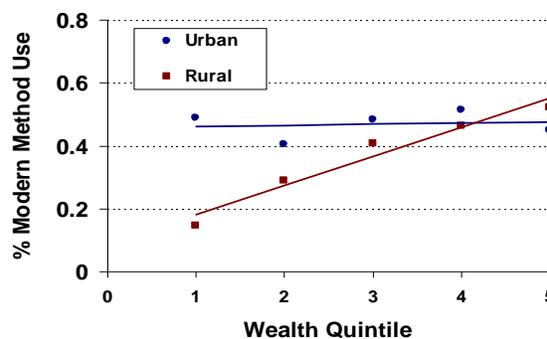


Figure 24. Kenya, 2008



Bangladesh shows waxing and waning wealth differentials in both urban and rural areas as contraceptive prevalence has steadily grown. In 1994, modern method use in urban areas showed a clear wealth gradient while contraceptive use in rural areas showed little variation across wealth quintiles. By 2000, contraceptive prevalence had grown among lower-wealth groups in urban areas and upper-wealth groups in rural areas. The most recent survey, conducted in 2007, found persistent differences between urban and rural areas but no wealth gradients within place of residence.

Figure 25. Bangladesh, 1994

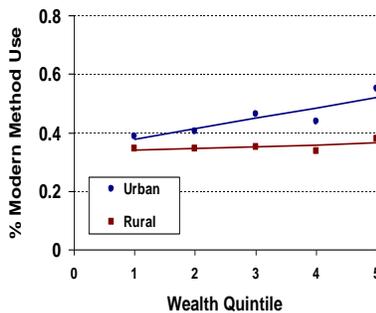


Figure 26. Bangladesh, 2000

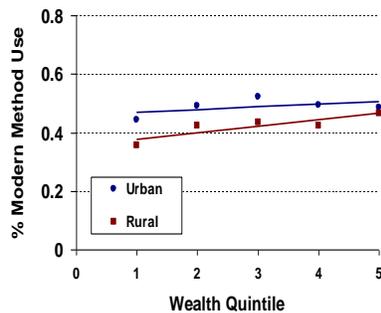
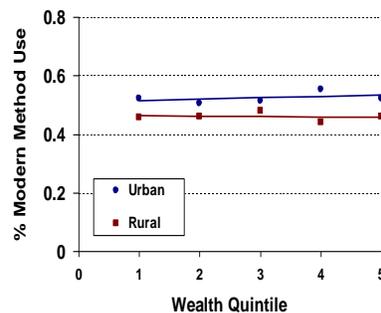


Figure 27. Bangladesh, 2007



These trends are not inevitable. Pakistan's two surveys almost 20 years apart (1990 and 2007) found that wealth differentials had only intensified. Peru evidenced little change between 2000 and 2008.

Figure 28. Pakistan, 1990

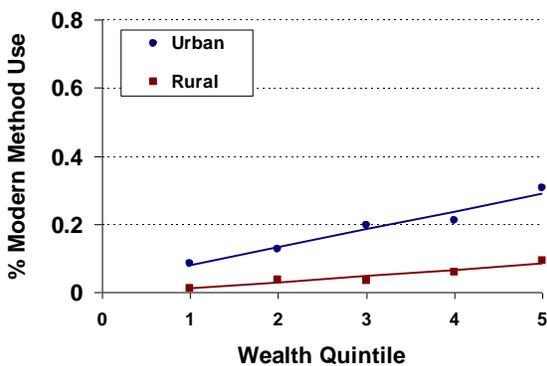


Figure 29. Pakistan, 2007

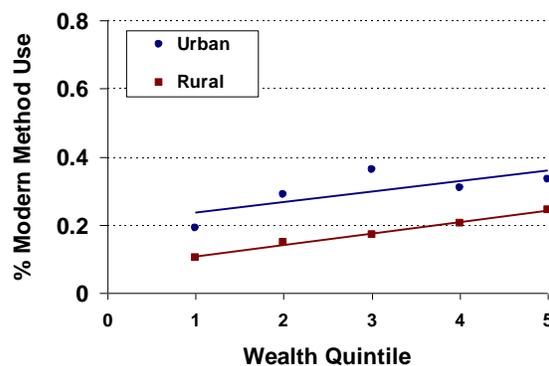


Figure 30. Peru, 2000

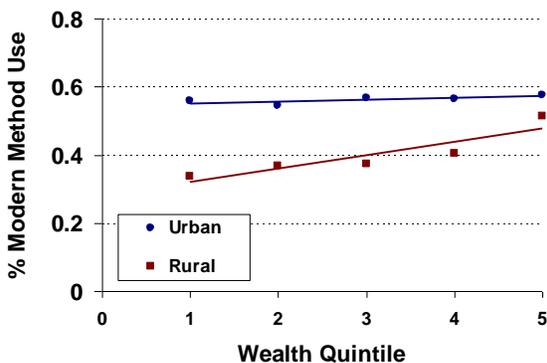
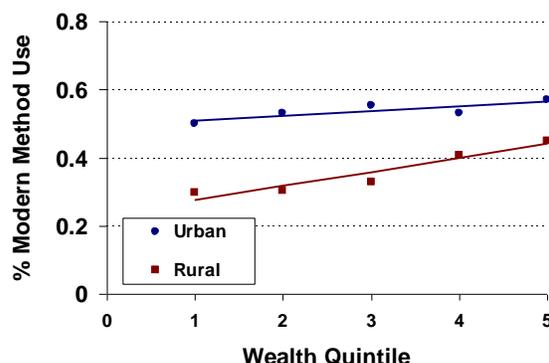


Figure 31. Peru, 2008



If wealth-related inequalities are inevitable at some point in a country's progression to better health outcomes and higher family planning use, is there a way to accelerate the process (through programmatic interventions, operational strategy, or other policy/legal mechanisms) to minimize such inequalities? While there are too few time-series data to permit firm conclusions about the shape and inevitability of the relationship between increasing contraceptive prevalence and changes in poverty-related inequalities in contraceptive use, another possibility is to see what conclusions might be drawn from examining the outliers above and below the cross-country Kuznets curve, especially in rural areas. For example, Bangladesh is consistently under the Kuznets curve (i.e., less inequality than the trend), while Kenya is the highest outlier above the curve (i.e., far greater inequality than the trend). Might family planning programs be partly responsible for the differences? Bangladesh arguably operates the most successful family planning program outside Taiwan, Korea, and China, whereas Kenya's apparent "stagnation" in contraceptive prevalence has been a matter of national and international concern.

Over the last few years, analysts have called attention to an apparent fertility "stall," especially in sub-Saharan Africa. Bongaarts (2008) cites a confluence of two factors, which either alone or together might be responsible for the stall:

First, according to conventional theory, socioeconomic development is a key driver of fertility decline.... During the 1990s much of the world experienced substantial economic growth, but GDP per capita in sub-Saharan Africa actually declined.... In addition, life expectancy declined in sub-Saharan Africa owing to a rapidly spreading AIDS epidemic, while the rest of the world enjoyed rapid improvements in longevity.... Poorly performing economies and rising mortality are plausible contributing factors to the stalling of fertility in many sub-Saharan countries. Second, the fertility stalls may be attributable in part to the lower priority assigned to family planning programs in recent years...

Proponents of "repositioning family planning" argue for the infusion of new funds into and a renewed urgency for national family planning programs. Pro-poor advocates argue that special attention and targeting are needed to address the needs of the poor and to reduce poverty-related inequalities in access to and use of contraception. Further evidence of the need for targeted pro-poor interventions comes from segmentation analysis of the current family planning market, as discussed below.

Sources for Family Planning/Reproductive Health Goods and Services

Public Sector Use

In countries where public funds for family planning are limited, there is concern that people who can afford to pay for FP methods should obtain goods and services from the private sector, thereby freeing up public resources to serve those who cannot afford to pay. When analyzing the public sector share, we hope to see a decreasing use of public sector FP/RH services with increasing wealth. Wealthier clientele can better afford to pay private sector prices, but poorer clients may need subsidized or free goods and services provided by the public sector. If the public and private sector markets are segmented by clients' ability to pay, public resources can be most effectively allocated to those who need them most.

Furthermore, satisfying the needs of the entire FP/RH market will require greater private sector participation.¹² Consequently, the private sector must play a critical role in closing healthcare delivery and service gaps and reducing health inequities.

¹² For additional references, see O'Hanlon, B, 2008; Sharma, S. and V. Dayaratna. 2005; and Karra, M., et al., 2010.

Use of Public Sources of Family Planning by Place of Residence and Relative Wealth

The cases of Bolivia and India demonstrate “desirable” trends in the use of public sources. In both countries, wealthier users of modern contraceptive methods are less likely than poorer users of modern methods to obtain their methods from public sources. It is also important to note that family planning users living in urban areas are less likely than users living in rural areas to use public sources, perhaps reflecting greater absolute purchasing power in urban areas and less access to private sources in rural areas.

Figure 32. Bolivia, 2008

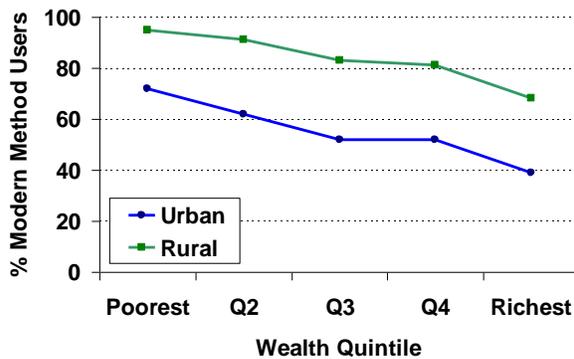


Figure 33. India, 2006

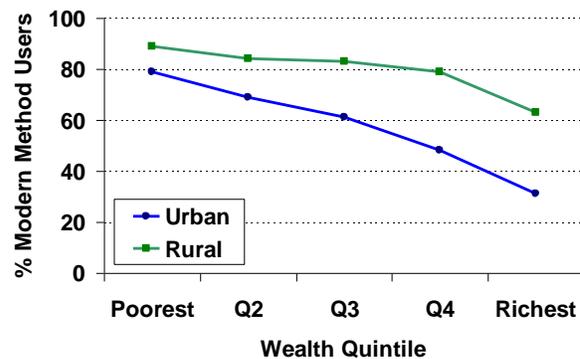
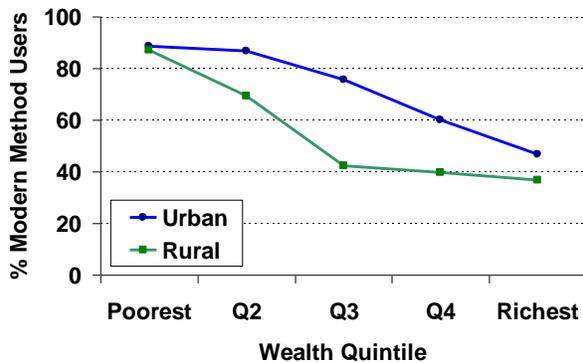


Figure 34. Madagascar, 2004



We also see the same favorable trend in Madagascar, albeit with a different urban-rural pattern. The vast majority of the poorest clients in Madagascar’s urban and rural households rely on a public sector outlet for FP/RH goods and services. At the same time, appreciable numbers of relatively wealthier women in Madagascar also use the public sector. Over a third of public sector clients in urban areas and over half of public sector clients in rural areas come from the highest two wealth quintiles. It should be noted, though, that these proportions are low relative to the number of women using modern contraceptives (quintiles 4 and 5 account for 50 percent of all urban users

versus 38 percent of urban public sector clients and 64 percent of all rural users versus 52 percent of rural public sector clients). Without additional information, it is not possible to infer if the relatively wealthy public sector clients are forcing public facilities to turn away poor women or if the unused capacity is sufficient to serve all women seeking public services.

Figure 35. Urban Sector Client Profile (Madagascar, 2004)

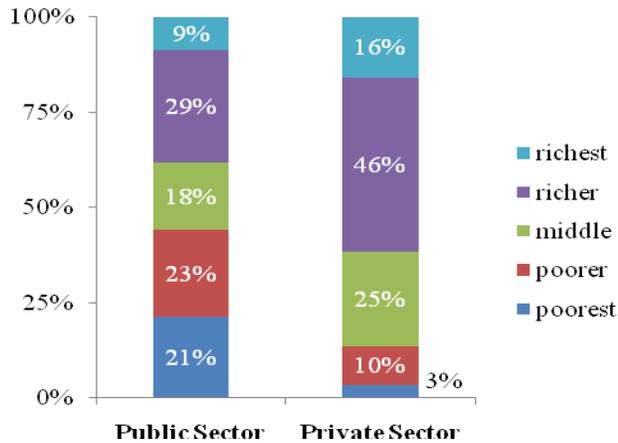
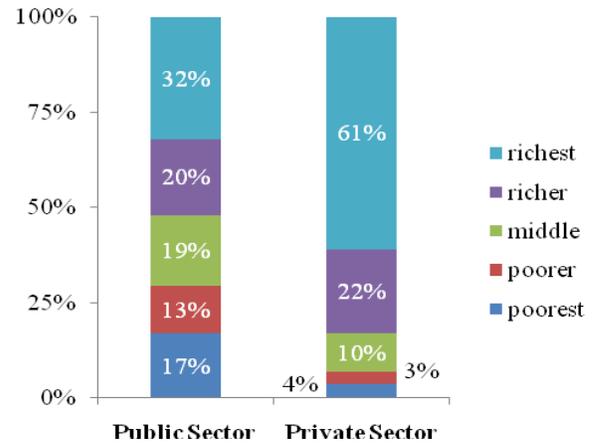


Figure 36. Rural Sector Client Profile (Madagascar, 2004)



PROGRAMMATIC CONSIDERATIONS

The analyses presented above amply demonstrate the importance of disaggregating relative wealth by place of residence, which may reveal patterns hidden in the national trends. In the last section, we discuss possible programmatic implications of the findings. We suggest some general rules of thumb for consideration in the design and assessment of program interventions. We also pose questions for further study.

- **Wealth and residence differentials are probably inevitable at some point of program evolution.** In no case did any country improve health outcomes at the same rate during the same period in both urban and rural areas and across all wealth groups.
- **Wealth differentials in the early stages of program scale-up may be a “good” sign.** Differentials might indicate that groups likely to be innovators or early adopters are engaging in desired behavior change or achieving desired health outcomes.
- **Persistent wealth and/or residential differentials, especially as more privileged groups achieve moderate to high levels of the desired behavior change or health outcomes, should be a matter of program concern.** If successive surveys continue to show wealth- or residence-related inequalities, then advocates, policymakers, and program planners should decide which population groups warrant special attention.
- **Policymakers and program planners may find it useful to establish a priori minimum thresholds below which a “general population” approach is preferable to targeting.** If, for example, no residence quintile, especially the wealthiest urban quintile, shows at least 20 percent modern method use, the national family planning program should promote small-family norms, stress the health benefits of birth spacing, and increase access to family planning to all segments of the population. By this criterion, DRC, which in 2007 had 18 percent modern method use in Urban Quintile 5, would be advised to adopt or continue a general population approach to family planning *even though urban prevalence showed a clear wealth gradient from the poorest to the wealthiest quintile.*
- **Compare the urban poorest and rural wealthiest populations.** If the poorest of the urban population (Urban Quintile 1) show a higher or better outcome than the wealthiest of the

rural population (Rural Quintile 5), geographic targeting to rural areas should be considered, whether or not pro-poor strategies are also under consideration. By this criterion, both Bangladesh and Peru would qualify for pro-rural targeting, along with Bolivia, DRC, Ethiopia, Madagascar, Tanzania, and Zambia, where modern method use among Urban Quintile 1 and Rural Quintile 5 were roughly the same. Improving access to services in rural areas might also help reduce migration into urban slums.

- **Compare family planning use with maternal health coverage.** Health system strengthening, a core principle of the Millennium Development Goals and of the new USG Global Health Initiative, stresses integration of compatible services. Completion of four or more antenatal visits during the last pregnancy is an especially appropriate indicator to compare with family planning because both have comparable physical infrastructure requirements. Findings that family planning lags behind antenatal care, such as in urban Nigeria and among the wealthier urban population of Ethiopia, may suggest the need to look for barriers to family planning among MCH service providers and/or opportunities to promote post-partum family planning. Conversely, the Bangladesh program, which has done so much to promote family planning, might want to consider integrating safe motherhood into its family planning program.
- **Additional information will be needed to design the targeting approach.** The *MEASURE Evaluation Guide for Considering Poverty-Related and Other Inequities in Health* includes a chapter on program design (Foreit, 2008, Chapter 3). Targeting to poverty groups, especially if they are not concentrated in discrete geographic areas such as urban slums, can be especially challenging.
- **Monitoring the uptake of pro-poor interventions by the poor requires different indicators than those used to assess poverty-related inequalities.** While the DHS measures of relative poverty are invaluable for problem identification, there is no fixed one-to-one correspondence between relative poverty (i.e., quintiles) and poverty level (i.e., below or above a national poverty line). Programs targeting by geography may decide to adopt the simple assumption that anyone using a facility located in a high-poverty area is poor and then disaggregate service statistics by location of service outlet. Another approach to program monitoring might be periodic assessment of individual clients' poverty status through client intercept surveys (Foreit, 2008, Chapter 4).
- **Donor phase-out and program sustainability.** Bangladesh has been repeatedly cited as perhaps *the* example of family planning program success. Although rural modern method prevalence is lower across all quintiles than urban prevalence, thereby suggesting a rural targeting strategy according to our rule of thumb, overall prevalence is high irrespective of place of residence or relative wealth. Robinson (2001) and others discuss Bangladesh's high level of donor and international support. Continuing heavy dependence on external funding sources raises critical questions as to whether Bangladesh can sustain its current level of service delivery and use when donor funding begins to wane. Additional studies should be conducted to address this issue.

CONCLUSIONS

While national surveys offer a wealth of information on health outcomes and their correlates, the above analyses amply demonstrate the importance of disaggregating relative wealth by place of residence and then looking for the possible disclosure of patterns hidden in national trends. As part of their strategic planning process, program planners are advised to go beyond national trends and disaggregate relative wealth from place of residence.

ANNEX I: STATA CODE FOR URBAN-RURAL WEALTH QUINTILES

Urban/Rural Quintile Generation – STATA Code

***Start with the Household Survey (Household Recode File).

***Create weights that are proportional and that consider de Jure household members only, dropping all household members that carry no weight.

```
gen weight=hv005*hv012
```

```
drop if weight==0
```

***Create NATIONAL weighted wealth quintiles, using household members' weighted wealth scores.

```
xtile wealth=hv271 [fweight=weight], nq(5)
```

***Create URBAN weighted wealth quintiles, using household members' weighted wealth scores.

```
xtile wealth_urb=hv271 [fweight=weight] if hv025==1, nq(5)
```

***Create RURAL weighted wealth quintiles, using household members' weighted wealth scores.

```
xtile wealth_rur=hv271 [fweight=weight] if hv025==2, nq(5)
```

***Format the Household Recode file so that the wealth quintiles assigned can be merged with other recode files (Individual Recode, Male Recode, etc.).

```
keep hv001 hv002 weight wealth wealth_urb wealth_rur
```

```
rename hv001 v001
```

```
rename hv002 v002
```

```
sort v001 v002
```

***NOTE: Since, we plan to merge our wealth scores into our Individual (Women's) Recode file, we rename our household case identification variables, hv001 and hv002, to match the case identification variables in the Women's Recode file (which are v001 and v002). This way, each woman receives the wealth score and quintile index value that her household received. For other recode files, these two variables need to be renamed accordingly.

***Save this file as a new STATA *.dta file, and COPY the file directory address. This directory address will be needed for merging the assigned wealth quintile scores into other recode files.

*****CLOSE THE HOUSEHOLD RECODE FILE AND OPEN THE INDIVIDUAL RECODE FILE.**

Urban/Rural Quintile Generation – STATA Code cont'd

***Using the cutoffs from the Household Recode quintile variables, we shall merge the Household Recode file variables with the Individual Recode file.

```
sort v001 v002
```

```
joinby v001 v002 using "PASTE FILE DIRECTORY ADDRESS FOR HOUSEHOLD RECODE HERE – KEEP THIS DIRECTORY ADDRESS WITHIN QUOTATION MARKS"
```

***WE RECOMMEND THAT THIS MERGED INDIVIDUAL RECODE FILE BE SAVED AS A NEW STATA FILE.

***We now have a merged Women's Recode file containing national, urban, and rural quintile breakdowns. We can begin to examine survey cross-tabulations (using the svyset and svytab commands in STATA).

***WEIGHTING FOR SURVEY-CROSS TABULATIONS

***We need to create survey weights that are proportional.

```
sum v005
```

```
gen zweight=v005/1000000
```

***set survey weights as the zweight variable.

```
svyset [pweight=zweight]
```

***We can now run survey cross-tabulations using the svytab command. NOTE: For frequency tabulations, we need to use the standard sample weight, v005 as the frequency weight.

ANNEX 2: SPSS CODE FOR URBAN-RURAL WEALTH QUINTILES

Urban/Rural Quintile Generation – SPSS Code

***Start with the Household Survey (Household Recode File).

***Create weights that are proportional and that consider de Jure household members only, dropping all household members that carry no weight.

```
COMPUTE weight = hv005 * hv012 .  
EXECUTE .  
SELECT IF (weight~=0).
```

***Create NATIONAL weighted wealth quintiles, using household members' weighted wealth scores.

rank variables= hv271 /ntiles(5) into wealth.

***Create URBAN weighted wealth quintiles, using household members' weighted wealth scores.

```
COMPUTE urb_filt=(hv025=1).  
FILTER BY urb_filt.  
EXECUTE.  
rank variables= hv271 /ntiles(5) into urwealth.  
FILTER OFF.  
EXECUTE.
```

***Create RURAL weighted wealth quintiles, using household members' weighted wealth scores.

```
COMPUTE rur_filt=(hv025=2).  
FILTER BY rur_filt.  
EXECUTE.  
rank variables= hv271 /ntiles(5) into ruwealth.  
FILTER OFF.  
EXECUTE.
```

***Format the Household Recode file so that the wealth quintiles assigned can be merged with other recode files (Individual Recode, Male Recode, etc.).

```
RENAME VARIABLE hv001=v001.  
RENAME VARIABLE hv002=v002.  
sort cases v001 v002.
```

***NOTE: Since, we plan to merge our wealth scores into our Individual (Women's) Recode file, we rename our household case identification variables, hv001 and hv002, to match the case identification variables in the Women's Recode file (which are v001 and v002). This way, each woman receives the wealth score and quintile index value that her household received. For other recode files, these two variables need to be renamed accordingly.

***Save this file as a new SPSS *.SAV file, and COPY the file directory address. This directory address will be needed for merging the assigned wealth quintile scores into other recode files.

```
SAVE OUTFILE='NAME OF NEW FILE.SAV'  
/KEEP = hv001 hv002 wealth urwealth ruwealth.  
EXECUTE.
```

Urban/Rural Quintile Generation – SPSS Code, continued

*****CLOSE THE HOUSEHOLD RECODE FILE AND OPEN THE INDIVIDUAL RECODE FILE.**

***Using the cutoffs from the Household Recode quintile variables, we shall merge the Household Recode file variables with the Individual Recode file.

sort cases v001 v002.

MATCH FILES /FILE=*

/TABLE='PASTE IN THE NAME OF NEW FILE.SAV, KEEPING THE FILE ADDRESS WITHIN THE SINGLE QUOTATION MARKS'

/BY v001 v002.

EXECUTE.

***WE RECOMMEND THAT THIS MERGED INDIVIDUAL RECODE FILE BE SAVED AS A NEW SPSS FILE.

***We now have a merged Women's Recode file containing national, urban, and rural quintile breakdowns. We can begin to examine survey cross-tabulations in SPSS.

*****WEIGHTING FOR SURVEY-CROSS TABULATIONS**

***We need to create survey weights that are proportional and drop all unweighted cases.

SELECT IF (v005~=0).

compute zweight=v005/1000000.

***Apply the survey weights.

weight zweight.

REFERENCES

- Berelson, B. 1969. "Beyond Family Planning." *Science* 163: 533–543.
- Bongaarts, J. 2008. *Fertility Transitions in Developing Countries: Progress or Stagnation?* Population Council, Poverty, Gender, and Youth Working Paper No. 7, available at <http://www.popcouncil.org/pdfs/wp/pgy/007.pdf>.
- Filmer, D. and L.H. Pritchett. 2001. "Estimating Wealth Effects without Expenditure Data—or Tears: An Application to Educational Enrolments in States of India." *Demography* 38(5): 115–132.
- Foreit, K. 2008. *Addressing Poverty: A Guide for Considering Poverty-Related and Other Inequities in Health*. Washington, DC: MEASURE Evaluation, USAID.
- Foreit, K.G.F. 2002. "Broadening Commercial Sector Participation in Reproductive Health: A Role of the Public Sector Prices on Markets for Oral Contraceptives." *Technical Paper Series* No. 3. Commercial Market Strategies.
- Gordon, D. 2005. *Indicators of Poverty and Hunger*. Expert Group Meeting on Youth Development Indicators. New York: United Nations.
- Greene, M.E. and T. Merrick. 2005. *Poverty Reduction: Does Reproductive Health Matter?* Washington, DC: World Bank.
- Karra, M., S. Sharma, and M. Vargas. 2010. *Fostering Public-Private Partnerships to Reduce Health Inequities in Peru*. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1.
- Kuznets, S. 1955. "Economic Growth and Income Inequality." *The American Economic Review* 45(1): 1–28.
- O'Hanlon, B. 2008. *Report of the Regional Workshop on Building Public-Private Linkages to Advance Priority Health Services in Africa*. Bethesda, MD: Private Sector Partnerships-One project, Abt Associates Inc.
- Ravallion, M. 2008. "Poverty Lines." *The New Palgrave Dictionary of Economics*, 2nd Edition. London: Palgrave Macmillan.
- Ravallion, M., S. Chen, and P. Sangraula. 2009. "Dollar a Day Revisited." *World Bank Economic Review* 23(2): 163–184.
- Robinson, W. 2001. "Common Beginnings but Different Outcomes: The Family Planning Programmes of Pakistan and Bangladesh." In *Fertility Transition in South Asia*, edited by J. Phillips and Z. Sathar. Oxford, UK: Oxford University Press.
- Rogers, E. 2003. *Diffusion of Innovations*. New York: Free Press.
- Rutstein, S.O. 2008. "The DHS Wealth Index: Approaches for Urban and Rural Areas." *DHS Working Papers* No. 60. Calverton, MD: Macro International, MEASURE DHS, USAID.

Sharma, S., and V. Dayaratna. 2005. "Creating Conditions for Greater Private Sector Participation in Achieving Contraceptive Security." *Health Policy* 71: 347–357.

Sine, J. 2003. "Targeting: A Key Element of National Contraceptive Security Planning." *Policy Issues in Planning and Finance*, No. 3. Washington, DC: POLICY Project, Futures Group.

United States Agency for International Development. 2007. "Issue Briefs: Latin American and Caribbean Health Programs Affect Economic Growth. Promoting Virtuous Cycles and Preventing Vicious Cycles."

Whitehead, M. 1990. "The Concepts and Principles of Equity and Health." World Health Organization/Regional Office for Europe.

World Bank. 2003. *World Development Report 2004: Making Services Work for Poor People*. Washington, DC: Oxford University Press.

Health Policy Initiative, Task Order I
Futures Group
One Thomas Circle, NW, Suite 200
Washington, DC 20005 USA
Tel: (202) 775-9680
Fax: (202) 775-9694
Email: policyinfo@futuresgroup.com
<http://ghiqc.usaid.gov>
<http://www.healthpolicyinitiative.com>