

Title

Low Contraceptive Use among the Poor in Africa: An Equity Issue
(extended abstract for IUSSP – DRAFT)

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Abstract

This study analyzes Demographic and Health Surveys data collected at 2 points of time for 13 sub-Saharan countries. Through an equity lens, we examine changes in contraceptive use among women of reproductive age. The study finds that wealthier women are more likely to meet their contraceptive needs (limit or space children) than their less wealthy counterparts. However, the findings also suggest that in most countries family planning programs have started to satisfy women's need for contraceptive services among the poorer strata of society, thus, reducing the wealth-related inequity between the poorer and wealthier segments of society. The likelihood of concordance between actual method use and reported fertility intentions at both time points is greater than 75% in only 7 of the 13 countries. While the gap in met contraceptive need is being narrowed, women's overall expressed need for contraception in this region remains low, regardless of their wealth status.

Introduction

Health disparities between the rich and poor remain one of health community's most intractable challenges (Chan, 2008). While global health has improved dramatically over the last 4 decades, poor countries remain less healthy than rich countries, and in all countries the health status of the poor compares unfavorably with their better-off counterparts. Women living in Africa have a 1 in 26 chance of dying from maternal-related causes while women living in Europe the odds are 1 in 9,400 (PRB, 2008). While health gaps within wealthy nations do not rival those found between poor and rich countries, they can be quite dramatic, as discussed by Marmot, who noted that men living in the poorer neighborhoods of Glasgow could be expected to live just about as long as the average life of an Indian man, 54 years of age, while his affluent neighbor could be expected to live to 82 (Marmot, 2007). Parallel disparities are found between fertility and contraceptive use rates in poor versus wealthy countries.

In perhaps one of history's most dramatic developments, the total fertility rate of the world has dropped from 5 children per women in the early 1950s to 2.6 today (UNPP, 2007). Much of this decline was caused by the increase in family planning and modern contraceptive use (Bongaarts 1997), which has been especially dramatic in the developing world. In 1960, around 9 percent of married women living in the developing world practiced some form of family planning (PRB, 2006). Today, 62 percent of married women in the world use contraception, but in the less developed countries, only 43 percent of women use modern methods of contraception (PRB, 2008). This later figure drops to 35 percent among the poorest quintile and rises to 52 percent among the wealthiest quintile of the population (PRB 2008). The gap in contraceptive use between the poor and the non-poor has persisted even while the general socio-economic status has improved globally and family services have expanded (Gakidou and Vayena, 2007).

These stubborn health and fertility disparities have received much attention with clarion calls to implement programs to close these gaps. In examining the different mortality and morbidity rates among socio-economic classes, the gap is couched as an inequity. The poor do not have the same access to life-saving and health-maintaining interventions as the rest of society. The gap in health services is an inequity because the poor want to live the same healthy lives as the more fortunate segments of society. How to alleviate the fertility-contraceptive gap is much more nuanced.

An inequity exists when persons are being unfairly deprived of something that prevents them from acquiring an unwanted and undesirable condition. Nothing is more undesirable than death. In the case of fertility, of course, you have something, children, which are very much desired sometimes, undesired at other times, and often considered ambivalently. If the poor's higher fertility truly reflects their desire for more children, the poor-wealthy gap is not an inequity, and therefore, carries no moral implications.

It is important to view the differences in fertility and contraceptive use through an equity lens to determine if the poor are being deprived of something they want, family planning services, to avoid something they do not want, pregnancy. Elsewhere, we have documented that the poor-wealthy fertility gap is often an inequity and that policy and programs need to address this gap with pro-poor programs (Gillespie, 2006). Clearly, the programmatic implications of addressing higher fertility among the poorer segments of society are profoundly different, if their higher level of fertility is desired or undesired. If women want to practice family planning but are not doing so, it is likely that increasing access to family planning services will quickly increase contraceptive use. For women with low rates of contraceptive use and a high desire for large families, the programmatic response will be much more complex and, in the short run, most likely have limited impact.

To determine if differences in family planning use is an inequity, both women's wealth status and their need for family planning must be considered. Non-contracepting women, who want to become pregnant, have no need for family planning. Their non-use is not an equity issue. Contrastingly, non-contracepting women, who want to delay or have no more children, have an unmet need for family planning, which becomes an equity issue if wealthier women have lower unmet need for family planning. Stated differently, the more a population's need for family planning is met, the less likely an inequity exists.

Study objectives

In this study we (1) examine trends in met contraceptive need for limiting and spacing childbearing, (2) determine if differences in met need represent a wealth-related inequity, and (3) explore the association between the contraceptive method used and whether it is used for spacing or limiting childbearing, thereby assess whether or not women are using appropriate contraceptive methods given their fertility intentions.

Data and Methods

This analysis uses Demographic and Health Survey (DHS) data from 13 sub-Saharan African countries selected based on the following criteria: (1) countries with at least 2 DHSs, one of which is conducted after year 2000, and (2) each country's contraceptive prevalence rate for modern methods as ascertained by the latest DHS is at least 10%. For countries with more than 2 surveys, we use data from the latest 2 surveys. All surveys included in this analysis were conducted between 1997 and 2006.

DHSs are nationally representative surveys that use standardized questionnaires to collect extensive data from women of reproductive age (15 to 49 years). The DHS obtains information on women's socio-demographic characteristics, their reproductive behaviors, birth history, and maternal health service utilization. Both the met and the unmet need for contraception are estimated in each survey. Met need for spacing includes women who are using some method of family planning and indicate they want a child sometime in the future, but not within the next two years, or they are ambivalent. Met need for limiting includes women who are using family planning and want no more children. We grouped contraceptive methods into two categories: limiting methods (IUDs, implants, and sterilization) and spacing methods (pills, condoms, spermicides, injectables, other modern methods, and traditional methods such as rhythm and withdrawal). We use data from all women of reproductive age, married and unmarried, and include traditional methods of contraception as spacing methods given the high levels of reliance on such methods in Africa.

DHSs do not collect data on household income or consumption expenditures, but survey sponsors constructed an asset or wealth index using the various variables for ownership of assets

and housing characteristics. Assets and amenities in the index include possession of items such as bicycles, cars, radios, sofas, and televisions; dwelling characteristics include type of flooring material or the existence of overcrowding; and household facilities include source of drinking water, type of toilet facility, and type of cooking fuel. The asset index uses principal-components analysis to divide the population into quintiles, from the poorest 20% to the richest 20%, on the basis of wealth. Each household asset is assigned a weight or factor score, and the resulting asset scores are standardized in relation to a standard normal distribution with a mean of zero and a standard deviation of one. Wealth quintiles are expressed in terms of quintiles of all individuals in the population, and, in our case, produces information directly relevant to met contraceptive need for the poor or the rich in the population as a whole. The approach also facilitates making comparisons across indicators for the same quintiles, since the quintile denominators remain unchanged across indicators.

Additionally, we use the concentration index (CI), a measure similar to the Gini coefficient that varies between -1 and +1, and measures the wealth-related inequity in contraceptive use. A CI of 0 means there is no inequality, while the further the CI value is from zero, the stronger the wealth-related inequality in contraceptive use. A negative CI means that an unfavorable condition or practice is disproportionately found among the poor, while a positive CI is associated with a favorable condition or practice found less in the poorer strata of society and more in the wealthier strata.

We conduct univariate and bivariate analyses to examine the associations of interest and trends in met contraceptive need and related wealth inequalities over time. Logistic regression models are fitted for the type of contraceptive method use (limiting or spacing method, the later used as a reference) controlling for whether contraception is used for spacing or limiting childbearing as a key covariate of interest, as well as for women's residence (urban/rural), number of years of education, number of living children, marital status (married or in union, single, divorced, widowed, and household wealth (quintiles). All analyses are adjusted for complex survey design using the Taylor's linearization method and conducted using Stata version 9.1.

Results

Table 1 presents an overview of contraceptive use at 2 points in time for the 13 countries in this analysis. Overall, the level of contraceptive use remains low. The contraceptive prevalence rate (CPR) has either decreased or did not change between the last 2 DHSs in 5 of the 13 countries analyzed, has increased between 2.1% and 5.6% in another 5 countries, and increased between 1.5 and 4 times in 3 countries. In all countries, except Mozambique, the reliance on traditional family planning has decreased between the last 2 surveys, considerably so (more than 15%) in Cameroon, Ghana, Madagascar, Rwanda, and especially, in Senegal. The increase in traditional methods practiced as percentage of all methods used in Mozambique is perplexing, increasing from 7% in 1997 to over 34% in 2003. The use of injectables has increased in all countries, again, except for Mozambique; the increase ranges between 1.2% of all contraceptive methods used in Cameroon and 17.7% in Senegal. It appears that limiting methods have partly replaced spacing methods in Ghana, Malawi, and Tanzania.

It is well established that poorer women use family planning much less than wealthier women. Here, we explore if this difference is associated with poorer women's desire to have more children than their counterparts or with their lower wealth status. We examine the influence of wealth status by analyzing women's ability to meet their family planning needs. Stated differently are wealthier women who want to delay (space) or stop (limit) having children more likely to be using contraceptives than poorer women who want to delay or stop having children.

Figures 1A and 1B plot the CIs of met contraceptive need for spacing and limiting, respectively. At the time of the first survey we analyzed, the wealth-related inequality in reported met need for spacing is highest in Ethiopia (CI=0.5), lowest in Zambia (CI=0.071), and similarly low in Malawi (CI=0.073), while that for limiting is highest in Namibia, followed by Mozambique and Ethiopia (CIs>0.4), and lowest in Malawi (CI=0.08). At the time of the last survey in these 13 countries, the inequality in met need for spacing is still highest in Ethiopia (CI=0.4), and lowest in Malawi, Namibia and Zambia (CIs<0.1); somewhat similarly, the wealth-related inequality of met need for limiting is highest for Ethiopia (CI=0.3) and lowest for Ghana and Malawi (CIs<0.1).

Figures 2A and 2B shows the changes in CIs of met contraceptive need for spacing and limiting between the time of the first and second (last) surveys analyzed. We find that the income-related inequality of met contraceptive need has decreased in the majority of countries, but has increased in Kenya, Uganda, and Zambia with regard to spacing, and in Malawi, Senegal, Tanzania, Uganda, and Zambia with regard to limiting. The gap in contraceptive use for spacing between the poorest and richest strata of society seems to have reduced considerably in Mozambique (CI change>0.2), while the gap in use for limiting has most reduced in Namibia (CI change>0.3) and Mozambique (CI change>0.2).

Family planning programs have many components that impact on the quality of services offered. We were interested to see if the women in our study were using the most appropriate type of method for their contraceptive needs. First, we examined if women who wanted to stop having children (limiting childbearing) were using the best method for avoiding all future. Next, we explore if wealthier women are more likely to use methods that match their needs than their poor counterparts.

The first column in Table 2 shows results from logistic regression models -- the odds of women using a limiting contraceptive when they report wanting to space their next pregnancy instead of limiting childbearing. Having an odds ratio (OR) of 0.00 would mean that no woman was likely to use a limiting contraceptive method for spacing future pregnancies, thus all were likely to use a limiting method to limit their family size, a hypothetical “perfect” method-need match. Thus, the higher the OR is in the first column, the more likely women are to use a limiting method for spacing rather than for limiting pregnancies. Perhaps the most striking finding is that the likelihood of concordance between actual method use and reported fertility intentions at both time points is greater than 75% in only 7 of the 13 countries: Cameroon, Malawi, Mozambique, Namibia, Tanzania, Uganda, and Zambia. This high concordance may be a function of low availability of limiting methods, which require more trained staff and are usually clinic based.

We next explore the differences in method-need concordance between the wealthiest and poorest quintile. Results in the second column in Table 2 show that women in the wealthiest quintile are more likely to use a limiting contraceptive method for spacing than for limiting as compared to

women in the poorest wealth quintile of the population. While not all results reached the significance level due to low number of observations in each wealth quintile, results for Cameroon, Kenya and Zambia were statistically significant in both survey years, and it appears that there is no instance where women in the poorest quintile as compared to their wealthy counterparts are more likely to use a limiting method to space rather than to limit childbearing.

Discussion -- to be added

References

1. Bongaarts, J. Trends in unwanted childbearing in the developing world. *Studies in Family Planning*. 1997; 28 (3): 267-27.
2. Gakidou E, Vayena E. Use of modern contraception by the poor is falling behind. *PLoS Med*. 2007; 4(2):e31.
3. Gillespie D, Ahmed S, Tsui A, Radloff S. Unwanted fertility among the poor: an inequity? *Bull World Health Organ*. 2007; 85(2):100-7.
4. Marmot M; Commission on Social Determinants of Health. Achieving health equity: from root causes to fair outcomes. *Lancet*. 2007; 370(9593):1153-63.
5. Population Reference Bureau. 2008 World Population Data Sheet available at: <http://www.prb.org/Publications/Datasheets/2008/2008wpds.aspx>.
6. Population Reference Bureau. 2006 World Population Data Sheet available at: <http://www.prb.org/Publications/Datasheets/2006/2006wpds.aspx>.
7. UNFPA. 2007. State of the World Population available at: <http://www.unfpa.org/swp/>

Table 1. Percent distribution of contraceptive method use by country

Country/Year	N	CPR for all methods	Spacing methods			Limiting methods	
			% women using pills, condoms or spermicides*	% women using injectables	% women practicing traditional methods	% women using IUDs or implants	% couples sterilized
Cameroon 1998	5807	24.00	26.53	3.23	63.7	2.02	4.51
Cameroon 2004	2862	26.10	41.40	4.39	48.49	2.05	3.67
Ethiopia 2000	15367	5.90	40.87	33.13	18.03	4.33	3.64
Ethiopia 2005	14070	10.30	23.35	61.47	10.11	3.55	1.54
Ghana 1998	4843	17.89	34.07	14.62	41.91	4.05	5.35
Ghana 2003	5691	20.14	40.69	20.43	25.95	6.96	5.97
Kenya 1998	7881	29.90	27.06	31.68	18.45	8.06	14.74
Kenya 2003	8195	28.40	24.39	37.13	16.91	10.36	11.21
Madagascar 1997	7060	16.00	15.93	20.89	53.9	4.55	4.72
Madagascar 2003/04	7949	21.60	24.67	29.89	38.85	2.89	3.70
Malawi 2000	13220	25.00	19.23	52.36	10.56	0.85	16.99
Malawi 2004	11698	25.70	13.70	56.91	8.39	1.84	19.16
Mozambique 1997	8779	6.00	39.16	35.19	6.86	9.06	10.74
Mozambique 2003	12418	25.60	43.08	18.71	34.19	0.71	3.32
Namibia 1992	5421	23.30	33.67	36.27	9.24	5.21	15.62
Namibia 2000	6755	37.80	37.39	45.83	0.54	1.70	14.54
Rwanda 2000	10421	7.40	15.51	14.22	61.69	2.23	6.35
Rwanda 2005	11321	9.60	22.73	26.16	44.81	2.88	3.43
Senegal 1997	8593	10.80	36.23	15.14	33.75	11.79	3.10
Senegal 2005	14602	8.70	45.90	32.82	8.21	8.66	4.42
Tanzania 1999	4029	22.30	39.32	25.52	24.54	3.66	6.96
Tanzania 2004	10329	22.50	36.59	32.58	19.47	2.20	9.16
Uganda 2000/01	7246	20.10	35.95	27.78	25.39	2.64	8.23
Uganda 2006	8531	19.60	29.41	40.66	18.16	2.07	9.70
Zambia 1996	8021	19.20	55.00	3.73	30.79	1.67	8.81
Zambia 2001/02	7658	24.60	51.78	13.34	27.52	1.09	6.28

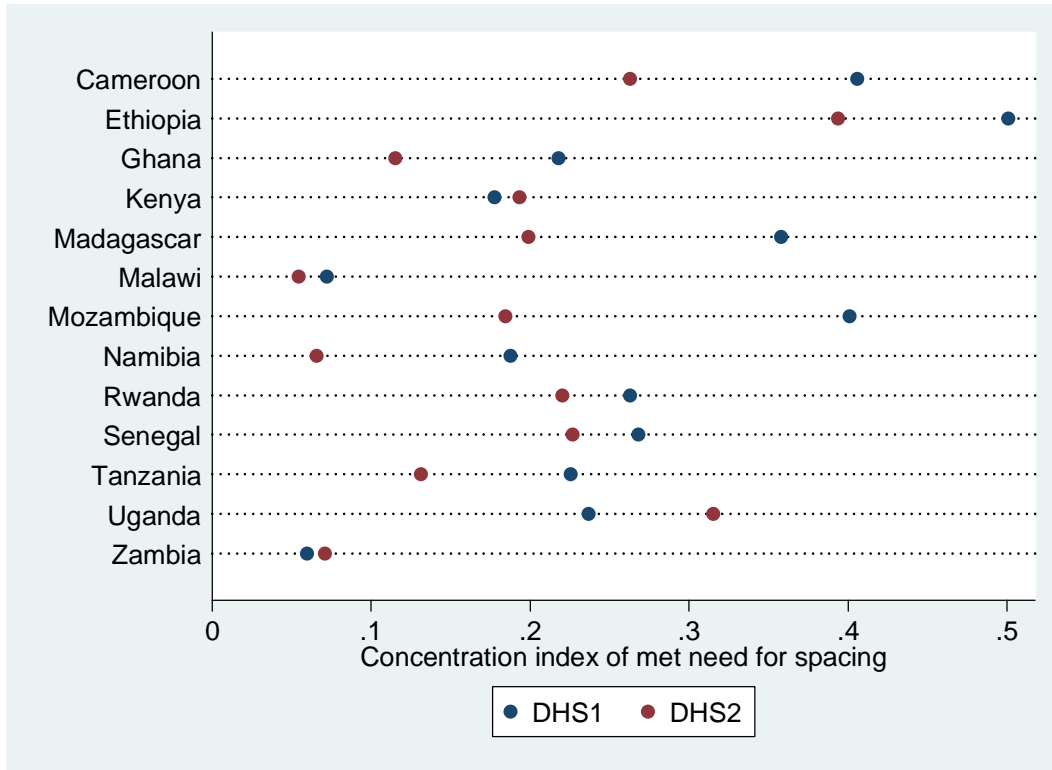
Note: CPR= contraceptive prevalence rate. * other modern methods used included in this category.

Table 2. Results from logistic regression models of using a limiting contraceptive method*

Country/Year	Reported use to space (reported use to limit=ref)	Richest wealth quintile (poorest wealth quintile=ref)
	OR (95% CI)	OR (95% CI)
Cameroon 1998	0.11 (0.04, 0.31)	4.12 (1.04, 16.30)
Cameroon 2004	0.24 (0.13, 0.41)	1.20 (0.41, 3.53)
Ethiopia 2000	0.23 (0.09, 0.62)	2.59 (0.39, 17.35)
Ethiopia 2005	0.66 (0.36, 1.23)	1.53 (0.17, 13.69)
Ghana 1998	0.38 (0.18, 0.82)	0.53 (0.18, 1.53)
Ghana 2003	0.34(0.16, 0.73)	2.62 (0.80, 8.58)
Kenya 1998	0.48 (0.32, 0.72)	2.74 (1.52, 4.94)
Kenya 2003	0.57 (0.39, 0.83)	3.52 (1.67, 7.39)
Madagascar 1997	0.38 (0.19, 0.77)	0.83 (0.27, 2.62)
Madagascar 2003/04	0.39 (0.13, 1.15)	2.18 (0.50, 9.56)
Malawi 2000	0.03 (0.01, 0.07)	1.54 (0.90, 2.65)
Malawi 2004	0.09 (0.05, 0.15)	2.05 (1.11, 3.80)
Mozambique 1997	0.16 (0.06, 0.41)	1.24 (0.35, 4.39)
Mozambique 2003	0.09 (0.03, 0.22)	3.03 (0.82, 11.22)
Namibia 1992	0.16 (0.09, 0.29)	2.19 (0.61, 7.80)
Namibia 2000	0.06 (0.03, 0.14)	3.30 (1.44, 7.58)
Rwanda 2000	0.18 (0.07, 0.44)	4.39 (0.79, 24.26)
Rwanda 2005	0.34 (0.16, 0.70)	1.34 (0.49, 3.65)
Senegal 1997	0.29 (0.14, 0.61)	2.86 (0.44, 18.77)
Senegal 2005	0.49 (0.24, 0.99)	1.94 (0.69, 5.43)
Tanzania 1999	0.14 (0.05, 0.46)	1.07 (0.24, 4.77)
Tanzania 2004	0.24 (0.14, 0.39)	2.14 (1.03, 4.44)
Uganda 2000/01	0.13 (0.06, 0.29)	1.43 (0.59, 3.47)
Uganda 2006	0.13 (0.06, 0.28)	0.78 (0.38, 1.61)
Zambia 1996	0.09 (0.03, 0.23)	6.37 (2.10, 19.37)
Zambia 2001/02	0.14 (0.05, 0.40)	6.35 (1.93, 20.95)

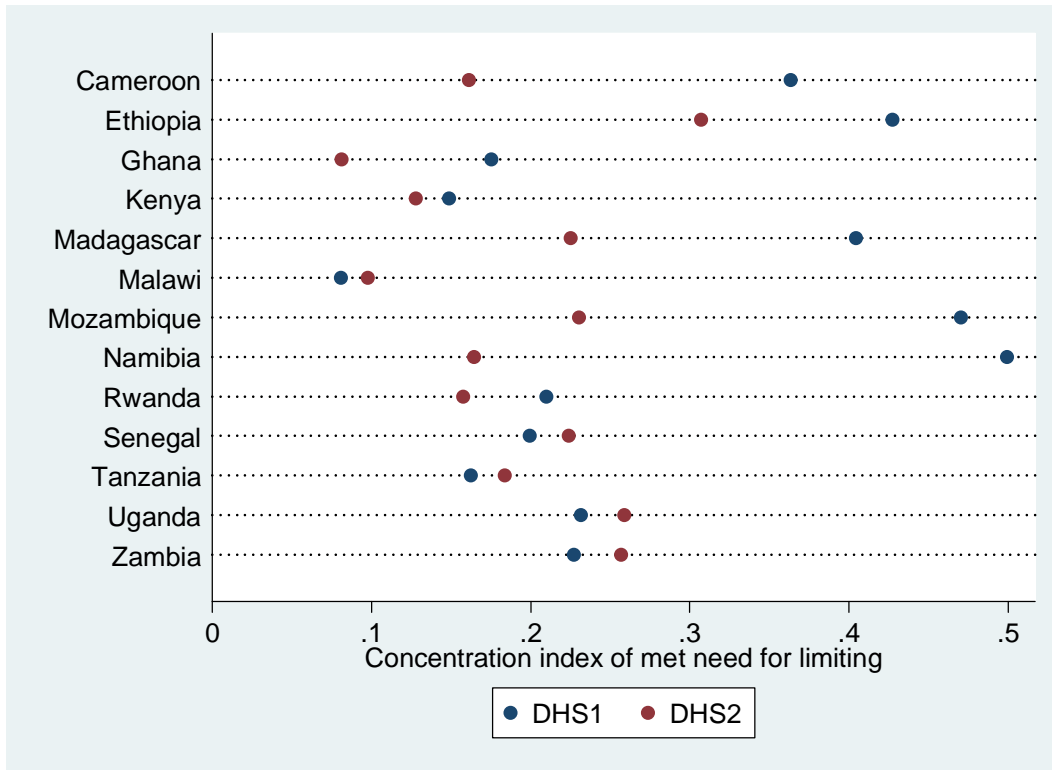
Note: * Refers to IUDs, implants and sterilization; using a spacing method=reference. Bold-faced figures are statistically significant at a level $p < 0.05$ or better. Model adjusted for women's residence, education, age, parity, marital status and for complex study design.

Figure 1A. Concentration index of met need for spacing in the last two DHSs



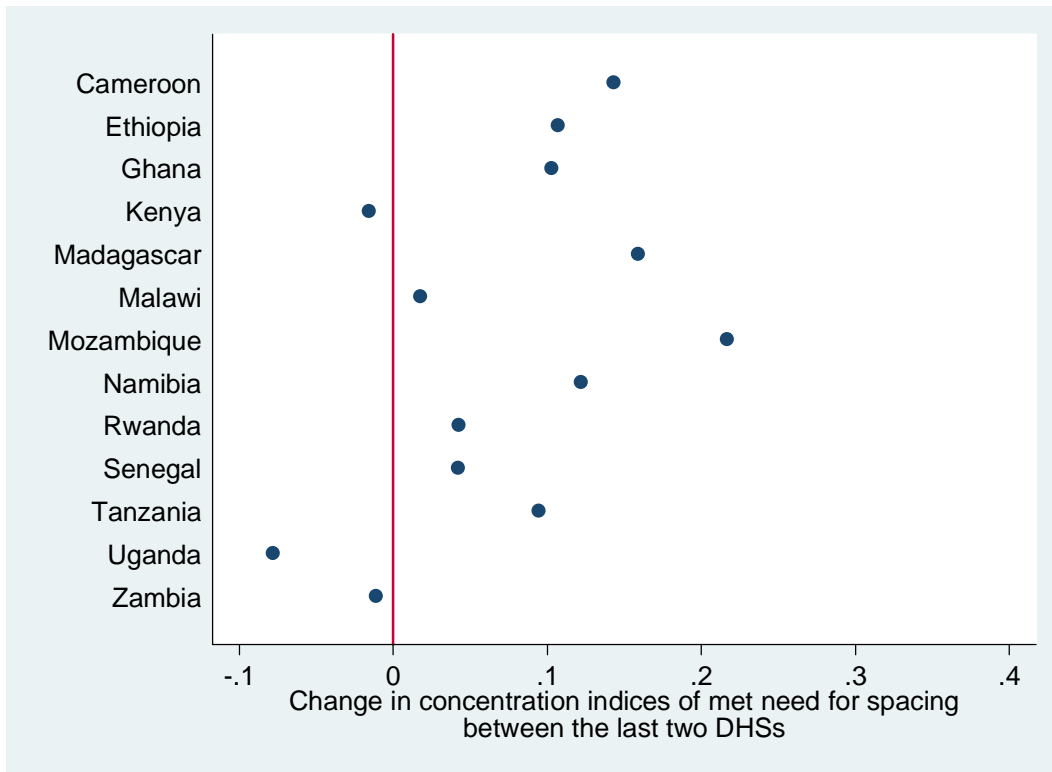
Note: A concentration index (CI) of 0 means no wealth-related inequality in met need for spacing. The further the CI is from 0, the more wealth-related inequality exists in met need for spacing. *DHS1* refers to the second to last DHS, *DHS2* refers to the latest DHS conducted in each country.

Figure 1B. Concentration index of met need for limiting in the last two DHSs



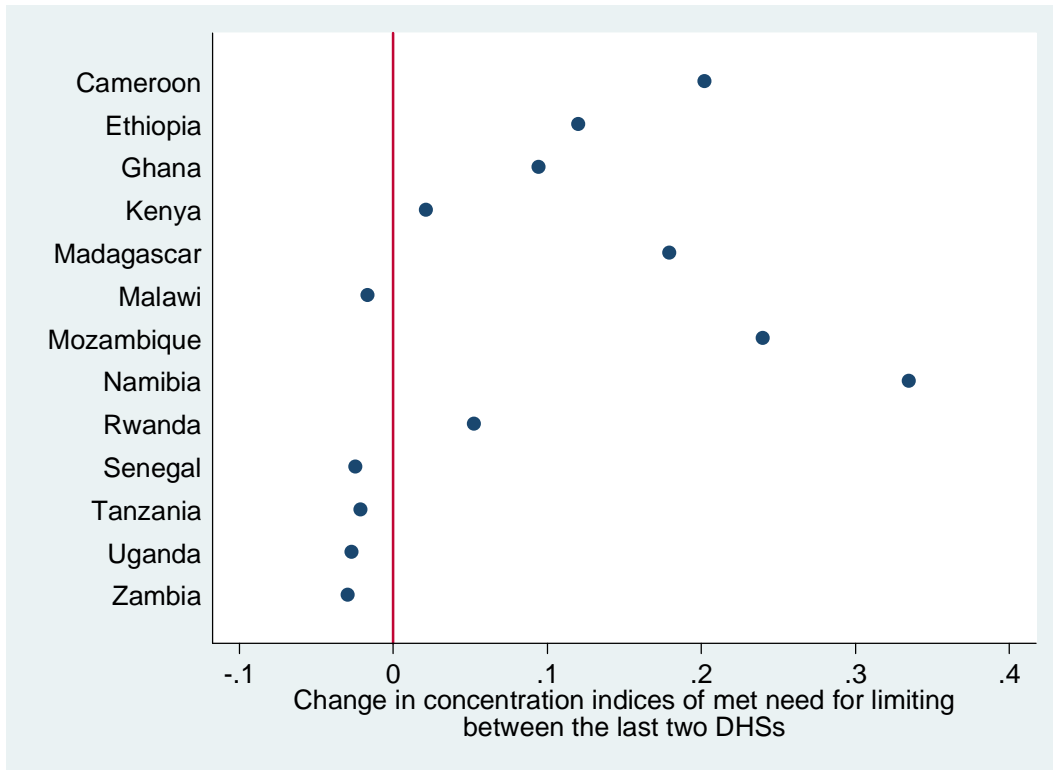
Note: A concentration index (CI) of 0 means no wealth-related inequality in met need for spacing. The further the CI is from 0, the more wealth-related inequality exists in met need for spacing. *DHS1* refers to the second to last DHS, *DHS2* refers to the latest DHS conducted in each country.

Figure 2A. Change in concentration indices of met need for spacing between the second to last and the last DHS survey by country



Note: A concentration index (CI) of 0 means no wealth-related inequality in met need for spacing. A positive change in CI represents a decrease in wealth-related inequality, a negative change in CI represents an increase in wealth-related inequality.

Figure 2B. Change in concentration indices of met need for limiting between the second to last and the last DHS survey by country



Note: A concentration index (CI) of 0 means no wealth-related inequality in met need for spacing. A positive change in CI represents a decrease in wealth-related inequality, a negative change in CI represents an increase in wealth-related inequality.