Trends in Socio-Economic Differentials in Fertility in Kenya

By

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Abstract

The stall in fertility decline in sub-Saharan Africa has attracted a number of debates since 2006. Several hypotheses have been suggested to be behind the stall; such as socio-economic development, changes in proximate determinants, HIV through infant mortality and possibilities of data quality. In this study, we examine trends in fertility levels by the level of poverty and education and conclude stagnation or reversal could have also been through poverty due to decline in contraception and reversal in demand for children. The results here suggest 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. Secondly, it calls for periodic monitoring of access to family planning services by the poor and setting targets that measure utilization of family planning services by the poor.

Introduction

In the last decade, debates on situations of fertility stalls or reversals of have been the focus of fertility research in sub-Saharan Africa. While Westoff and Cross (2006) provided a detailed analysis of the stall in Kenya between 1998 and 2003, a number of authors (Bongaarts, 2006; Garenne, 2007; Moultrie et al., 2008; Shapiro and Gebreselassie, 2007; Westoff and Cross, 2006) focused on the reasons behind the stall. Several hypotheses have been suggested to be behind the stall. Bongaarts, (2006), Westoff and Cross, (2006) alluded the stall to changes in proximate determinants of fertility while other authors suggested trends in socioeconomic determinants (Bonngaarts, 2008; Shapiro and Gebreselassie, 2007). Westoff and Cross, 2006) and Moultrie et. al., 2008 suggested the impact of HIV/AIDS through its effect on child mortality, as a possible cause of fertility stalls. More recently, Schoumaker (2009) indicated that some of the stall in fertility decline in sub-Saharan Africa could be spurious and might be due to the quality of data with only Kenya as the exception. Most of these studies have focused on national level data without considering trends by different socio-economic groups.

We intend to contribute to this debate by examining trends in fertility levels by various socio-economic groups for Kenya. The reason for the choice of Kenya is that fertility stall has been confirmed by many authors (Bongaarts, 2006, Schoumaker, 2009, Machiyama, 2010) as well as the fact that Kenyan data do not suffer severe data quality problems (Schoumaker, 2009). Secondly, there has been little agreement on the role of poverty as a cause of fertility stall. It is also unclear, the pathways through which poverty influence fertility in the Kenyan context. The link between poverty and fertility is a priority research in many developing countries; however, little attention has been paid to the phenomenon in the Kenyan context. Moreover, there is little agreement on the role of poverty in childbearing at the household level (National Research Council, 1986).

While Bongaarts (2005) found that the stall in Kenya was caused by lack of socio-economic progress, Shapiro and Gebreselassie (2008) did not confirm this. We examine trends in fertility levels by socio-economic status. The socio-economic variables used are the poverty levels as measured by wealth quintile and by the level of education. We then examine these trends between different regions. Our hypothesis from the examination of published results suggests

that the stall in fertility decline could be probably through lack of decline in fertility levels among the women in the lower socio-economic strata.

Context

Kenya's Fertility Pattern

Kenya has a history of the highest population growth and among the highest fertility rates in the world. The World Fertility Survey (WFS) in 1977 showed that Kenya had one of the highest fertility rates in the world, with a total fertility rate (TFR) of 8 children per woman. However, Kenya experienced a remarkable fertility reduction during 1980s and early 1990s (Figure 1). Overall, the average total fertility rate (TFR) declined significantly from 6.7 births per woman in 1989 to 4.7 in 1998. The remarkable decline in fertility in the 1980s was one of the rapidest ever documented. However, by the turn of the millennium, the rapid decline observed earlier began to slow down, and by 2003 the decline in fertility had stalled. Indeed, fertility increased slightly to 4.9 in 2003, then decline again to 4.6 children per woman in 2008/9.

Figure 1: Trends in Contraceptive Prevalence Rate and Total Fertility Rate, 1977/78-2008/9

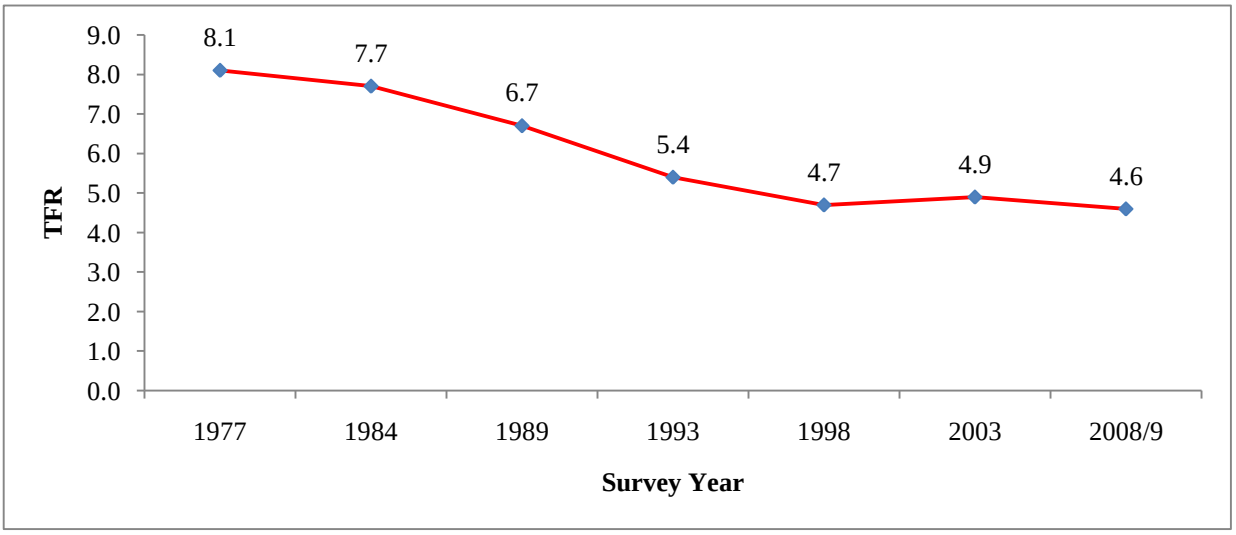


Table 1 gives total fertility rates by place and region of residence. Kenyan women living in rural areas bear more children compared to those living in urban areas. On average, women living in rural areas give birth to two (2) children or more than their urban counterparts. While fertility decline has happened in both rural and urban areas, the transition has been rapid in urban areas compared to rural areas. For example, during the period between 1989-2008/09, TFR in urban areas declined by about 36 percent compared to 27 in rural areas.

Table 1: Trends in TFRs for the 3-year period preceding each survey by place of residence, and Region, Kenya 1989-2008/9

	KDHS					**%Change**		
	1989	**1993**	**1998**	**2003**	**2008/9**	**1989-1998**	**1998-2008/09**	**1989-2008/09**
Residence								
Urban	4.5	3.4	3.1	3.3	2.9	-31.1	-6.5	-35.6
Rural	7.1	5.8	5.2	5.4	5.2	-26.8	0.0	-26.8
Region								
Nairobi	4.2	3.4	2.6	2.7	2.8	-38.1	7.7	-33.3
Central	6.0	3.9	3.7	3.4	3.4	-38.3	-8.1	-43.3
Coast	5.4	5.3	5.0	4.9	4.8	-7.4	-4.0	-11.1
Eastern	7.2	5.9	4.7	5.1	4.6	-34.7	-2.1	-36.1
Nyanza	6.9	5.8	5.0	5.6	5.4	-27.5	8.0	-21.7
Rift Valley	7.0	5.7	5.3	5.8	4.7	-24.3	-11.3	-32.9
Western	8.1	6.4	5.6	5.8	5.6	-30.9	0.0	-30.9
North Eastern	-	-	-	**7**	**-5.9**	-	-	
Kenya	**6.7**	**5.4**	**4.7**	**4.9**	**4.6**	-29.9	-2.1	-31.3

Source: KDHS Surveys

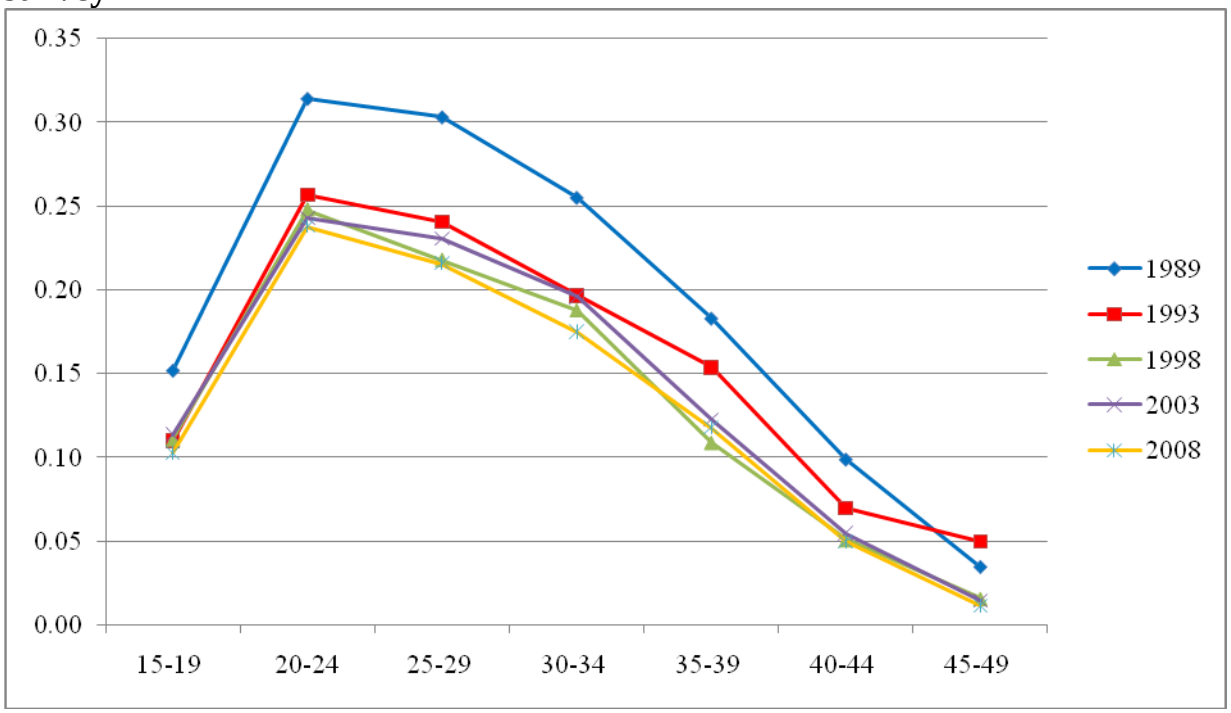
Regional fertility differentials are also substantial in Kenya. As the overall fertility rapidly declined in the country during 1989-1998, the decline took place in all the provinces with Central and Nairobi recording greatest decline (38%). In Nairobi, fertility declined from 4.2 to 2.6 while in Central it declined from 6.0 to 3.7. The lowest decline was witnessed in Coast province (7.4%). During the decade preceding 2003, Kenya's fertility decline stalled. The stall was

experienced in all provinces except in central province where the transition to lower fertility continued, reaching 3.4 in 2003 to make it the second lowest rate after the largely urbanized Nairobi province. Between 1998 and 2003, the greatest reversal in fertility decline occurred in Nyanza and Rift Valley where fertility over the five-year interval increased by about 10 percent up to 5.6 and 5.8 respectively. In other provinces, the picture is largely one of a stall in the decline, with Western province, showing no evidence of any change over a decade.

Age Specific Fertility Rates (ASFR)

The age-specific fertility rate (ASFR) measures the annual number of births to women of a specified age or age group per 1,000 women in that age group and enables one to compare fertility behavior at different ages. Figure 2 presents the trends in age-specific fertility rates. Overall, the trends by age group indicate that fertility decline has taken place in all the age categories with the most rapid relative decline among women in their 30s. Furthermore, the stall in the decline witnessed between 1998 and 2003 occurred at almost every age except at ages 20-24 where the decline has been continuous.

Figure 2: Age-Specific Fertility Rate for the 3-year period preceding each survey



Data and Methods

The study is based on data collected by the 1993, 1998, 2003, and 2008/9 Kenya Demographic and Health Surveys (KDHS), which are nationally representative surveys. The KDHS 1993 and 1998 covered 7540 and 7881 respondents respectively while the KDHS 2003 and 2008/9 covered 8195 respondents and 8444 respondents respectively. The KDHS surveys have collected detailed birth history data, as well as data on the demographic and socioeconomic background of respondents and their households. DHS collect information on household infrastructure and ownership of durable assets which are routinely used construct household wealth scores by using principal component analysis (PCA) of asset data from the household questionnaire based on Filmer and Pritchett (2001) methodology. 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(denoting lowest socio-economic status) while the highest 20 percent of households represents quintile five the highest status. We use a similar approach as a measure of poverty status based on wealth quintile . However, we correct for possible bias for the urban areas following methodology and suggestions by Foreit et al. 2010.

Calculating TFR using Poisson Regression Model

To estimate total fertility rates, we follow Schoumaker (2013) procedure based on the new Stata command tfr2. This approach uses the person's period data as obtained from birth history data and divides the period over which rates are to be calculated into several sub-periods or segments over the course of which the explanatory variables remain constant. Using Poisson regression method is preferred to calculate TFRs separately for different periods using the classic approach (Schoumaker, 2013). First, because only a single regression model is required to reconstitute, and it is easier to implement. Second, the results are interpretable in terms of total fertility rates between the ages of 15 and 49, as opposed to the classic approach that calculates the TFRs for only age 35 or 40. A third benefit is that fertility trends can be integrated into the regression model itself. Rather than treating years as dummy variables in the model, it is possible to include a function of time (linear, quadratic, spline, etc.) in the regression. Finally, the method allows the user to include explanatory variables in the model and estimate the effect of these variables on

annual fertility levels. For example, the effect of changes in the socioeconomic characteristics of the population on fertility could be evaluated by including individual variables that are fixed in time.

Results

Trends in TFR by Wealth Quintiles

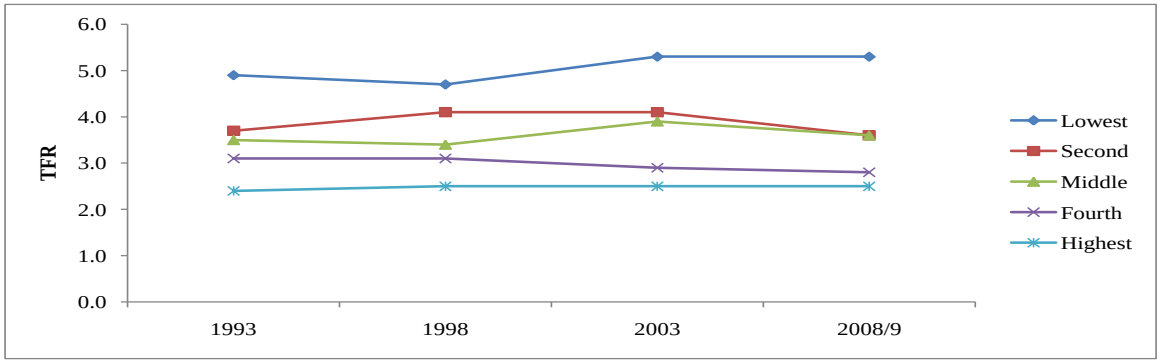
Table 4.3 and Figure 3 show trends in total fertility rate by wealth index. Fertility levels among the poor (lowest wealth quintiles) have not changed much over the 15 year period. Analysis shows an increase in the relative differences in fertility levels among the highest and lowest socioeconomic levels similarly the absolute differences between the highest and the lowest quintile groups has been increasing. The poor disproportionately bears the heaviest burden of childbearing

Table 2: Trends in Total Fertility Rates by Wealth Quintile

	Low	2nd	3rd	4th	High	Average	Low/High ratio	Low-High Difference	Concentration Index Value
1993	7.2	6.2	5.6	5.3	3.3	5.4	2.17	3.91	-0.1351
1998	6.5	5.6	4.7	4.2	3.0	4.7	2.17	3.50	-0.1514
2003	7.6	5.8	5.1	4.0	3.1	4.9	2.44	4.50	-0.1741
2008	7.0	5.6	5.0	3.7	2.9	4.6	2.41	4.1	-0.1130

[a] **Source: Kenya Population Situational Analysis Report, 2013**

Figure 3: Trends in TFR by Wealth Quintiles

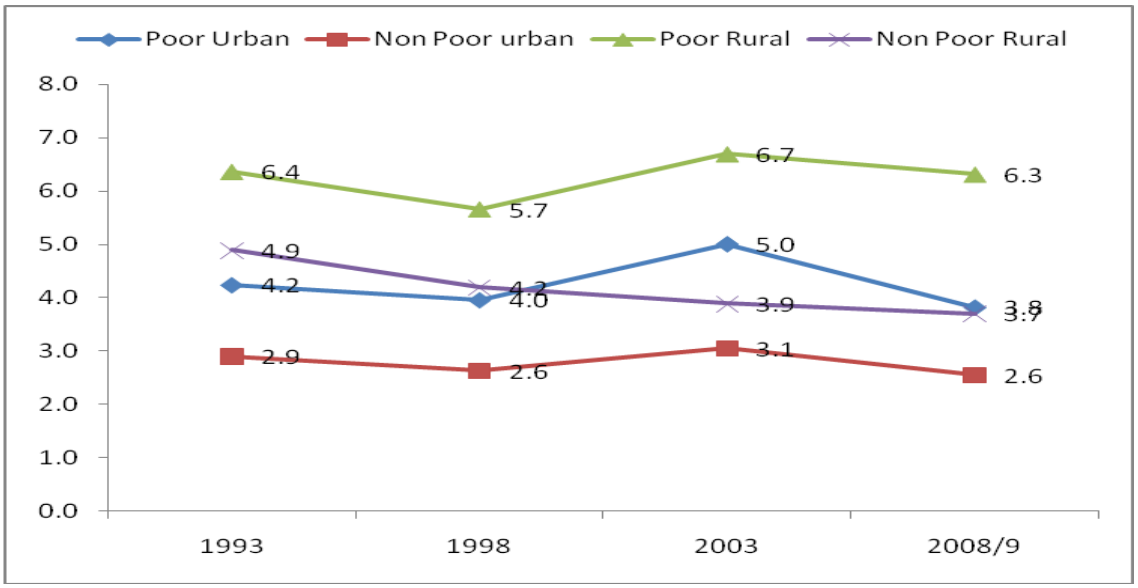


Source: KDHS 1993-2008/09

Trends in TFR by Place of Residence

Figure 2 shows time trends in total fertility when we disaggregate poor and non-poor by place of residence. What is dramatic is the steady decline in fertility among the rural poor then a substantial increase in fertility levels since 2003. Even among the poor in the urban areas, there was a substantial increase in fertility during the period of stagnation in fertility decline (between 1998 and 2003). An increase in an average of one birth per woman during periods of stagnation among the poor in rural areas cannot be attributed to measurement error.

Figure 4: Trends in Total Fertility Rates of Women (15-49) according to Standard of Living and Place of Residence, KDHS1993- KDHS2008



Source: KDHS 1993-2008/09

Trends in TFR by Level of Education

Educational attainment, particularly female education has been considered a key determinant of fertility behavior (Cochrane, 1979, 1983; Cleland and Rodríguez, 1988). The influence of education on fertility is explained by a number of hypotheses. Education increases the age at first marriage because women are unlikely to marry while they are still in school. Thus, schooling is associated with delayed marriage and reduced exposure to conception (Ikamari, 2005). Studies have shown that better educated women are more receptive to family planning strategies and are better informed on the usage of contraceptive methods compared to their counterparts with less education (Cleland and Kaufmann 1998; Jejeebhoy, 1995). Women who are educated can access

information on modern contraception and are likely to use them correctly as well as appreciate their role in fertility regulation. Education also enhances husband-wife communication, and this allows wives to make informed decisions including those of reproduction (Jejeebhoy, 1995). Education among women has also been shown to influence the desired family size, the relationship between desired family size and planned number of births, and women's ability to achieve the planned number of births (Jain, 1981; Kravdal, 2000).

Table 3: Age-Specific Fertility and Total Fertility Rates of Women (15-49) According to level of Education, KDHS1993- KDHS2008/9

	1989	1993	1998	2003	2008/9	%Change 1989-2008/9
Age Group	**NO EDUCATION**					
15-19	0.228	0.156	0.214	0.209	0.208	
20-24	0.350	0.270	0.273	0.336	0.369	
25-29	0.299	0.249	0.224	0.297	0.273	
30-34	0.270	0.236	0.199	0.250	0.245	
35-39	0.207	0.169	0.164	0.163	0.142	
40-44	0.109	0.074	0.059	0.065	0.077	
45-49	0.029	0.052	0.027	0.022	0.028	
TFR	**7.461**	**6.026**	**5.796**	**6.708**	**6.708**	**-10.7**
	PRIMARY EDUCATION					
15-19	0.172	0.129	0.135	0.132	0.128	
20-24	0.347	0.275	0.281	0.281	0.279	
25-29	0.319	0.259	0.230	0.249	0.236	
30-34	0.245	0.196	0.205	0.207	0.179	
35-39	0.172	0.156	0.099	0.140	0.143	
40-44	0.091	0.074	0.049	0.067	0.058	
45-49	0.031	0.049	0.009	0.016	0.010	
TFR	**6.881**	**5.693**	**5.032**	**5.458**	**5.165**	**-24.6**
	SECONDARY +					
15-19	0.089	0.057	0.045	0.049	0.052	
20-24	0.279	0.222	0.193	0.152	0.147	
25-29	0.265	0.210	0.198	0.174	0.169	
30-34	0.171	0.158	0.157	0.155	0.151	
35-39	0.122	0.103	0.072	0.076	0.070	
40-44	0.047	0.019	0.041	0.025	0.027	
45-49	0.000	0.037	0.000	0.000	0.003	
TFR	**4.862**	**4.029**	**3.531**	**3.154**	**3.102**	**-36.7**

Table 3 shows the analysis by level of education. The trends in fertility by educational attainment reveal a unique pattern. Among women with no education, fertility declined sharply from 7.5 in1989 to 5.8 in 1998, and then remarkable increased to 6.7 in the succeeding five years. Since then, fertility decline has stalled at 6.7 among women with no education. The reversal in the decline of fertility between 1998 and 2003 was also experienced among women with primary education. During this period, fertility among women with primary education increased from 5 to 5.5 after the initial decline from 6.9 in 1989. Only among the most educated women do fertility rates continue a pattern of decline, moving from 4.9 in 1998 to 3.1 in 2008/09. Overall, the greatest decline has occurred among women with secondary education over the last two decades (37 percent)

Fertility Trends by Region and Living Standards

Table 4 shows trends in fertility levels for poor and non-poor disaggregated by region of residence. Fertility levels have marginally changed among the poor except for the urban Nairobi. In Coast Province fertility levels among the poor have been increasing since 1993 but declining among the non-poor. The other aspect is the differences between the poor and non-poor is that While relative differences were small in the 1990s, in the recent past there are large differences between the poor and non-poor particularly in Coast, Eastern and Nyanza. Regions which lower fertility levels (Nairobi and Central) have marginal differences in fertility levels between poor and non-poor.

Table 4: Fertility Trends by Region and Living Standards

	POOR				NON-POOR			
REGION	**1993**	**1998**	**2003**	**2008/9**	**1993**	**1998**	**2003**	**2008/9**
Nairobi	4.2	3.1	3.9	2.9	3.1	2.5	2.6	2.5
Central	4.9	4.0	4.7	3.9	3.6	2.8	2.9	3.3
Coast	6.0	6.0	6.9	7.5	4.2	4.1	3.5	3.2
Eastern	7.0	5.3	6.3	6.7	5.3	3.6	3.3	2.9
Rift Valley	6.4	5.3	6.4	6.3	5.1	4.0	4.2	4.6
Nyanza	6.5	5.9	7.7	6.2	4.2	4.7	4.5	2.9
Western	7.1	6.3	6.5	5.9	5.2	4.3	4.5	4.1

Source: KDHS 1993-2008/09

Multivariate Analysis

To establish further the contribution of poverty on the fertility levels, two models were fitted for each dataset. The first model involved household wealth quintiles as explanatory variables while the second regression model controlled for other socio-economic factors; the level of education, place of residence and experience of child death. In the interpretation, the exponentials of the coefficients measure *rate ratios*, e.g. the exponential of the coefficient for the rich women (richest quintile) measures the ratio of the TFR of these women to the TFR of the poorest women, taken as the reference category (Schoumaker, 2013). Table 5 illustrates trends in the relationships between household wealth and fertility. Age-specific fertility rates and TFRs are computed for the reference category (poorest household), and rate ratios are displayed for the other categories of household wealth. This estimate relies on the assumption of proportionality of rates (constant age pattern of fertility).

Table 5: Fertility rates and rate ratios by Wealth Quintiles for the three years preceding the survey, Kenya 2003-2008 DHS

	ASFRs (Coefficients)			
	1990-1993	**1995-1998**	**2000-2003**	**2005-2008**
15-19	0.142	0.125	0.174	0.154
20-24	0.329	0.279	0.380	0.367
25-29	0.312	0.246	0.349	0.333
30-34	0.251	0.210	0.297	0.266
35-39	0.191	0.120	0.181	0.177
40-44	0.087	0.055	0.080	0.075
45-49	0.062	0.017	0.022	0.017
TFR	**6.866**	**5.257**	**7.409**	**6.940**
	Rate Ratios			
Wealth Quintiles				
Poorest®				
Poorer	0.896**	1.061	0.783***	0.805***
Middle	0.808***	1.024	0.692***	0.694***
Richer	0.730***	0.865***	0.557***	0.557***
Richest	0.525***	0.598***	0.433***	0.427***

ASFRs and TFR for the reference category/ies (categorical covariate) or covariate/s equal to 0
Rate ratios of explanatory variables - Assumption of constant age fertility schedule
Legend: * p<.1; ** p<.05; *** p<.01
® -Reference category

The results clearly show that poor women have a much higher fertility rate than the non-poor women over the years. The fertility rate among richest women was about 53 percent that of poorest women in 1993 and about 60 percent in 1998. However, in 2003, the fertility rate of richest women was 43 percent and remained unchanged in 2008/9. The results confirm that the magnitude of the difference in fertility between poorest and richest women has since widened over the years by almost 10 percent owing to lack of fertility decline among poorest segment. Table 6 presents trends by the level of education. The results show marked improvement in the effects of women's educational attainment in each year of the survey. Assuming a constant age fertility schedule, the TFR of women with secondary education and above was 59 percent and 46 percent that of women with no education in 1993 and 2008/9 respectively.

Table 6: Fertility rates and rate ratios by Level of Education for the three years preceding the survey, Kenya 2003-2008 DHS

	ASFRs (Coefficients)			
	1993	**1998**	**2003**	**2008**
15-19	0.125	0.141	0.156	0.155
20-24	0.296	0.322	0.340	0.353
25-29	0.277	0.281	0.317	0.317
30-34	0.219	0.239	0.270	0.254
35-39	0.164	0.130	0.167	0.171
40-44	0.073	0.059	0.071	0.072
45-49	0.052	0.018	0.019	0.016
TFR	**6.034**	**5.950**	**6.695**	**6.691**
	Rate Ratios			
Wealth Quintiles				
No Education®				
Primary	0.950	0.864**	0.815***	0.773***
Secondary +	0.692***	0.592***	0.470***	0.455***

ASFRs and TFR for the reference category/ies (categorical covariate) or covariate/s equal to 0
Rate ratios of explanatory variables - Assumption of constant age fertility schedule
Legend: * p<.1; ** p<.05; *** p<.01
® -Reference category

To examine the net effect of household wealth, the analysis was conducted controlling for the level of education, place of residence (urban/rural), and experience of child mortality. The effect of household wealth on fertility rate is period specific and stronger in the recent period (2003 and 2008/9)-which coincides with the stall in fertility decline. The results indicated in Table 7 show

that the net effect of wealth quintiles on fertility is slightly reduced; however, it remained strong and significant in 2003 and 2008/9. Controlling for education, place of residence and child mortality, the fertility rate of richest women was 64 percent that of poorest women in 1993. The effect was further diminished to 75 percent 1998. However, the magnitude in fertility difference between poorest and richest women became bigger in 2003 and 2008/9.

Table 7: Fertility rates and rate ratios by Wealth quintiles, level of education, and place of residence for the three years preceding the survey, Kenya 1993- 2008 DHS

	ASFRs (Coefficients)			
	1993	**1998**	**2003**	**2008**
15-19	0.103	0.112	0.163	0.142
20-24	0.230	0.245	0.343	0.319
25-29	0.205	0.203	0.299	0.277
30-34	0.156	0.167	0.247	0.215
35-39	0.113	0.091	0.144	0.139
40-44	0.049	0.038	0.063	0.058
45-49	0.034	0.011	0.016	0.012
TFR	**4.445**	**4.338**	**6.377**	**5.802**
	Rate Ratios			
Wealth Quintiles				
Poorest®				
Poorer	0.929	1.032	0.841***	0.860***
Middle	0.883**	1.009	0.768***	0.778***
Richer	0.844***	0.958	0.677***	0.690***
Richest	0.688***	0.778***	0.581***	0.621***
Education				
No Education®				
Primary	1.044	0.913	0.935	0.895**
Secondary +	0.920	0.750***	0.673***	0.656***
Residence				
Urban®				
Rural	1.251***	1.230***	1.068	1.165**
Number of dead children				
0®				
1	1.490***	1.399***	1.410***	1.485***
2+	1.697***	1.644***	1.570***	1.493***

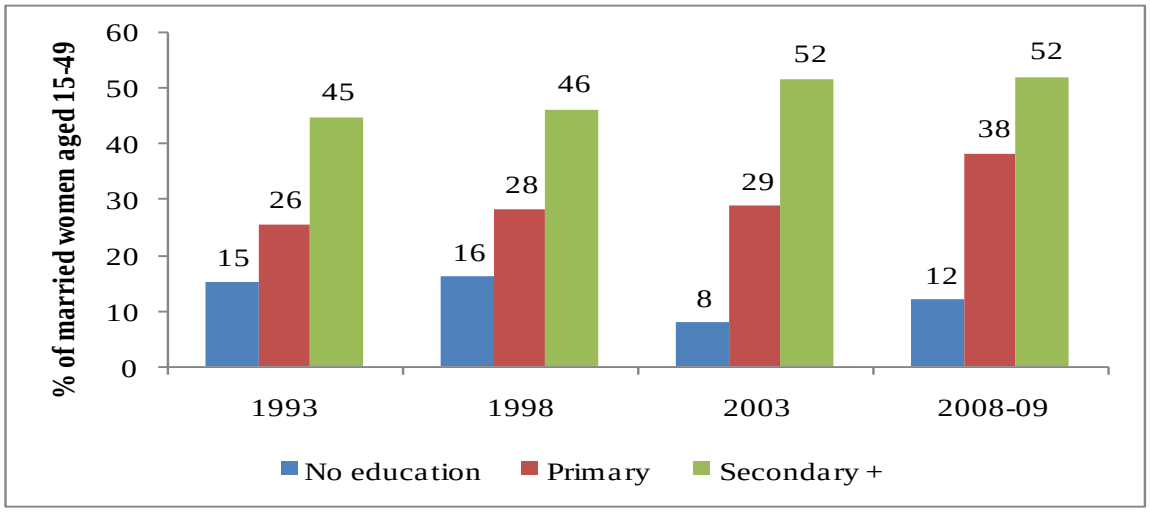
ASFRs and TFR for the reference category/ies (categorical covariate) or covariate/s equal to 0
Rate ratios of explanatory variables - Assumption of constant age fertility schedule
Legend: * p<.1; ** p<.05; *** p<.01
® -Reference category

Discussion

Bongaarts (2008) cited a confluence of two factors, which either alone or together might be responsible for the stall. First, the conventional theory states that socioeconomic development is a key driver of fertility decline. However the late 1990s much of the world experienced substantial economic growth, but GDP per capita in sub-Saharan Africa declined. At the same time, 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. Thus poorly performing economies coupled with rising mortality during the period can be considered as 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 during the period.

Our analysis here suggests that differentials in fertility by the economic status that persists even after controlling for education, place of residence and mortality. This is an indication that household wealth has an effect on fertility beyond the effects of other three socio-economic variables. It also suggests that poverty may have been a key factor in the stagnation of fertility decline in period 1998-2003. An examination of the trends in contraceptive use indicates that the decline in contraceptive uptake by the poor could be a major factor in fertility stall further confirming the role of poverty and proximate determinants.

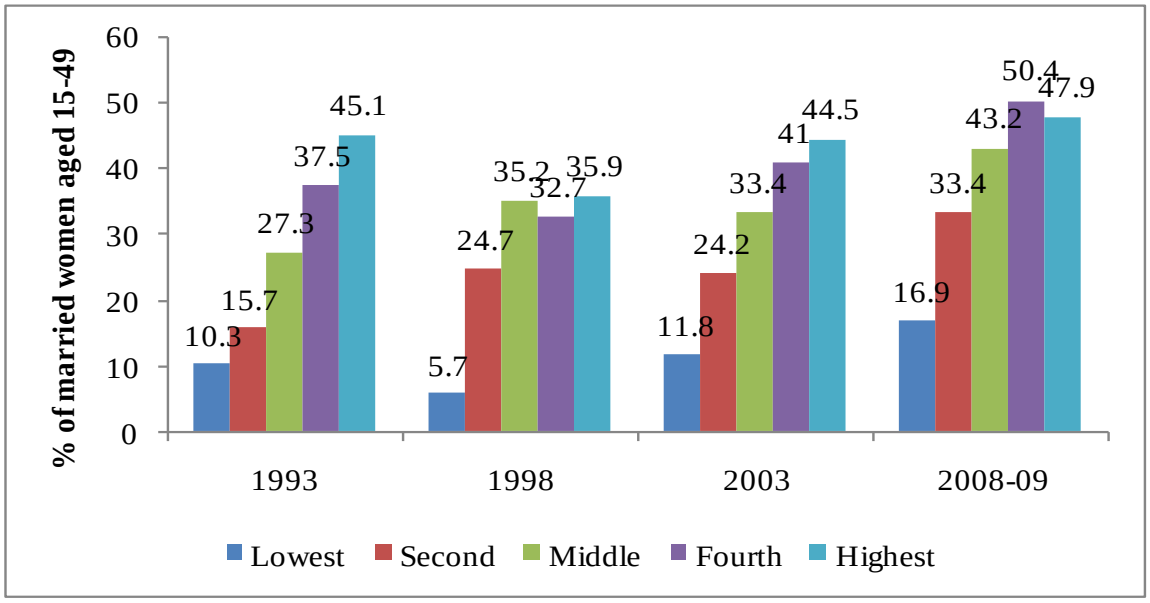
Figure 5: Modern CPR by Education 1993-2008/09



Source: KDHS 1993-2008/09

Figure 6 shows a significant decline in modern contraceptive use among those women with no education from 15 percent in 1993 to 8 percent in 2003 while modern contraceptive use among women with at least secondary education increased from 45 percent to 52 percent over the same period. In 2008/09, only 12 percent of women with no education were using modern contraceptives while the figure for those with a secondary level of education did not change.

Figure 6: Modern CPR by Quintile groups 1993-2008/09



Source: KDHS 1993-2008/09

The decline in contraceptive use among the poor could partly be explained by their reliance on the public sector for services (Borda et al. 2005, Agwanda, et al 2009). During the times for lack of donor sponsorship (period between 1998 and 2003), the wealthy turned to the commercial and private sector for services while the poor who mainly relied on the public sector and had to be content with the continued lack of supplies (Borda, 2005; Agwanda et al 2009). Although stalling fertility transitions have been associated with contraceptive use, this is not always (Garenne 2007), other factors also play some role, but it is not obvious. Arnstein et al (2005) revealed that the persistence of high levels of fertility and poverty driven by lack of economic growth and poor access to family planning; education and health provision are crucial elements in reducing fertility.

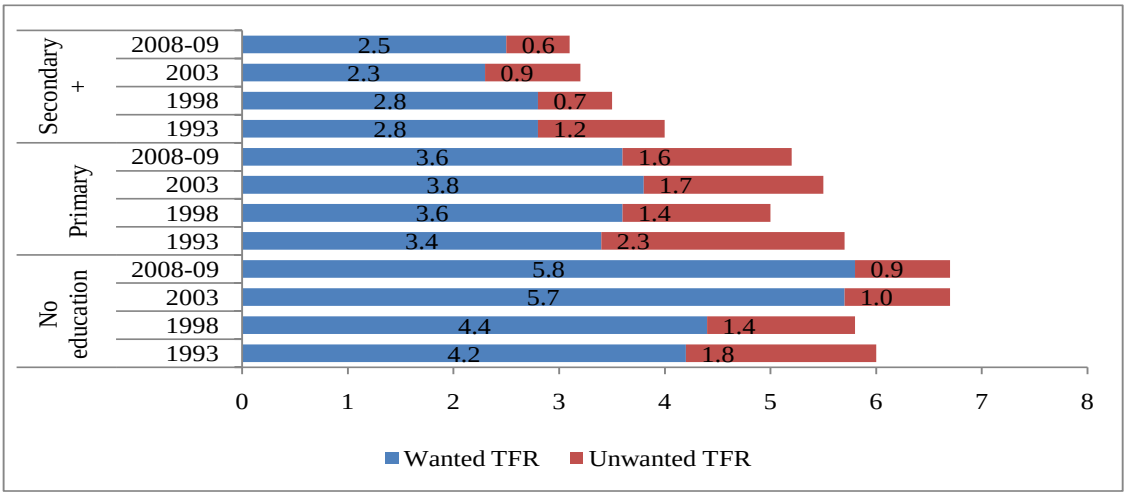
The Kenyan case may also be linked to the demand for children. Table 8 and Figure 7 show trends in wanted and unwanted fertility by socio-economic groups (wealth quintiles and by the level of education respectively). There has been an increase in both wanted and unwanted fertility among Kenyan women from poorest households. The wanted fertility among women from highest quintile has remained unchanged at 2.5, unwanted fertility significantly declined from 0.9 in 1993 to 0.4 in 2008/09. The wanted fertility among women with no education has been increasing consistently from 4.2 in 1993 to 5.8 in 2008-09 while that of unwanted fertility halved from 1.8 to 0.9 during the same period. Conversely, the wanted fertility among women with secondary school or higher declined from 2.8 1998 to 2.3 in 2003, then increased to 2.5 in 2008-09. Another unique trends depicted is that women with primary education continues to have higher unwanted fertility than those with no education and secondary or above education.

Table 8: Trends in Wanted and Unwanted Fertility Rates by Wealth Quintiles, Kenya 1993-2008/09

	Wanted				Actual				Unwanted			
	1993	**1998**	**2003**	**2008/9**	**1993**	**1998**	**2003**	**2008/9**	**1993**	**1998**	**2003**	**2008/9**
Lowest	4.9	4.7	5.3	5.3	7.2	6.5	7.6	7.0	2.3	1.8	2.3	1.7
Second	3.7	4.1	4.1	3.6	6.2	5.6	5.8	5.6	2.5	1.5	1.7	2.0
Middle	3.5	3.4	3.9	3.6	5.6	4.7	5.1	5.0	2.1	1.3	1.2	1.4
Fourth	3.1	3.1	2.9	2.8	5.3	4.2	4.0	3.7	2.2	1.1	1.1	0.9
Highest	2.4	2.5	2.5	2.5	3.3	3.0	3.1	2.9	0.9	0.5	0.6	0.4

Source: KDHS 1993-2008/09

Figure 7: Trends in Wanted and Unwanted Fertility Rates by Education, Kenya 1993-2008/09



Source: KDHS 1993-2008/09

Conclusion and Policy Implications

As noted by Schoumaker (2009), the plateauing of the decline in fertility, despite economic progress, is at odds with the demographic transition theory. We reached similar conclusions as Westoff and Cross (2006) and identified the segments of the population where stalls or reversals occurred. However, unlike Westoff and Cross (2006) who concluded that contraceptive prevalence among all women has not changed, evidence here suggests that the stagnation in fertility could have been caused by relative increase in fertility among the lower socio-economic strata of the society. The results here suggest 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. Secondly, it calls for periodic monitoring of access to family planning services by the poor and setting targets that measure utilization of services by the poor.

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Appendix

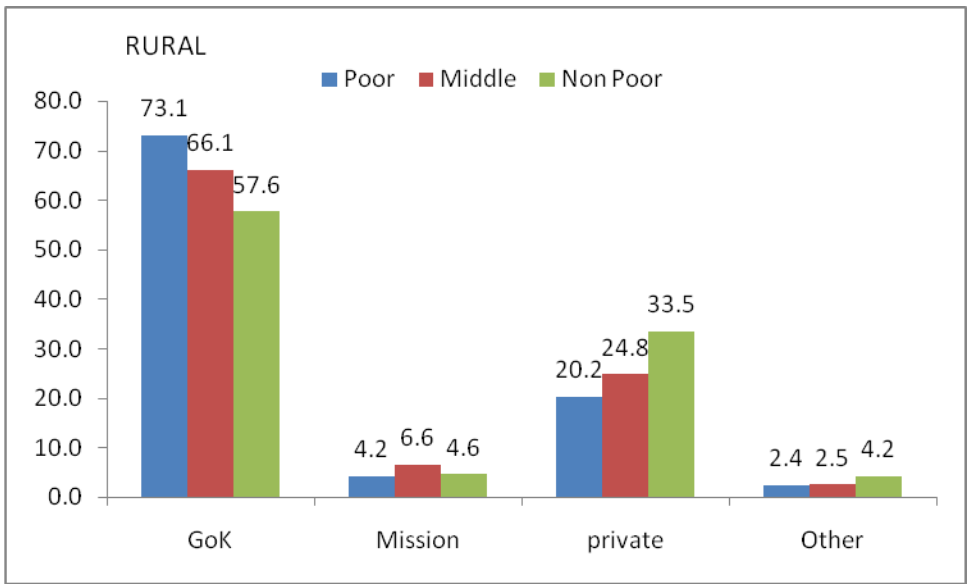

Figure 1a: Major source for contraception among users rural
Computed from DHS 2008/9

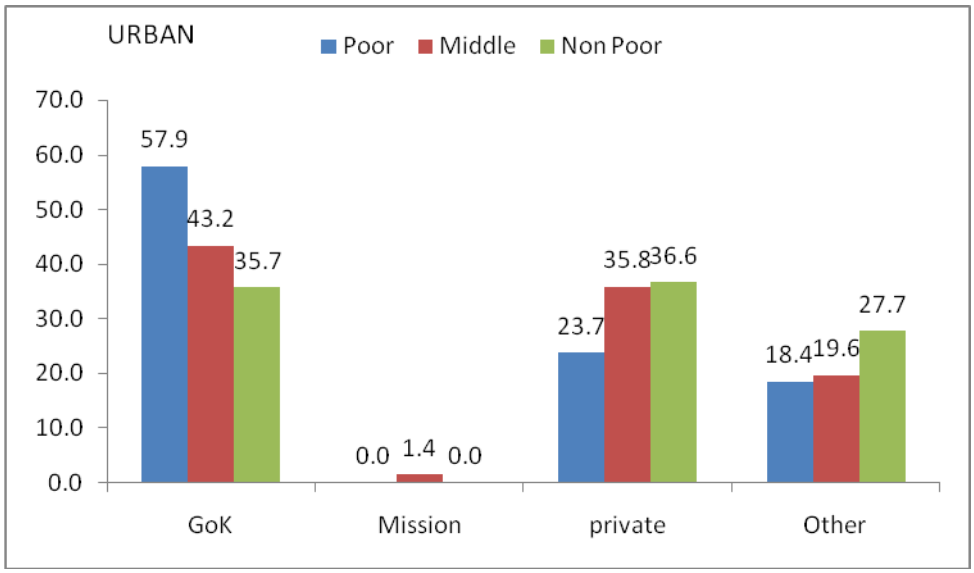

Figure 1b: Major source for contraception among users Urban
Computed from DHS 2008/9

Acknowledgments

We would like to thank Bruno Schoumaker for his help with the use of the new Stata command tfr2