Fertility And Household Poverty In Kenya: A Comparative Analysis of Western and Coast Regions

By

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Abstract

This paper examines fertility changes in Western and Coast Regions over a 20-year period (1988-2011) using KDHS data for Western and Coast regions supplemented with qualitative data. Initially, the fertility level was very high in Western and relatively low in Coast. A substantial decline followed by a stall took place in Western, while in Coast only a modest decline has taken place. Multivariate Poisson regression analysis shows that poverty and child mortality were reinforcing forces pushing fertility up while qualitative data shows that the poor perceive no link between poverty and the number of children in a family. The stall in fertility is associated with reproductive behaviour of the poor, while fertility decline has taken place among nonpoor during the period of the study. Based on the result, we recommend that population policies and programmes should emphasis more on the health benefits of birth spacing and reproductive health rights

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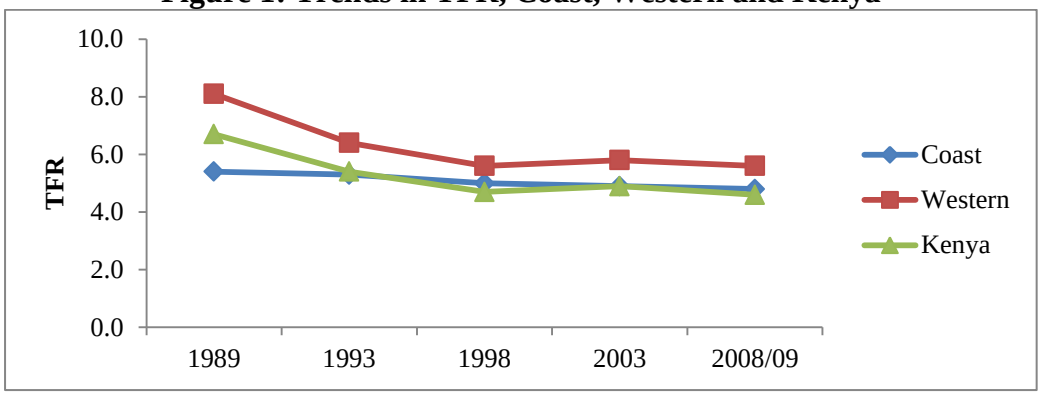
Introduction

Fertility decline has taken place in many countries in the world. Indeed, fertility has dropped below the replacement level in a number of developed countries (Lutz et al., 2003). The decline has been attributed to increased empowerment of women through education and access to modern family planning. Studies also point to a global economic system making children more costly (Caldwell and Schindlmayr, 2003). In Kenya, a rapid fertility decline was witnessed by the end of 1980s and early 1990s. The TFR declined from a high of 8.1 children per woman in the late 1970s, through 6.7 at the end of the 1980s, to 4.7 during the last half of the 1990s. Following this decline, TFR was projected to reach 3.2 children per woman by 2015-2020 (CBS et.al, 2004). However, fertility decline has stalled and remains high, a situation also observed in other sub-Saharan countries such as Zimbabwe and Ghana (Bongaarts 2006). The stall is not only a phenomenon in sub-Saharan Africa, but the high levels at the stall are unique for the region (Bankole and Audam, 2009).

In Kenya, fertility decline have not been homogeneous within the regions and continue to follow different pathways (Blacker, 2002). In 1989, Western province had the highest fertility (8.1) while Coast province had the lowest fertility rate (5.4) in 1989 a part form Nairobi. Since 1989, interesting fertility changes have taken place. According to Kenya Demographic and Health Survey reports, Western Province which is predominantly Christian had initially a sharp fertility decline from 8.1 in 1989 to 6.7 in 1993 but this came to a halt by the end of the 1990's. Indeed fertility increased slightly to 5.8 in 2003 from 5.6 in 1993. By contrast, has had modest fertility decline from 5.4 in 1989 to 4.9 in 2008/09 (CBS, etal., 2004; KNBS and ICF Macro, 2010). While the two regions marked the extremes of national variation in fertility levels by the end of the 1980s, today both areas represent the highest fertility levels. It is not clear why fertility in Western province initially decline, then halt at a fairly high level while in Coast it remained stable only with a moderate decline over the same period. Figure 1 highlight fertility trend in Coast and Western province.

Figure 1: Trends in TFR, Coast, Western and Kenya



Source: KDHS reports

The role of socio-economic development (poverty) on the demographic transition is a subject that has been investigated by several researchers (Kelly and Schmidt 1994; Birdsall and Griffin, 1988; Eastwood and Lipton, 1997; Lipton, 1999) and has been contested by others (Lesthaeghe 1989a, b; National Research Council, 1993; Knodel *et al.*, 1984; Kabeer, 2001). The demographic transition theory was based on this premise; however, as stated by (Coale and Watkins, 1996), its main hypothesis has not been in tandem with the demographic changes which taken place Europe and in the developing countries. The interactions between demographic trends and economic development have generated some heated debates. At a macro level, evidence shows that high population growth is a common feature in many poorer countries while larger household tend to be poorer. Thus poverty and childbearing are positively associated at the national and household levels respectively.

At the micro-level, poor economic conditions have strong impacts on fertility behavior (Eastwood and Lipton 2001, Merrick 2001). Individuals/Couples decides on the number of children they would like to have in their lifetime by considering cost of an extra child mainly in the form of mother opportunity cost and any other direct cost with the utility (Beckers and Lewis, 1973). Social, economic and cultural patterns in turn influence prices that determine costs and benefits of children. For instance, the role played by female education has greatly been studied. Education impact on the negatively on fertility by delaying marriage, imparting skills that increase the mother's opportunity cost, cause parent to substitute child quality for quantity and enhances sources of parental income and pleasure. Furthermore, due to higher mortality poor households may prefer to have more children to insure themselves against possible child loss

(Preston, 1975 and 1985; Hobcraft *et al.*, 1984; Hill, 1985; World Bank, 1993). Other causal mechanism linking poverty to fertility considers old age security. Poor households may decide to have more children as a source of support in old age especially in the absence of life insurance markets and social security (Arnstein et.al, 2005).

Arguments on the relationship between poverty and fertility are mainly based on the economics, that is, perceived costs and benefits of children (Becker, 1991); however, understanding the linkages between poverty and fertility cannot neglect the institutional settings. According to McNicoll, (1997), economic forces, social organizations and cultural patterns strongly influence prices that determine costs and benefits of children. To quote McNicoll (1997:36) "*The prices and other incentives that determine the costs and benefits of demographic behavior are set by economic forces, social organization, and cultural patterns that an individual or a family neither controls nor influences.*" Thus, the relationship between poverty and fertility depends on social and institutional characteristics. Under economic approaches, poverty is commonly thought to be associated with high fertility and rapid population growth. The economic approaches consider high fertility as a rational response to poverty. However, new evidence has shown the possibility of poverty induced fertility transition (Egerö, 1996; Gurmu and Mace, 2008). Fertility has declined in a number of developing countries like Thailand, Bangladesh, and Nepal, parts of sub-Saharan Africa and Latin America amid unfavorable economic conditions (Kabeer, 2001; Gurmu and Mace, 2008).

This study examines the relationship between fertility and poverty at the household level. Between 1989 and 2008/9 fertility declined rapidly in Western provinces then stalled while moderate decline occurred in Coast province under similar poverty and child mortality levels. The relationship between household wealth and fertility was examined over the period of the fertility transition. Specifically, the study sought to estimate levels and trends of fertility in Coast and Western provinces by level of household poverty and explore whether the relationship between household poverty status and fertility depends on the context.

Data and Methods

Data

This study makes use of both qualitative and quantitative data to achieve the research objectives. The study used the 1993, 1998, 2003 and 2008/09 Kenya Demographic and Health Survey (KDHS) data sets. Qualitative data were obtained from information collected during a project on 'Fertility and Poverty: *the role of gender and reproductive health*' conducted in Kenya in 2011. The *Poverty and Fertility project* was designed as a follow-up to previous two case studies in Bungoma and Kwale regions in the late 1980,s and early 1990 respectively. The primary aim of the project was to examine fertility changes in Western and Coast region over a twenty-year period (1988-2011). Bungoma in Western region and Kwale in Coast region were purposefully selected based on previous fertility development according to Kenya Demographic and Health Surveys results. Initially, the fertility level was very high in Western and relatively low in Coast; while a substantial decline followed by a stall took place in Western, in Coast only a modest decline has taken place. Both regions are now in the upper end of the fertility range. Poverty is widespread and child mortality remains high while modern contraceptive use remains lower than the national average of 46% in both areas.

Qualitative data were collected through in-depth interviews (IDIs); key informant interviews (KIIs) and focus group discussions (FGDs) in Western and Coast. In addition, data based on field observations for the entire period of the study were collected and recorded as field notes in both study areas. The IDIs obtained data from 93 women and 25 men ranging from 18 to 70 years.
Respondents were sampled from purposively selected villages within the two regions. The study traced a few respondents who participated in the first round of field work and named them "core" respondents. Seven core participants were identified in Bungoma and three in Kwale. Using references by core participants, women and men of reproductive age within their networks were recruited through snowballing. The participants who were snowballed were mostly younger and related to the core respondents– daughters, sons, daughters-in-law, sons-in-law, grandchildren, nieces and nephews. In addition, a few participants were randomly selected when it was verified that they satisfied the criteria of the desired age group and met the selection criteria. This snowball approach was favored for this study because, by collecting views from core respondents from the previous studies and also from the younger (current) cohort, it allowed the

study to explore generational and temporal differences in attitudes towards contraceptive use. A summary of the background characteristics of the female IDI respondents is in the table 1below.

Table 1: IDIs Background Information

Characteristics	n	%	Characteristics	n	%
Age			**Marital Status**		
Less than 35	42	48.3	Married	70	80.5
35 and above	38	43.7	Separated/ Divorced	8	9.2
Missing	7	8.0	Widowed	7	8.0
Education			Single	2	2.3
No education	8	9.2	**Number of children**		
Primary	41	58.6	0-1	10	11.5
Secondary +	24	17.5	2-3	30	34.5
Missing	4	4.6	4+	46	52.9
Current contraceptive use			Missing	1	1.1
Yes	32	36.8	**Study Sites**		
No	48	55.2	Bungoma	47	54.0
Missing	7	8.0	Kwale	40	46.0

Source: Poverty and Fertility Project, 2011

Poverty and Fertility Indicators

In this study, both quantitative and qualitative techniques are applied in the understanding the relationship between poverty and fertility. Since DHS does not collect information on income and expenditure, wealth quintiles[2] was used as a proxy of household poverty status. Turning to fertility measurement, the Kenya demographic and health surveys (KDHS) allows for use of two concepts that gives details of fertility behavior. The first concept relates to the actual fertility which is sometimes called realized fertility while the second refers to family-size preference. Indices of actual fertility behavior are computed from the women reproductive histories and it is represented here as number of births in the last 5 years preceding the survey. Poisson regression also known as log rates model was used to compute ASFRs and TFRs. 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.

Data Analysis

[2] Measured based on possessions index and quality of housing and sanitation commonly referred as wealth index quintiles. The index was computed using principle component analysis (PCA) method.

Two approaches were used; a bivariate analysis association between poverty and fertility variables and a multivariate analyses of recent fertility (Number of births in the last 5 years preceding the survey) using Poisson regression. Poisson regression was used to compute fertility rates and rate ratios by applying a new Stata command -tfr2 (for details refer to Schoumaker, 2013). This procedure computes Age-specific fertility rates (ASFRs) and Total fertility rates (TFRs) from birth histories. Two models were fitted for Coast and Western provinces to establish a relationship between household wealth and fertility. The second approach ran a Poisson model in with the number of births in the last five years preceding as the outcome variable. Two main factors informed the choice of dependent variable. Based on Rodriguez and Cleland's (1981) argument, the widespread fertility decline accompanied by shifting fertility differentials favors a short period of observation. Secondly, the choice of five-year preceding the survey is preferable due to smaller sample size when working with data from provinces as opposed to national level and it is desirable when the objective is to analyze differentials during a recent period (Cleland and Rodriguez, 1988; Schoumaker, 2011). In addition, examining births over a shorter period could help minimize endogeneity issues (Bollen, Glanville and Stecklos 2007)

The first model **(I)** examines the effects of socioeconomic factors beginning with household wealth status. In the second model **(II),** cultural factor (type of union), contraceptive use, partner's approval of family planning and spousal communication on family planning are controlled for. Age of the woman in continuous and quadratic form is used as a control in all the estimated models because of suspected non-linear relationship between ages as a variable and fertility. All of the categorical explanatory variables are first converted into dummy variables before being included in the equation. For the qualitative data, analysis was set with the verbatim transcription of the audio files from the field. Data were then coded using Atlas.ti qualitative software before being analyzed using thematic techniques to identify connections between poverty and fertility.

Ethical Consideration

The research permission for study was approved by the ethics committee of the Kenya National Council of Science and Technology (now National Commission for Science, Technology and Innovation). Poverty and Fertility project was joint study collaboration between The Norwegian

research council, the University of Nairobi and African Population and Health Research Centre; hence, there was a memorandum of understanding between the three parties. In addition, the study was approved by the respective Research and Ethics Boards of the three institutions. As per the ethical requirements governing the research involving human, written informed consent was obtained study participant after explaining the main purpose of the study and the process of getting data from the informants. Prior to the fieldwork, the research team first obtained written consent from the local administrators to facilitate access to the study sites.

RESULTS

Background Characteristics

Table 2 present profiles of the respondents who were interviewed in the 1989, 1993, 1998, 2003 and 2008/09 Kenya Demographic and Health Survey (KDHS) in Coast and Western provinces. Information is presented on a number of basic characteristics, including age at the time of the survey categorized into three (15-24, 25-34 and 35-49), education level and household wealth status.

Table 2: Background Characteristics, Coast and Western 1989-2008/9 KDHS

	Coast				
	1989	**1993**	**1998**	**2003**	**2008/09**
Age					
15-24	35.1	45.8	42.4	40.7	42.4
25-34	35.4	31.3	28.5	34.0	31.4
35-49	29.5	22.9	29.0	25.3	26.2
Level of Education					
No education	52.2	28.6	28.3	28.5	22.7
Primary	33.3	49.8	47.5	50.2	51.9
Secondary +	14.4	21.6	24.2	21.3	25.4
Wealth index					
Poor	36.1	32.3	26.1	33.0	36.3
Middle	22.5	15.8	22.9	14.7	12.1
Non-poor	41.4	52.0	51.0	52.2	51.6
Total Number	**720**	**1091**	**1226**	**938**	**1149**
	Western				
	1989	**1993**	**1998**	**2003**	**2008/09**
Age					
15-24	41.1	47.1	44.0	48.0	44.4
25-34	32.9	26.8	28.2	26.8	28.5

35-49	26.0	26.1	27.8	25.1	27.1
Level of Education					
No education	21.7	12.9	10.3	8.3	4.7
Primary	56.0	60.7	58.0	63.7	66.6
Secondary +	22.3	26.3	31.7	28.1	28.7
Wealth index					
Poor	47.4	51.3	52.9	45.0	44.3
Middle	24.5	22.9	20.3	24.9	21.9
Non-poor	28.0	25.8	26.8	30.1	33.8
Total Number	**1027**	**945**	**896**	**991**	**1039**

Fertility Levels and Trends

Table 3 presents estimated ASFR and TFR for the five year period preceding the survey. Results corroborate the estimates from DHS indicating little progress since late 1990s. Over the last two decades, fertility declined by only 11.9 percent and 27.5 percent in Coast and Western province respectively. High fertility is accompanied by moderate use of contraception and high level of unmet need. Results from 2008/09 KDHS data set show that only 34 per cent of women reported using any method of contraception in Coast province.

Table 3: ASFR and TFR for All Women, Coast and Western 1998-2008/09

	Coast					**% Change**
Age group	**1989**	**1993**	**1998**	**2003**	**2008/9**	**1989-2008/9**
15-19	0.098	0.086	0.120	0.147	0.146	49.0
20-24	0.308	0.267	0.223	0.215	0.242	-21.4
25-29	0.253	0.231	0.222	0.234	0.212	-16.2
30-34	0.190	0.205	0.173	0.211	0.147	-22.6
35-39	0.145	0.133	0.117	0.119	0.102	-29.7
40-44	0.064	0.066	0.067	0.056	0.069	7.8
45-49	0.031	0.093	0.050	0.009	0.041	32.3
TFR	**5.440**	**5.405**	**4.859**	**4.951**	**4.791**	**-11.9**
	Western					
15-19	0.142	0.126	0.124	0.131	0.097	-31.7
20-24	0.352	0.317	0.313	0.323	0.289	-17.9
25-29	0.387	0.315	0.262	0.294	0.258	-33.3
30-34	0.300	0.256	0.224	0.262	0.249	-17.0
35-39	0.189	0.210	0.142	0.125	0.133	-29.6
40-44	0.116	0.084	0.046	0.061	0.056	-51.7
45-49	0.028	0.035	0.013	0.000	0.016	-42.9
TFR	**7.573**	**6.716**	**5.626**	**5.979**	**5.492**	**-27.5**

Source: Computed by the Author from KDHS 1993, 1998, 2003 and 2008/09

Relationship between Household Wealth Status and Total Fertility Rate

This section examines the relationship between household wealth and fertility by looking at the differential effect of household wealth on total fertility rate. A Stata module for computing fertility rates and TFRs from birth histories -tfr2 was used to compute the rate ratios. Table 4 shows trends in the relationships between wealth status and fertility in Coast and Western provinces. Age-specific fertility rates and TFRs are computed for the reference category – poor households – and rate ratios are displayed for the middle and non-poor categories of household wealth. In Coast province, TFR of non-poor women was 0.65, 0.70 and 0.76 times lower than that of poor women in 1989, 1993 and 1998 respectively. The trend reversed dramatically since 1998 as fertility among poor women increased. The fertility rate of non-poor women was 0.53 and 0.49 times lower than poor women in 2003 and 2008/9 respectively. The differentials by household wealth between the poor and non-poor categories were found to be statistically significant at the $p<0.01$ level. An important observation is that the fertility among the poor women remains above five children in all the surveys.

Tables 5 present the results of the second model. The differentials effects of household wealth remain significant although it is slightly attenuated after controlling for education and child mortality. This indicates that other factors explain the differential effect of household wealth on fertility. Major differences between Coast and Western provinces are prominent after the controls (education and child loss) are included in the model. In Coast province, the effect of education was significant except in 1989 and is becoming more important in each survey, By contrast, the effect of education in Western province was weak and diminished over the years. In both provinces, the effect of death of a child under five was consistent and significant in all the periods.

Table 4: Fertility Rates and Rate Ratios by Household Wealth for the Five Years Preceding the Survey, Coast and Western Province, Kenya 1989- 2008 KDHS

	Coefficients (ASFR)									
	Coast Province					Western Province				
Age group	**1989**	**1993**	**1998**	**2003**	**2008/9**	**1989**	**1993**	**1998**	**2003**	**2008/9**
15-19	0.123	0.101	0.135	0.200	0.213	0.183	0.138	0.131	0.153	0.106
20-24	0.389	0.307	0.269	0.307	0.361	0.386	0.346	0.340	0.364	0.321
25-29	0.312	0.273	0.257	0.326	0.334	0.376	0.351	0.282	0.334	0.290
30-34	0.225	0.236	0.208	0.291	0.225	0.358	0.286	0.239	0.295	0.277
35-39	0.163	0.152	0.131	0.160	0.153	0.209	0.229	0.152	0.141	0.138
40-44	0.074	0.076	0.071	0.069	0.095	0.114	0.092	0.047	0.073	0.057
45-49	0.036	0.097	0.060	0.013	0.051	0.032	0.040	0.017	0.000	0.015
TFR	**6.61**	**6.209**	**5.652**	**6.835**	**7.166**	**8.287**	**7.409**	**6.038**	**6.804**	**6.019**
	Rate Ratios								**Rate Ratios**	
Household Wealth										
Poor®										
Middle	0.794**	0.929	0.977	0.759**	0.670***	1.075	0.881	1.061	0.827**	1.056
Non-poor	0.652***	0.702***	0.762***	0.531***	0.491***	0.780***	0.750***	0.720***	0.608***	0.667***

Notes

1. Computation done with tfr2 syntax
2. ASFRs and TFR for the reference category/ies (categorical covariate) or covariate/s equal to 0
3. Rate ratios of explanatory variables - Assumption of constant age fertility schedule
4. Legend: * p<.1; ** p<.05; *** p<.01
5. ® -Reference category

Source: Computed by researcher from KDHS 1989-2008/9.

Table 5: Fertility Rates and Rate Ratios by Household Wealth Controlling for Education and Child Mortality, Coast and Western Provinces, Kenya 1989- 2008 KDHS

	Coefficients (ASFR)									
	Coast Province					Western Province				
Age group	**1989**	**1993**	**1998**	**2003**	**2008/9**	**1989**	**1993**	**1998**	**2003**	**2008/9**
15-19	0.108	0.102	0.141	0.204	0.242	0.190	0.112	0.143	0.137	0.094
20-24	0.328	0.296	0.265	0.307	0.379	0.376	0.263	0.356	0.298	0.262
25-29	0.253	0.256	0.247	0.311	0.348	0.340	0.259	0.274	0.264	0.227
30-34	0.172	0.207	0.191	0.257	0.227	0.306	0.196	0.219	0.222	0.203
35-39	0.129	0.130	0.109	0.140	0.148	0.174	0.157	0.134	0.104	0.096
40-44	0.056	0.065	0.056	0.058	0.086	0.090	0.060	0.040	0.054	0.038
45-49	0.027	0.083	0.045	0.010	0.044	0.026	0.026	0.014	0.000	0.010
TFR	**5.369**	**5.700**	**5.274**	**6.433**	**7.369**	**7.507**	**5.37**	**5.902**	**5.396**	**4.647**
	Rate Ratios							**Rate Ratios**		
Household Wealth										
Poor®										
Middle	0.806*	0.9242	1.001	0.859	0.770**	1.117*	0.897	1.078	0.8455**	1.0867
Non-poor	0.664***	0.796***	0.868	0.645***	0.719***	0.908	0.793***	0.809**	0.689***	0.783**
Level of education										
No education®										
Primary	1.164	1.004	0.876	0.874	0.763***	0.918	1.165	0.889	1.085	1.111
Secondary and above	1.039	0.690***	0.734***	0.604***	0.411***	0.761***	1.079	0.783*	0.919	0.906
Experienced Child death										
No®										
Yes	1.407***	1.256***	1.487***	1.384***	1.309***	1.397***	1.614***	1.442***	1.545***	1.553***

Notes

1. Computation done with tfr2 syntax
2. ASFRs and TFR for the reference category/ies (categorical covariate) or covariate/s equal to 0
3. Rate ratios of explanatory variables - Assumption of constant age fertility schedule
4. Legend: * p<.1; ** p<.05; *** p<.01

® -Reference category

Source: Computed by researcher from KDHS 1989-2008/9.

Tables 6 and 7 show results of the Poisson regression in which the number of births in the last five years is the dependent variable, and the main independent variables are household wealth, education level, and child loss. We compare the result of all the five KDHS surveys for Coast and Western province to show the extent to which the effect of household wealth has changed and to see whether the effect of household wealth is mediated by other factors mainly cultural and diffusion/psychological variables. Consistent with the result shown earlier in Table 1, the unadjusted effect of household wealth on fertility was negative and statistically significant at ($p<0.000$) for all women in both area[3]. Household wealth has a significant negative effect on fertility among currently married women in Coast province for all the KDH surveys. Model I shows that births in the last five-year period among currently married women decreased with the level of household wealth across all surveys. Fertility rate of non-poor women relative to poor women was about 0.78 times, 0.87 times, and 0.85 times lower in 1989, 1993 and 1998, respectively. The influence of household wealth was higher in 2003 and 2008/9 as the magnitude of the difference between poor and non-poor women increased. Results indicate that the fertility of non-poor women relative to poor women was 0.71 times and 0.69 times lower in 2003 and 2008/9 respectively. Controlling for cultural and psychological factors, Model II indicates that household wealth still remained significant with a slightly increased magnitude in its effect on fertility. Education was found to be an important determinant of fertility among married women in Coast province although the results were only significant in 2003 and 2008/9. In Model I, the role of education was eminent in 2003 and 2008/9. The fertility rate of married women with secondary education was 0.76 times and 0.74 times lower in 2003 and 2008/9, respectively. Model II shows that, fertility rate of women with secondary or higher education was 0.71 times, 0.90 times, 0.81 times and 0.72 times lower than fertility rate of women with no education in 1993, 1998, 2003 and 2008/9, respectively, when all other factors are controlled. Child mortality had a significant positive effect on fertility throughout the survey. Results from Model I show that the fertility rate of women who had experienced any death of a child under five was 1.34 times, 1.22 times, 1.48 times and higher than women who had not lost a child under five years in 1989, 1993 and 1998, respectively. The important role played by child mortality becomes much clearer after controlling for other factors.

[3] Results are not shown here and can be made available upon request

In Western province results in **model I** show that the household wealth was negatively and insignificantly related to fertility rate among currently married women during earlier periods (1989-1998). However, between 2003 and 2008/9, household wealth had a significant effect. Fertility rate of non-poor women was 0.91 times, 0.81 times and 0.90 times, lower than poor women in 1989, 1993 and 1998, respectively. During the period of the fertility stall (1998-2008/9), the impact of household wealth became stronger as results further show that the fertility rate of non-poor women was 0.76 times and 0.68 times lower than poor women in 2003 and 2008/9 respectively. The results in **model II** did not show any significant difference in the effect of household wealth on fertility after controlling for other covariates. In terms of educational attainment, results show that education is not an important determinant of fertility for both samples of women (all women and currently married women) in Western province; although there is an inverse relationship between the level of education and fertility. This implies that the fertility transition in Western province is mainly driven by other factors other than education. Alternatively, the effect of education on fertility could be latent and occurring indirectly through other factors. Similar to Coast province, results indicate that child mortality has a significant positive effect on fertility throughout the study period ($p<0.000$).

Table 6: Parameter Estimates for Poisson Regression Model of Recent Fertility among Married Women, Coast Province, Kenya KDHS 1989-2008/9.

	1989				1993				1998			
	Model I		Model II		Model I		Model II		Model I		Model II	
	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z
Household Wealth												
Poor®												
Middle	0.865	0.191	0.828	0.094	0.832	0.130	0.777	0.043	0.937	0.538	0.954	0.657
Non-poor	0.782	0.031	0.715	0.006	0.868	0.122	0.815	0.035	0.853	0.095	0.842	0.077
Education												
No education®												
Primary	1.148	0.211	1.048	0.682	0.962	0.667	0.867	0.143	1.011	0.907	0.943	0.536
Secondary +	1.177	0.290	1.033	0.839	0.845	0.193	0.722	0.018	0.973	0.815	0.903	0.409
Experienced Child death												
No®												
Yes	1.338	0.002	1.342	0.002	1.218	0.025	1.242	0.018	1.480	0.000	1.454	0.000
Type of union												
Polygamy®												
Monogamy			0.939	0.513			0.787	0.025			1.097	0.346
Partner Approval of FP												
Approves®												
Disapproves			0.900	0.453			0.955	0.686			0.956	0.651
Don't Know			1.047	0.755			1.018	0.894			0.899	0.425
Spousal communication on FP												
Never Discussed®												
Discussed			1.396	0.023			1.241	0.049			1.354	0.015
Contraceptives Use												
Never Use®												
Ever Use			1.114	0.380			1.148	0.153			0.994	0.951
Age												
Age Squared	1.281	0.000	1.258	0.000	1.276	0.000	1.227	0.000	1.295	0.000	1.264	0.000
Pseudo R^2	0.995	0.000	0.996	0.000	0.995	0.000	0.996	0.000	0.995	0.000	0.996	0.000
N		**529**		**527**		**651**		**621**		**753**		**749**

Source: Computed by researcher from KDHS 1989-2008/9.

Table 6 Continued

	2003				2008/9			
	Model I		Model II		Model I		Model II	
	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z
Household Wealth								
Poor®								
Middle	0.844	0.182	0.832	0.166	0.717	0.011	0.706	0.009
Non-poor	0.708	0.001	0.725	0.002	0.685	0.000	0.666	0.000
Education								
No education®								
Primary	0.904	0.282	0.9	0.29	0.899	0.219	0.849	0.067
Secondary +	0.759	0.073	0.813	0.206	0.744	0.030	0.715	0.015
Experience of U5 death								
No®								
Yes	1.335	0.002	1.281	0.010	1.209	0.027	1.237	0.016
Type of union								
Polygamy®								
Monogamy			0.947	0.608			0.	0.287
Partner Approval of FP								
Approves®								
Disapproves			0.804	0.054			1.005	0.980
Don't Know			0.919	0.49			1.201	0.631
Spousal comm. on FP								
Never Discussed®								
Discussed			1.227	0.062			1.348	0.252
Contraceptives Use								
Never Use®								
Ever Use			0.862	0.197			1.169	0.054
Age	1.283	0.000	1.291	0.000			1.232	0.000
Age Squared	0.995	0.000	0.995	0.000	1.256	0.000	0.996	0.000
Pseudo R^2		0.093		0.101	0.996	0.000		0.094
N		**575**		**564**		**718**		**697**

Source: Computed by researcher from KDHS 1989-2008/9.

Table 7: Parameter Estimates for Poisson Regression Model of Recent Fertility among Married Women, Western Province, Kenya KDHS 1989-2008/9.

	1989				1993				1998			
	Model I		Model II		Model I		Model II		Model I		Model II	
	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z
Household Wealth												
Poor®												
Middle	1.035	0.624	1.020	0.787	0.920	0.386	0.924	0.419	1.016	0.856	1.004	0.961
Non-poor	0.910	0.265	0.896	0.206	0.869	0.146	0.857	0.123	0.898	0.306	0.897	0.311
Education												
No education®												
Primary	0.962	0.606	0.950	0.501	1.094	0.414	1.041	0.730	0.835	0.217	0.856	0.290
Secondary +	0.857	0.127	0.842	0.095	1.098	0.468	0.995	0.970	0.844	0.273	0.875	0.400
Experience of U5 death												
No®												
Yes	1.300	0.000	1.282	0.000	1.389	0.000	1.430	0.000	1.310	0.001	1.299	0.002
Type of union												
Polygamy®												
Monogamy			0.998	0.974			0.978	0.801			0.811	0.077
Partner Approval of FP												
Approves®												
Disapproves			0.947	0.464			0.918	0.345			0.920	0.372
Don't Know			0.931	0.465			0.901	0.436			0.884	0.480
Spousal communication on FP												
Never Discussed®												
Discussed			1.191	0.032			1.469	0.000			1.061	0.642
Contraceptives Use												
Never Use®												
Ever Use			0.965	0.653			0.960	0.605			0.914	0.266
Age	1.376	0.000	1.367	0.000	1.356	0.000	1.335	0.000	1.370	0.000	1.370	0.000
Age Squared	0.994	0.000	0.994	0.000	0.995	0.000	0.995	0.000	0.994	0.000	0.994	0.000
Pseudo R^2		0.087		0.091		0.082		0.096		0.106		0.107
N		**745**				**611**				**578**		

Source: Computed by researcher from KDHS 1989-2008/9.

Table 7 Continued

	2003				2008/9			
	Model I		Model II		Model I		Model II	
	IRR	P>z	IRR	P>z	IRR	P>z	IRR	P>z
Household Wealth								
Poor®								
Middle	0.907	0.283	0.916	0.336	0.995	0.961	0.986	0.887
Non-poor	0.758	0.007	0.768	0.012	0.667	0.000	0.668	0.000
Education								
No education®								
Primary	1.118	0.467	1.096	0.551	1.101	0.677	1.093	0.704
Secondary +	1.086	0.635	1.042	0.814	0.997	0.989	0.984	0.946
Experience of U5 death								
No®								
Yes	1.382	0.000	1.402	0.000	1.352	0.001	1.344	0.001
Type of union								
Polygamy®								
Monogamy			0.861	0.139			1.046	0.660
Partner Approval of FP								
Approves®								
Disapproves			0.893	0.208			0.995	0.974
Don't Know			0.897	0.515			0.906	0.794
Spousal communication on FP								
Never Discussed®								
Discussed			1.388	0.001			1.054	0.749
Contraceptives Use								
Never Use®								
Ever Use			0.959	0.600			1.017	0.849
Age	1.326	0.000	1.311	0.000	1.320	0.000	1.321	0.000
Age Squared	0.995	0.000	0.995	0.000	0.995	0.000	0.995	0.000
Pseudo R^2		0.121		0.131		0.116		0.118
N		**594**				**603**		

Source: Computed by researcher from KDHS 1989-2008/9.

Result from Qualitative Study

Poverty-Fertility Linkage

One of the strongest messages that emerged from the study is that poor people were not able to relate poverty and childbearing. Focus group participants saw no link between poverty and the number of children in a family, and vice versa. However, they could describe poverty, giving explanations similar to the conventional definition. The question 'Who is a poor person/define poverty' was posed during focus group discussions for men and women in the Kwale and Bungoma samples. Participants generally described poverty as lack of income, food and shelter. They also understood why they are poor, and often gave ideas about what could be done to eradicate poverty. The following quote from a focus group discussion with women aged 36-50 from Bungoma summarizes how the participants conceptualized poverty:

'A poor person may not have a good place to stay; he/she lives in those "khulandi" (rented rooms) and has no land to cultivate. In these rented rooms he/she has to go out on the roadside every morning to enable her to eat. The kind of work he/she does, does not earn him/her good income and he/she is not able to educate his/her children. This person is not free at all, once in a while he/she is joyful, but most of the time he/she is miserable.'

Polygyn

Polygyny is driven by the desire for more children on the part of men according majority of respondents from Bungoma. Women in a polygamous marriage have a positive attitude towards having many children. There was no difference between women from rich and poor background. The findings of this study support the hypothesis that the high prevalence of polygyny maintains a value orientation that favors and encourages high reproductive performance [1]. Polygyny was the main reason why men prefer to have for more children. On the other hand, there was competition among co-wives to bear more children. The result further indicates that women in polygyny gave birth to many children to please their husbands. This was due to perceived demand for children by their husbands. In-depth interviews with male and female respondents revealed a general belief that men are fond of marrying more than one wife to get more children.

> *'..... you find that if you go for family planning we have those men who will decide to marry another wife just to continue having more children.* **[MAK_IDI_27_FY)**
> *I think its men who prefer to have more children than women. Because I can see some men adding wives apart from the ones they have.* **[KIB_IDI_MO)**

Result indicates that men and women in polygyny prefer many children; however, their reproductive goals operate differently. While men marry many wives to achieve desired fertility-that is get children, women in polygynous maximize their reproductive capability to achieve husband's fertility goals. A woman bearing more children to please the husband and family is common as we can learn from the perception of a young woman married as a second wife. She had a daughter and was pregnant by the time of interview. Her first pregnancy ended as a miscarriage. One would expect that coming from a well-off family, she would limit her fertility. She preferred to have more children despite the opposition from the husband; who had 8 children with the co-wife. According to her, having many children earns respect from family and the community. When asked how many children she would like to have, she responded by saying;

> *'...It will depend……..... life has been very lonely since I only have one child who happens to be a girl. People do not value girls as much as boys. So I feel that I am much inferior if I do not have children just like my co-wife who has 8 children. Thus many people look down upon me just because I do not have many children'* **[MAK_IDI_3_FY]**

In addition to pleasing the husband, women in polygyny union perceives many children as economically important. The majority said having many children attracts more resources from the husbands. Some women argued that having many children enabled them to receive unrivaled attention from their husbands. In particular, they understand that many children provide them with an avenue to obtain resources held by their husbands. It may also fend off competition from actual or potential co-wives. The following excerpt from a teacher married as a second wife and having 5 children capture this understanding.

> *'……. my husband due to marrying many women one can imagine that he perhaps wanted to give birth to more children which may make you think that since he wants many children, then let me continue to give birth to at least to make him happy. It becomes a situation of competing to give birth to many children between the co-wife's to at least to attract a lot of attention from the husband and so that you as a wife you can be a position to take a lion's share in your husband's budget. If you do not give birth to many children will mean that very little amount of money will be spend on you. This eventually creates a state of competition between the co-wives to deliver many children'* ***[MUCHI_IDI_78_FY]***

Focus group discussions participant concurred that a high level of competition among co-wives in giving birth to many children existed. In response to a question about why women in polygamous marriages compete, the answer is that; 'if *I do not give birth, the man will drop her'*

(MUCHI_FGD_ FY). Having more wives and children are considered prestigious in the community, therefore men try to marry many women while women give birth to many children.

> *'...maybe a man has two wives and so they compete [in] giving birth, and the one who has more boys will boast ... and the result is a fight because that one [with] more children has a say in the homestead'.* (MAK_FGD_MY)

The perception about the number of children is also held among monogamous unions. Women in monogamous unions perceive that it is men who desire to have more children and as a result end ups maximizing their reproductive potential. To them, giving birth is a strategy to obtain security in the home. Hence, women with no co-wife give birth to many children to prevent the man from marrying another wife. On the other women with co-wives compete to have as many children as the others to obtain a greater share of the household's resources.

Husband's desire for more children

Rural areas are mostly dominated by patriarchal systems which places the status of women at the lower hierarchy. As a result, many decisions including that of reproductive decisions are made by someone else such as the husband and/or the paternal kin [2]. In this study, both men and women think that men have absolute power on reproductive decisions while women remain powerless. The final decisions regarding number of children to have are always left for the men. Sometimes, men demand to have more children even when the women have already achieved the desired number of children. The primary role of women in marriage is to bear children to and any indication that women are taking control of their reproductive function suggests to men that women might not wish to live up to their reproductive obligation. Men want to have many children; however, the women are left with responsibility of caring for the children.

> *I: You said you have five kids and you wish to have more, does your wife have the same opinion? R: I believe that when I make a decision concerning that, she should obey it for instance when she is pregnant, will she abort it? And when she does that will be the end of our marriage. (KIB_IDI_38_MO)*

Respondents were asked to state their opinion on whether it is the men or women who prefers to have more children. In both areas, the majority of respondents believes that it is men who want more children Extracts from in-depth interviews indicates most women and men thinks that it is men who desire more children and this was attributed to a number of factors. The firm quest for

children among men, along with few obligations for care, turns a high number of children into a burden to women but less so to men.

> *'You find a man insisting he wants children in the home … he does not even know the size of his child's shoe but he wants children … you will be forced to hide when going for family planning....., … He insists, 'I want children', so you just give birth… He does not want to understand …if you cannot give birth, then what have you come to do in the home. … She should go away back to her parents; she is not a wife in this home.' (MAK_FGD_FY)*

> *I: How many children did you wish to have? R: I wished to only give birth to 3 children but my husband refused. I: How many children did your husband wish to have? R:He wanted even more than the six he has now but at one time he was educated about family planning. This led him to change his mind of wanting to have many children.* ***[MAK_IDI_4_FY]***

Majority of men interviewed agree that women are the ones caring for children. On the orher hand, women expressed that men are having absolute decision on the reproductive matters as can be seen from the following statements;

> *Children belong to the man … because he is the one who planted the seed. … Women are just the vessels to carry the baby. (MUCHI_FGD_MY)*

Child mortality

Child mortality has been shown to have an effect reproductive decision-making. This usually takes place in the form of the physiological, replacement, and insurance (or hoarding) mechanisms. In the case of insurance, people tend to give birth to more children beyond the number needed with the hope that even if some die, some will be left. Child replacement strategy on the other hand; refers to fertility responses of individuals to the death of their own children. It depends on how soon another child is born when one dies. Child mortality effect is built into the decision-making of majority of respondents mainly through the form of insurance. This feeling was evident among older women. Below are some of the opinions of the participants on this issue. A common view by most respondents was that having fewer children is better to have many children since some may die and leave the parents with no one to assist in the future.

> *'There was that fear that God could take away those children and so they could give birth. If you gave birth to children and they keep dying, the next time you got a baby they would now put it on the roadside for someone else to pick and bring for you and they would be given names like 'Nabakala, Nabangala'. Such thing used to scare people off*

and so the woman would decide let me give birth and if they die, at least I would have remained with a few ***(FGD_WOMEN_OLD_MAK)***

"….I want ten children because when you will target few children, maybe they will maybe die all of them then you will lose them but if you will be having many children, few will die and the rest will come to assist you in the future……. I don't know about my husband [**MTA_IDI_FO)**

Old age security

Old-age security was indicated as a factor which motivates parents to have many children in both areas. Poor parents consider children as wealth and also as a source of wealth. They believe children will support them in the future and so the many the better. Children also provide household labor and support parents when they grow old. The expectation of wealth benefit of children is varied- For the girls, the families would benefit from the dowry paid as argued by young men in Bungoma. They also believed that by educating children, the get jobs and start earning income which is partly used to support parents. This second strategy is drive by the belief that parents must be supported by their children when they grow up. Children also provide psychological satisfaction as described in the excerpt below. Large families are therefore regarded an asset to the family.

I: What is your opinion, do men in this area prefer more children or it's the women who prefer more children? R: …..its men who like many children I: why is it so? R: I see this because men love kids more because they consider themselves as men and maybe he hasn't been fortunate to have things that he will be proud of, so he thinks it's his children that are his pride. If there is someone has a car, pick up, Nissan saloon but he doesn't a kid yet this poor chap here has the kids as his Nissan (KIB**_IDI_141_MY)**

Many children are good because if you have them they will help you work. As a mother I will divide the work amongst them and things will be done very fast. In my view many children, even long time ago we just used to give birth even up to 14 children ***(MUCHI_FGD_FO)***

When you give birth to children, they are not all born at the same time, it can take about 20 years and therefore the first born can get married and dowry will be paid. There is that possibility of growing rich and even in this community I have seen it happen; people becoming rich through dowry from the girls. Also you can give birth to so many children and they are educated, they you start reaping the fruits. I don't think there is any relationship between having many children and poverty

Res it is also believed that when you give birth to too many children when they get employment they will bring in financial wealth (MUCHI_FGD_MY)

Discussion

The study examined the relationship between household poverty and fertility and test whether the relationship this depends on the period and context using data from successive KDHS of 1989 through to 2008/9 supplemented with qualitative data. Results show existence of fertility differentials by household wealth status both in Coast and Western provinces. Overall, the TFR of poor women is high across all the surveys. Two patterns are observed. First, the magnitude of the difference in TFR between poor and non-poor women declined during the period 1989-1998. Second, there was a stall in fertility decline between 1998-2008/9 period during which the TFR gap between poor and non-poor women widened, due to an increase in fertility among poor women. Furthermore, the differentials in fertility by household wealth status persist even after controlling for education and experience of death of a child under five years, although child mortality seems to push fertility upwards significantly. Existing literature shows that large families are associated with poverty (Lanjouw and Ravallion, 1994; Arnstein et al., 2005). The association is usually stronger in developing countries where developed-social security systems are lacking or inadequate. Fertility is high among poor households because parents rely on their children form economic support especially during old age. While the association between poverty and fertility is well established, we find that the poor saw no link between poverty and the number of children in a family. Poverty was caused by lack of income and scarcity of land, but not from having many children. To women children were a means to gain resources and security, while men viewed children as a source of pride and a means to demonstrate power in the absence of employment and income. Arnstein et al. (2005) revealed that the persistence of high levels of fertility and poverty is driven by lack of economic growth and poor access to family planning; education and healthcare.

The results show that the estimated effects of most variables on the number of children born in the last five years vary for Coast and Western provinces although the directions of these effects is the same. The results are unique for Coast and Western provinces. In Western province, the effect of household wealth was weak in 19989, 1993 and 1998; however, the effect was stronger in 2003 and 2008/9. By contrast, the effect of household wealth was inconsistent in Coast province with results showing a strong effect in 1993, 2003 and 2008/9, a weak effect in 1989 and insignificant effect in 1998. The effect of education on fertility was also unique in Coast and Western provinces. In Coast province, the effect of education was significant except in 1989

when there was no difference in fertility by level of education. In Western province, the effect of education was weak and diminished once other factors were controlled.

In both regions, the effect of death of a child under five was consistent and significant in all the periods. Schultz (1981) argued that high infant mortality rates among the poor tends to provoke excess replacement births or births to insure against high infant and child mortality, which will increase household size. There are some cultural issues and thinking on household size that are unique for both Western and Coast regions. Despite social and cultural differences, large families are still viewed as important among poor households. Qualitative data sheds some light on possible explanations for the lack of fertility decline observed among poor households. In particular, polygyny, old age security and child mortality are important. Jensen and Juma (1989) and Jensen and Khasakhala (1993) found similar results about 20 years ago. Although there was significant fertility decline in Western province, the decline was concentrated among non-poor women. High fertility in the two areas is fuelled by the high desire for children. According to demographic transition theory, fertility will begin to decline when childbearing enters the "calculus of conscious choice" (Coale, 1973). In other words, individuals must first have fertility preferences (goals) and then proceed to implement those preferences. The process of transition to lower fertility occurs when people develop individual preferences for smaller families and begin to take charge of their reproductive life. To a large extent, this has not taken place in Bungoma and Kwale as many poor families still desire large families.

Conclusion and policy implication

The stall in fertility is associated with reproductive behaviour of the poor, while among the Non-poor a continuous decline has taken place during the period of the study. Poor women are also exposed to more child deaths and additional births through replacement of dead children. In view of this, population policies and programmes should emphasis more on the health benefits of birth spacing and reproductive health rights.

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