HAS UGANDA EXPERIENCED ANY STALLED FERTILITY TRANSITION? REFLECTING ON THE LAST FOUR DECADES

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Introduction

Fertility decline particularly in Sub-Saharan has been debated among scholars as over the years with scholars pointing to divergent views pertaining to fertility transition Garenne (2009) and Ezeh, Mberu, and Emina (2009). Most of all regions of the world have had fertility declines over the years since 1940s although the magnitude and pace seems to vary. For instance compared other to regions of the world like Asia and Latin America, Sub-Saharan Africa lags behind with high fertility levels of (TFR-5.1) far above the rest that have already reached replacement fertility. The United Nations estimates present the regions to have had drastic reduction since their onset of fertility transition in the early 1960s (United Nations, 2013). In fact to some researchers like Shapiro (2012), Sub-Saharan African is the latest region to begin fertility transition in the world. The variations and pace in fertility decline among the regions and individual countries have confirmed by Casterline (2001) and Tabutin and Schoumaker (2004). The question raised is why some African countries even have after having substantial fertility declines seem to have stalled over the years. Bongaarts John. (2006) made an explicit illustration of the transition where he found about five countries in Sub Saharan Africa (Turkey, Kenya, Dominican Republic and Ghana) had stalled fertility. The other countries (Uganda, Mali, Burkina Faso, Mozambique, and Niger) were not considered since they were far above the pre-transitional stage. Implying that those respective countries had not yet began their noticeable fertility transition. The region's (SSA) uniqueness is unfolded in the persistent high unmet need for contraception as well as preference for big family size (Tabutin & Schoumaker, 2004). Additionally the high fertility rates have also attributed to low use of contraception (J. Bongaarts, 2008; J. Bongaarts & Casterline, 2013) and sociocultural inhibitions (Bongaarts, 1987; Caldwell & Caldwell, 1987).

Divergent views have been raised explaining stalling fertility as having a new type of transition (J. C. Caldwell, Orubuloye, & Caldwell, 1992) due older women changes in fertility and longer postpartum period (J. Bongaarts, Frank, & Ron, 1984). Bongaarts (2008) argued that more than half of all Sub Saharan countries had stalled fertility, as well as Garenne (2009) and Ezeh, Mberu, and Emina (2009) pointed stall in fertility in Eastern African countries associated with increased adolescent fertility and larger family size preference. According B. Schoumaker (2009) the fertility stall in Sub Saharan Africa is spurious as opposed to some countries eminent consistent declines.
There have been success stories registered among a few African countries specifically in Rwanda, Malawi, Madagascar and Ethiopia that have had consistent decrease in fertility levels and unmet need for contraception (Boadu, 2002; Bongaarts, 2008). The exceptionally robust family planning programs and continued awareness as well as availability of contraception at all levels have been highlighted (Bhargava, 2007; J. Bongaarts & Casterline, 2013). Some scholars however suggested that the stall are superficial and that there could be possibilities of reversal in the reduction as noticed with Kenya's fertility transition (Opiyo & Levin, 2008). This study therefore seeks to a) Examining whether there is a fertility stall in Uganda using demographic healthy surveys data to provide recommendations to policy makers , b) Provide estimates for the current fertility levels and trends in Uganda and c) the demographic and socioeconomic factors responsible for fertility levels.

Methods

The study was based on a demographic technique of reverse survival using own children information. This technique provides estimation of annual age specific fertility rates for a period of 10 to 15 years before any survey or census. For efficient analysis to be obtained, enumerated children were classified by age of the mother at the time of the survey. This classification was grounded on information on enumerated children and mothers by single year ages. The enumerated children were then linked to their mothers using the reverse- projection to the time of their births by age of the mother. We use Bruno Schoumaker (2012) method retrospective fertility estimation which was deemed appropriate as it could provide estimates on levels and trends of births in any given area or country. It can also be used for differential fertility analyses. In addition the method is also vital in provision of estimates of fertility at different points in time. The demographic and health survey data sets were used because they collect data on birth histories of the mother where dates of all children born to a mother are reported starting with the fist birth up to the survey period. Information on all the children a woman has had in her life is reported which is pertinent for this analysis. However this method can be limited by adoption and age misreporting though in circumstances with accurate age reporting it is considered the best. The DHS collects information on year, month of birth and child survival for each respective child.

Type of in-put information

Information on enumerated children under the age of 10 or 15 years preceding the survey classified by single year ages. Specifically

1. Date of birth for each respective child
2. Birth dates of each woman irrespective of whether the woman has ever given birth or not and
3. The date of the survey.

Estimated parameters /out-put

- The respective age specific fertility rates for each of 10 or 15 years preceding the enumeration
- Total fertility for each of the 10 or 15 years preceding enumeration

Analysis and Reconstruction of fertility Trend

Using five Demographic and Health Survey (DHS) data sets of 1988/89 to 2006, we begin by evaluating the quality of data assessing age and dates of birth for the children and their respective mothers. This is important to control for age heaping and misreporting which is evidenced in demographic and health surveys data. This is followed by fertility reconstruction for over 38 years using a method proposed by Bruno Schoumaker (2012) using pooled DHS data. In this approach the person-period approach as suggested to analyze all the birth histories of the women (Bruno

Schoumaker, 2004) is employed. The Poisson regression model is estimated using person-period data and it takes on the form

$$\text{Log}(\mu_i) = \log(t_i) + \alpha + f(\text{age}) + g(\text{covariates})$$

Where

μ_i is the expected number of children born to the mother in each respective time segment,

t_i this is the length of the time or exposure,

f (age) is a function of age estimated , and

g(time) this is a function of calendar time.

As parameters are being estimated, age is a dummy that represents the five0year age groups of the mother and the function of the calendar time represents annual fertility variations for the respective DHS. Lastly, modeling of fertility rates by selected socioeconomic factors for the two DHSs is carried out to examine the factors responsible for fertility decline.

RESULTS

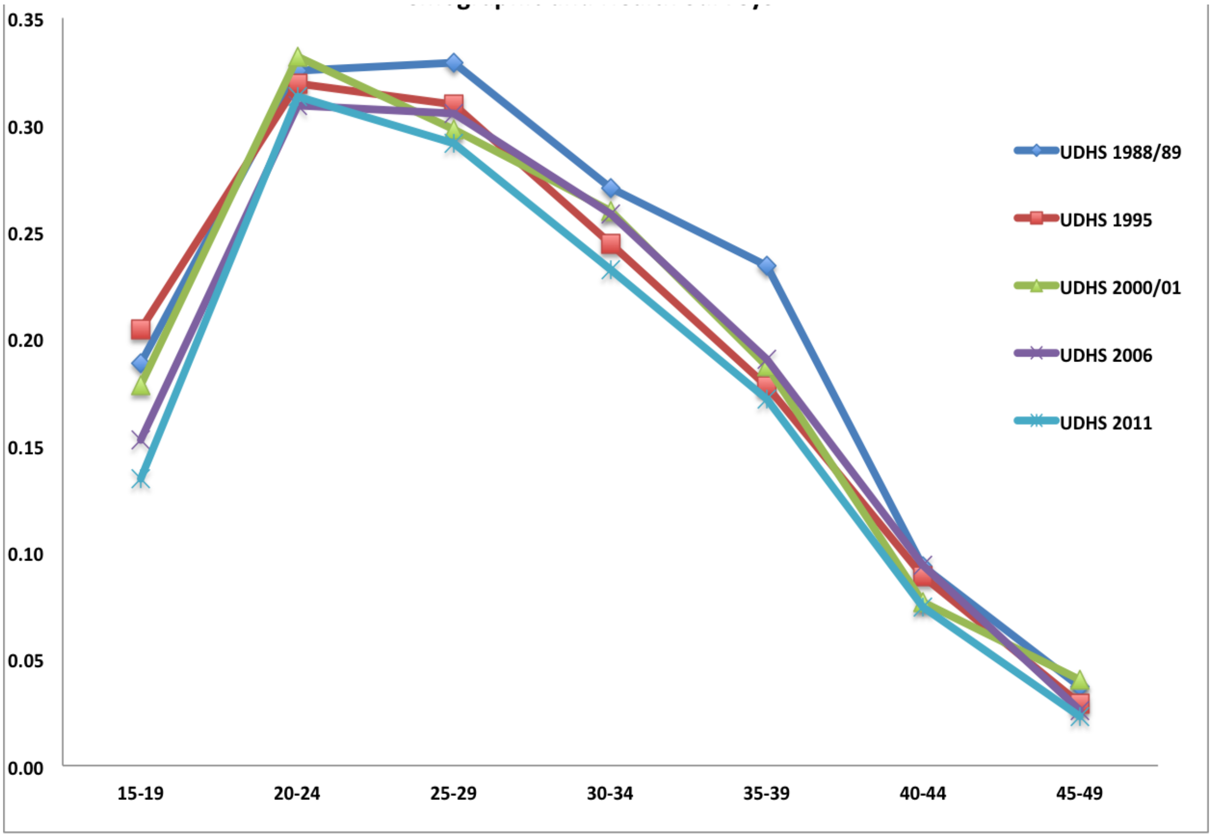
The analysis showed oscillations in the fertility levels ranging from high levels of 8.8 children born per woman in 1976 to a minimum of 6.8 children born in 1981 in Table 1. The rates remained high at about 7 children born per woman until later when they suddenly dropped to 5.9 children in 1992. The low levels of fertility rates could perhaps have been caused by omission of births and age misreporting during the survey. Subsequently, the levels have been reducing gradually since 2000, with no reduced fluctuations as evidenced in previous years, depicting an imminent reduction.

The age specific fertility levels for the respective three year period are presented in Figure1. Over the years the rates have reduced in the respective age groups of the mothers with the highest rates recoded in 1988/89 survey compared to the 2011 DHS.

The fertility levels and trends over the years have been consistent with the respective demographic and health surveys as indicated in Figure 2. These findings suggest that the country is in pre transitional stage of demographic transition given the current estimate of 6.2 children per woman. Regression models showed that increased education and improvement in wealth status of women are among the key determinants for reduced fertility levels over the years.

Conclusions: The findings suggest no fertility stall but demonstrate an onset of fertility transition where the levels continue declining consistently to low levels. These findings are pertinent for policy makers especially at this point in time when the country is focusing on harnessing the demographic dividend. As the reduction in fertility commences the country ought to facilitate this process with increased investment in education and family planning. We hope to further analyze the data and to asses the rate of fertility deduction per annum and establish the years that could have had fertility stall if any. This study is first to indicate reconstruct fertility levels and trends over the years for the country to establish whether the country has a fertility stall or not.

Figure 1: Age specific Fertility Levels of the three year period proceeding each respective survey (1989-2011)

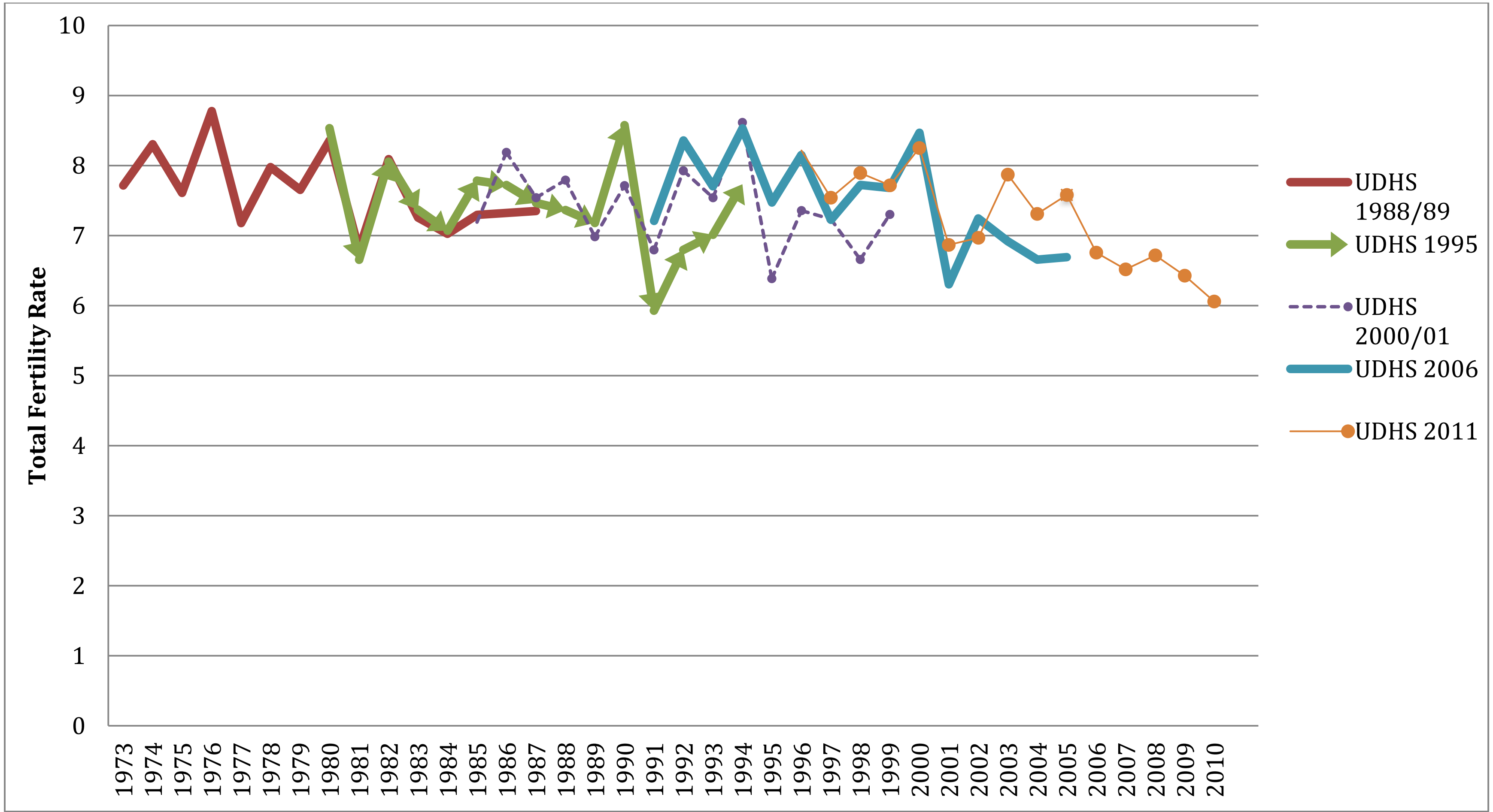


YEARS	UDHS 1988/89		UDHS 1995		UDHS 2000/01		UDHS 2006		UDHS 2000/01	
1973	**7.72**	(7.00-8.43)								
1974	**8.30**	(7.59-9.02)								
1975	**7.61**	(6.95-8.26)								
1976	**8.78**	(8.10-9.46)								
1977	**7.18**	(6.58-7.77)								
1978	**7.98**	(7.37-8.58)								
1979	**7.65**	(7.08-8.22)								
1980	**8.36**	(7.78-7.78)	**8.53**	(7.93-9.13)						
1981	**6.80**	(6.29-7.30)	**6.66**	(6.14-7.16)						
1982	**8.09**	(7.55-8.63)	**8.05**	(7.51-8.59)						
1983	**7.25**	(6.76-7.75)	**7.37**	(6.87-7.87)						
1984	**7.03**	(6.55-7.50)	**7.07**	(6.60-7.54)						
1985	**7.30**	(6.83-7.77)	**7.78**	(7.31-8.26)	**7.19**	(6.64-7.74)				
1986	**7.32**	(6.86-7.78)	**7.72**	(7.26-8.18)	**8.19**	(7.62-8.75)				
1987	**7.35**	(6.90-7.80)	**7.47**	(7.03-7.90)	**7.54**	(7.02-8.06)				
1988			**7.36**	(6.94-7.78)	**7.79**	(7.28-8.30)				
1989			**7.18**	(6.78-7.59)	**6.98**	(6.52-7.45)				
1990			**8.57**	(8.14-9.01)	**7.71**	(7.23-8.19)				
1991			**5.93**	(5.58-6.27)	**6.79**	(6.37-7.22)	**7.21**	(6.73-7.69)		
1992			**6.80**	(6.44-7.16)	**7.93**	(7.47-8.38)	**8.36**	(7.86-8.86)		
1993			**7.01**	(6.65-7.37)	**7.54**	(7.11-7.97)	**7.70**	(7.24-8.17)		

1994	**7.73**	(7.36-8.10)	**8.61**	(8.16-9.07)	**8.53**	(8.06-9.00)		
1995			**6.39**	(6.01-6.76)	**7.47**	(7.04-7.90)		
1996			**7.36**	(6.96-7.75)	**8.15**	(7.72-8.59)	**8.22**	(7.70-8.73)
1997			**7.23**	(6.86-7.61)	**7.22**	(6.83-7.62)	**7.54**	(7.07-8.02)
1998			**6.66**	(6.31-7.01)	**7.72**	(7.32-8.12)	**7.89**	(7.42-8.36)
1999			**7.30**	(6.94-7.67)	**7.68**	(7.29-8.07)	**7.72**	(7.27-8.17)
2000					**8.47**	(8.07-8.87)	**8.25**	(7.80-8.70)
2001					**6.30**	(5.97-6.64)	**6.86**	(6.47-7.26)
2002					**7.24**	(6.89-7.60)	**6.97**	(6.58-7.36)
2003					**6.92**	(6.58-7.26)	**7.87**	(7.47-8.28)
2004					**6.66**	(6.3-6.98)	**7.31**	(6.93-7.69)
2005					**6.69**	(6.37-7.01)	**7.58**	(7.20-7.96)
2006							**6.76**	(6.41-7.10)
2007							**6.52**	(6.19-6.85)
2008							**6.72**	(6.39-7.05)
2009							**6.43**	(6.11-6.74)
2010							**6.06**	(5.76-6.36)
2011								

Table 1: Retrospective total fertility rates (TFRs) by single calendar years for the period 1973-2010 at 95% confidence interval

Figure 2: Retrospective fertility rates using own children method for single Calendar years using consecutive UDHS (1988/89-2011)



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