"The Determinants of Contraceptive Method Choice in Kenya and the Fertility Transition"

Extended Abstract Proposed to PAA 2007 Annual Meeting

By David Ojakaa[1]

Introduction

From the mid-1970s to the 1990s, fertility and contraceptive use in Kenya changed significantly from a natural to a controlled fertility regime. Thus, the 1977/78 Kenya Fertility Survey (KFS) recorded a total fertility rate of 8.2, representing one of the highest in the world. By 1998 the Kenya Demographic and Health Survey (KDHS) conducted then showed a reduced TFR of 4.7. Similarly, contraceptive prevalence increased from 6.7% in 1977/78 to 39.3% in 1998. The general objective of this study is to understand the factors related to this transition. Within this broader goal, the immediate objective of the study is to examine the determinants of contraceptive method choice in Kenya using the 1998 Kenya Demographic and Health Survey (KDHS) and the 1999 Kenya Service Provision Assessment (KSPA) survey.

The Problem

The most commonly used methods of modern contraception in 1998 were injectables (used by 12% of married women of reproductive age), pill (9%), female sterilization (6%), periodic abstinence (6%), IUDs (3%), condoms (1%), and implants (1%). Use of modern methods was higher in urban areas compared to rural areas, but the reverse was true for natural methods (NCPD, 1999; Magadi and Curtis, 2003). The source of methods also varied. In 1998, Government health facilities were the most widely used source, supplying 58% of all contraceptives. Private and NGO health facilities distributed 33%, other private sources such as shops (5%), while Community Based Distributors (CBDs) supplied 3%. Relative to many other African countries, this level of prevalence and distribution is high. A question that however arises is what role increased motivation for fertility control, and what part the family planning program, particularly access to services, have separately played in these increased levels of method use.

A number of studies carried out in the past have attempted to answer this question. On the one hand, two studies (Feyisetan and Casterline, 2000; Njogu, 1991) arrived at two conclusions. The first was that a condition for fertility decline in Africa in general and Kenya in particular is change in fertility demand, this change being primarily driven by fluctuations in socio-economic conditions. The second conclusion was that it is nevertheless possible for increase in contraceptive prevalence to take place through satisfaction of unmet demand without corresponding changes in fertility preferences and socio-economic factors.

In contrast, other studies carried out at the community level or within the catchment of health facilities indicated that access matters. For example, using results of the 1988/89 KDHS that were linked to a community survey, the Kenya Community Survey (KCS) carried soon thereafter (Hammerslough, 1992), it was concluded that while at the beginning of the 1980s only 26% of the Kenyan rural population could reach a source of family planning services within 3 hours, this had increased to 87% by 1989. Similarly, a study conducted in the catchment of the Chogoria Methodist Mission Hospital in the Mount Kenya region (Goldberg et al., 1989) showed that the family planning program operating in the area was possibly responsible for the fertility decline experienced in the region. Among the factors

[1] **Ph. D. Candidate, Université de Montréal, Canada. Correspondance:**
Université de Montréal, 2350 Boulevard Édouard-Montpetit, 15243, Montréal Qc. H3T 1J4 Canada.
E-mail : david.ojakaa@umontreal.ca

cited for the advancement of the program included the setting up of many clinics providing health services including family planning in the catchment area thus providing easy access, and the presence of Health Educators (HEs) and Community Health Workers (CHWs) in the community.

In spite of the merits of these studies, a number of issues related to contraceptive use in sub-Saharan Africa have come to the forefront. First, the roles of rising child mortality and the changes in socio-economic conditions of households have become increasingly important in affecting fertility behaviour. Secondly, as concluded in a study in Zimbabwe (Guilkey and Jayne, 1997), contraceptive method choice is determined by both individual characteristics and community variables. There is therefore need to provide a more complete picture of the fertility demand, supply, and access factors that jointly determine changes in contraceptive use and ultimately fertility.

Justification

This study is interesting for several reasons. First, it applies a more comprehensive and up-to-date model of the determinants of contraceptive method choice and hence the fertility transition in Kenya than similar studies carried out in the past. Secondly, from an evaluation perspective, the question of method choice is a current and relevant population policy and program issue. For example, it could point out which strategies would be most effective. Effectiveness is currently important for a number of reasons, including competing program priorities such as malaria or HIV/AIDS prevention and control programs. In particular, it would be interesting to know what program strategies and modalities that address fertility intentions and family planning access are most effective. Thirdly, the study has theoretical significance because it potentially locates the source of fertility decline outside the usual socio-economic explanation. Finally, the reference year for the study, namely 1998 is significant because it represents the height of the fertility transition in Kenya before the stagnation and so it is a vantage point from which to look back.

Pathways to Method Choice

The paradigm for the determinants of contraceptive method choice applied in this study is based on the fertility demand and supply framework proposed by Easterlin (1985). In this framework, changes in method choice take place through variations in fertility preferences or intentions and also through improved access to family planning services. Fertility intentions are in turn determined by demand and supply for surviving children. Intentions, often measured in DHS surveys in terms of whether couples want a child soon, want to space their births, or do not want any more children in the future, are directly related to the type of contraceptive method adopted. Prospective family planning clients who would like to space their births would go for the short-term and to some extent, long-term methods. Clients who do not want any more children would on the other hand opt for permanent methods.

Fertility intentions depend first and foremost on fecundity. This is a biological aspect that is considered to be generally beyond the control of the individual woman and has to be estimated from an assumed distribution. Secondly, the chances of child survival are important. Mortality for children under five years of age has been rising in Kenya since the 1980s, so physiological, replacement, and insurance effects for such child loss are expected to be important especially in those parts of the country where child mortality is high. Thirdly, fertility intentions depend on the socio-economic status of the household or economic conditions in the community in which the woman lives. Socio-economic conditions have been deteriorating in the country, and it is possible that parents may compromise the desired quality of their children's upbringing and instead opt for more children soon. Thirdly, the costs

associated with bringing up children such as those for their education, which have been rising in Kenya, may influence intentions by compelling parents to space or limit their births more fervently.

Once a couple has decided to control their fertility, whether they use a particular contraceptive method depends on access, which comprises the economic, psychic and social costs entailed in learning about and using specific methods of family planning. This adoption process consists of four sequential stages - women become aware of possibility of fertility control, are informed about and evaluate the means of that control, try out a contraceptive method, and adopt one. Family planning programs may implement this process in three ways. To initiate the adoption process, programs typically try to increase awareness about three things. These are the possibility of fertility control, knowledge on how to achieve such control, and its approval. To speed up the adoption process, programs endeavour to lower costs associated with adoption of a method. Thirdly, programs increase the efficiency with which contraceptive users control their fertility by providing and emphasizing clinical or modern methods.

Based on these pathways, the following hypotheses are tested in this study. First, it is hypothesized that women who want no more children are more likely to use contraceptive methods. Within this prediction, two sub-hypotheses are proposed. First, it is expected that fertility intentions will vary with the number of living children. Secondly it is hypothesized that in communities with lower socio-economic conditions, women will be more likely to want more children soon. To test the role of access, it is hypothesized that women who are closer to sources of family planning services are more likely to use a modern contraceptive method. Within this broad hypothesis, two related predictions are tested. First, it is expected that women who have been exposed to a family planning message are more likely to use a modern method. Secondly, in communities where there are more CBD agents, women are more likely to use a modern contraceptive method.

Data and Methods

To undertake this study, data are required at two levels – the individual woman and the community. The data choices were therefore dictated by that need. This condition was satisfied by the 1998 Kenya demographic and Health Survey (KDHS) and the 1999 Kenya Service Provision Assessment (KSPA) survey (NCPD, 1999; MOH, 2000). The fact that the two surveys are linked – half of the 530 clusters sampled for the 1998 KDHS were randomly selected for the KSPA survey – renders analysis easier as the two are treated as one dataset. Information collected in the 1998 KDHS that is pertinent to this study includes the birth history of each woman, fertility intentions, and family planning knowledge and use. This study was restricted to married women of reproductive age who numbered 4,631, out of the total of 7,881 interviewed in the 1998 KDHS.

The objective of the KSPA survey was to provide information on reproductive and child health services in Kenya. The survey included a community and a health facility component. A number of variables captured in the community component of the KSPA survey are useful for this study. They include the number of educational opportunities within the community, perceived travel times to the nearest health facility including a source of family planning services, and the presence of good water and sanitation in the community. Similarly, in the health facility inventory questionnaire the date in which the health facility visited was opened is included in the analysis. Nevertheless, out of the 388 health facilities visited, information on the date of opening was available for only 337 of them.

The method used in this study consists of estimating the parameters of the determinants of contraceptive method choice using four simultaneous equations. The dependent variables in the four equations are method choice, fertility intentions, the number

of births and child deaths to the woman up to the time of the survey. It is assumed that method choice is a function of fertility intentions, exogenous characteristics of the woman and her community, and unobservable factors such as natural fecundity. Fertility intentions are in turn a function of child deaths, births, a woman's and her community's exogenous characteristics, and the unobservable factors. The two dependent variables, namely method choice and intentions, are categorical and unordered. Thus, the multinomial logit function is used to model both relationships, and the results are interpreted as odds ratios.

Births and child deaths are each modeled as functions of exogenous individual characteristics of the woman and of her community, and the unobserved factors. Since the births and deaths refer to the entire reproductive life of the woman, the availability of health facilities is backdated to the beginning of the woman's childbearing which was set at 15 years of age. These last two dependent variables are ordinal. The Poisson distribution is therefore used to model their relationship with respective independent variables, and the results can be interpreted first as probabilities of experiencing a given number births or child deaths, and then as odds ratios for the given independent variables. It is assumed that the four equations are linked together by an error term, the unobserved factor, which is present in each of them and is constant over time. The method of maximum likelihood estimation is used to derive accurate parameter estimates by integrating with respect to this unobserved factor.

Expected Results

The results of the study will be based on the following tabulations:

1. Descriptive statistics for endogenous variables;
2. Descriptive statistics for exogenous variables;
3. Odds ratios of independent variables on births and deaths;
4. Odds ratios for fertility intentions;
5. Odds ratio for contraceptive method used.

A number of conclusions and recommendations, which have a bearing on population policy and programs, are made from this evaluation study.

References:

1. Easterlin, R.A. and Crimmins, E.M. (1985). The Fertility Revolution. A supply-Demand Analysis. The University of Chicago Press. Chicago and London.
2. Feyisetan, B. and Casterline, J.B. (2000). "Fertility Preferences and Contraceptive Change in Developing Countries". International Family Planning Perspectives. Vol. 26, No. 3. Pp. 100-109. 2000. Alan Guttmacher Institute.
3. Goldberg, H.I., McNeil, M., and Spitz, A. (1989). "Contraceptive Use and Fertility Decline in Chogoria, Kenya". Studies in Family Planning. Vol. 20. No.1. pp. 17-25.
4. Guilkey, D.K. and Jayne, S. (1997). "Fertility Transition in Zimbabwe: Determinants of Contraceptive Use and Method Choice." Population Studies. 51. Pps. 173-189.
5. Hammerslough, C. (1992). "Proximity to Contraceptive Services and Fertility Transition in Rural Kenya". International Family Planning Perspectives. Vol. 18, No. 2. pp. 54-58.
6. Magadi, M. and Curtis, S.L. (2003). "Trends and Determinants of Contraceptive Method Choice in Kenya". Studies in Family Planning. Vol. 34, No. 3 (Sep., 2003), pp. 149-159.
7. Ministry of Health (MOH). (2000). Kenya Service Provision Assessment Survey 1999. Ministry of Health; National Council for Population and Development, Ministry of Finance and Planning. Nairobi, Kenya. ORC Macro. Calverton, Maryland. October 2000.
8. National Council for Population and Development (NCPD). (1999). Kenya Demographic and Health Survey 1998. National Council for Population and Development; Central Bureau of Statistics; Office of the Vice-President and Ministry of Planning and National Development. Nairobi, Kenya; Macro International Inc., Calverton, Maryland USA.
9. Njogu, W. (1991). "Trends and Determinants of Contraceptive Use in Kenya." Demography, Vol. 28, No. 1. pp. 83-99.