



Trends and Determinants of Contraceptive Method Choice in Kenya

Monica A. Magadi and Siân L. Curtis

Abstract

This paper uses data from the 1989, 1993 and 1998 Kenya Demographic and Health Surveys to examine trends and determinants of contraceptive method choice. The analysis, based on two-level multinomial regression models, shows that, across years, use of modern contraceptive methods, especially long-term methods is higher in the urban than rural areas, while the pattern is reversed for traditional methods. Use of barrier methods among unmarried women is steadily rising, but the levels remain disappointingly low, particularly in view of the HIV/AIDS epidemic in Kenya. One striking result from this analysis is the dramatic rise in the use of injectables. Of particular program relevance is the notably higher levels of injectables use among rural women, women whose partners disapprove of family planning, uneducated women and those less exposed to family planning media messages, compared to their counterparts with better service accessibility and family planning information exposure.

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Biographical note

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Introduction

There is substantial evidence from existing literature that broadening the choice of contraceptive methods increases overall contraceptive prevalence (Freedman and Berelson, 1976; Phillips et al., 1988; Jain, 1989). The provision of a wide range of contraceptive methods increases the opportunity for individual couples to obtain a method that suits their needs. A recent study of contraceptive method choice in the developing countries confirmed that prevalence is highest in countries where access to a wide range of methods is uniformly high (Ross et al., 2001).

Contraceptive choice is also a central element of quality of care in the provision of family planning services and an important dimension of women's reproductive rights (Bruce, 1990, Diaz et al., 1999). It is recommended that family planning programs offer a variety of safe, effective, acceptable and affordable contraceptive methods to help women prevent unwanted pregnancies and sexually transmitted diseases (STDs) and to help them achieve their childbearing goals. In addition, method-mix is a key determinant of the fertility impact of contraceptive practice; the use of more effective methods even by a smaller proportion of eligible

couples can produce a greater decline in fertility than use of less effective methods by a larger proportion of couples (Shah, 1991). Hence, proper understanding of factors associated with contraceptive method choice is not only important for improvements in quality of care and program planning and management (e.g. logistics, training needs, financial planning), but also to enable the country to realise its desired impact of contraceptive practice on unwanted fertility. Existing literature has suggested a general trend in contraceptive method choice from less effective to more effective methods (see Robey, 1988), although some studies find contrary trends (e.g. Matteson and Hawkins, 1997).

Studies on contraceptive method choice in countries of sub-Saharan Africa are few, probably due to the generally low contraceptive prevalence. In Kenya, modern methods of contraceptives have been available since 1957 through the Ministry of Health (MOH) facilities and private/NGO sector, and in 1967 Kenya was the first country in sub-Saharan Africa to adopt a national population policy. The current Kenyan national family planning strategy goal is to: “Make available quality and sustainable family planning services to all who need them, in order to reduce the unmet needs for family planning” (MOH, 1996). The combined program efforts of public and private agencies have resulted in a steady increase in contraceptive use in Kenya over the past two decades, which has facilitated the country’s transformation from having the highest fertility level in the world in the late 1970s to one that has experienced one of the most dramatic fertility declines in human history. Kenya’s contraceptive prevalence rate is now one of the highest in sub-Saharan Africa. The main contraceptive methods currently available include the pill, injectables, Intra-uterine device (IUD), hormonal implants, barrier methods (condom, diaphragm, cervical cap, spermicides and sponge), sterilization, and natural family planning.

Given this background of rapidly increasing contraceptive use, issues of contraceptive use dynamics are becoming increasingly important in Kenya. There is a growing need to examine the implications of method choice patterns for the fertility impact of contraceptive practice in the country as well as for the sustainability of the Kenyan family planning program. Analysis of the trends in the characteristics of users of specific methods can provide insights on future contraceptive needs in the country (see Johnson and Macke, 1996). Such information will help the family planning program operate optimally by enabling it to procure and distribute adequate quantities of desired and appropriate methods to meet the increasing demand for specific contraceptive methods.

The overall aim of this paper is to understand the trends and determinants of contraceptive method choice in Kenya. The specific objectives are to (i) examine trends in contraceptive method choice in Kenya; (ii) identify the socio-demographic and community factors influencing contraceptive method choice; and (iii) establish whether patterns of method choice suggest that family planning users are choosing types of methods that are suitable for their reproductive needs.

Data and Methods

The analysis is based on the three sets of Kenya Demographic and Health Survey (KDHS) data collected in 1989, 1993 and 1998. A total of 22,571 women aged 15-49 were interviewed in the

three surveys. This study uses data on 5,962¹ women who were using a contraceptive method at the time of the survey. Information obtained in the individual women's questionnaire provides data on the socio-economic, cultural and demographic characteristics of users of different contraceptive methods. In addition, the KDHS data provide information for constructing contextual community factors (e.g. percent of women reached by information campaigns through mass media such as radio, etc.) that are also included in the analysis. Background characteristics were selected for inclusion in the analysis based on their significance in previous studies of contraceptive behaviour or their hypothesised association with contraceptive choice. They can be grouped broadly into contextual factors (survey year, region, area of residence), demographic factors (age, number of living children, marital status, most recent pregnancy unplanned); socio-economic factors (religion, education), and knowledge and attitudinal factors (ideal family size, partners attitude to family planning, knowledge of ovulatory cycle, community exposure to family planning messages on radio).

The analysis of the determinants of method choice is carried out in two stages. In the first analysis, we focus on the choice between general classes of methods. The response variable, method type, is classified into four categories: short-term modern², long-term modern,³ permanent, and traditional. The second analysis focuses on the choice between specific modern methods, where the response variable is classified into five distinct categories: pill, injectable, IUD/implants, sterilization, and barrier methods (comprising mainly male condoms). The three

¹ Weighted number of cases

² Short-term modern methods comprise injectables, pills and barrier methods (including male and female condoms, diaphragm, cervical cap, spermicide and sponge).

³ Long-term modern methods include intra-uterine device (IUD) and hormonal implants.

KDHS data sets are merged, and interactions of specific factors with year included to test whether the determinants are significantly different across survey years.

Contraceptive method choice among women in the same community is likely to be correlated due to unobserved factors such as the availability of specific methods at the existing facilities, or community's perceptions of specific methods. Therefore, we use multilevel multinomial models for the multivariate analysis. These two-level models take into account the woman-level and the unobserved community-level effects. Details of the multilevel multinomial model used can be found in Magadi et al. (2001). A convenient way to present the effects of the predictor variables on an outcome based on multinomial models is in the form of estimated probabilities (Retherford and Choe, 1993). These probabilities are calculated for each covariate, while holding the remaining covariates and the community random effects at their mean values. They represent the estimated probability of choosing a particular method holding other factors constant.

Results

Trends in Contraceptive Use by Method

Figure 1 gives the overall trend in contraceptive use by method among currently married women in Kenya from 1984 to 1998.

(FIGURE 1 ABOUT HERE)

Overall, contraceptive use among married women has increased from 17 percent in 1984 to 39 percent in 1998. The proportion of married women using sterilization has more than doubled since 1984, but the rate of increase has slowed down in the 1990s compared to the 1980s. The use of long-term methods (IUD and implants) rose steadily up to 1993, but declined in 1998.

The same pattern is shown by pill use, which had increased sharply from 3 percent in 1984 to almost 10 percent in 1993, but dropped slightly in 1998. Injectables have recorded the most dramatic and consistent increase over the years, from less than 1 percent in 1984 to 12 percent in 1998. The use of barrier methods has shown a general increase over the years but the levels are still relatively low, with just about 1 percent of married women reporting use of these methods. The trend in the use of traditional methods has not been consistent over the years, showing the highest level of 9 percent in 1989, and the lowest level of 6 percent in 1993. These method-specific trends mean that the method mix in Kenya has shifted from one in which almost half of all contraceptive use was use of traditional methods and modern method use was fairly evenly divided between sterilization, pills, and IUDs to one in which hormonal methods, particularly injectables, dominate.

Determinants of Method Choice

Factors associated with the choice of different types of methods

The parameter estimates from the multivariate model of the determinants of contraceptive method type are presented in Appendix I, while the corresponding predicted probabilities are given in Table 1.

(TABLE 1 ABOUT HERE)

Overall, couples in Kenya are more likely to use short-term modern contraceptive methods than either long-term or traditional methods. This finding is consistent across almost all subgroups of women. The determinants of method choice have been fairly constant over time; only urban/rural differences in method choice vary significantly by year as illustrated in Figure 2. The probability of using modern contraceptive methods, especially long-term methods, is consistently

higher in urban than rural areas, while the probability of using traditional methods is higher in rural than urban areas. In 1989, rural women were more likely to use traditional methods than modern methods, but this pattern was reversed in the 1990's, when there was overall greater use of short-term modern methods compared to the other methods. The pattern reflects a shift from traditional to short-term modern methods among rural users between 1989 and 1993 but relatively little change in the probability of choosing different types of methods since then. It is important to note that the probability of choosing long-term methods has steadily declined over the years in both rural and urban areas, net of other factors.

There are marked regional differentials in patterns of method choice. Women in Central Province are the most likely to use long-term methods, while those in Coast are the most likely to use short-term methods. Nyanza is associated with the highest probability of use of permanent methods, while Eastern has the highest probability of use of traditional methods. The high probability of using permanent methods in Nyanza Province may be associated with a voluntary surgical contraception program in Kisii district within the province.

As would be expected, the probability of use of short-term methods steadily declines with age while the probabilities of use of long-term and permanent methods increase with age. Single and younger women tend to be more likely to use traditional methods than their older and married counterparts. However, the highest probability of use of traditional methods is associated with women who have no living children.

Despite the Catholic Church's open opposition to the use of modern contraceptive methods, there is little variation in the probability of choosing between modern and traditional methods by religious affiliation. The variation in choice of different types of methods by educational attainment also seems minimal, though the highly educated (secondary or higher) are the most likely to use long-term methods, while those with no formal education are the most likely to use traditional methods. Partner's approval of family planning is quite important in method choice. Women whose partners disapprove of family planning are highly likely to use traditional methods of family planning, suggesting that in this group of women the disapproval is mainly for modern contraceptive methods. However, this analysis only focuses on users, and many women whose partners disapprove of family planning will remain non-users.

Although statistically significant effects are found, method choice shows little substantive variation by ideal family size, recent experience of an unplanned birth, or exposure to mass media messages. A community's exposure to family planning media messages on the radio is generally associated with a higher probability of use of long-term and terminal methods, and a lower probability of use of short-term methods.

There is a significant community effect in the multilevel model, suggesting that there are unobservable community factors that influence choice of different types of contraceptive methods, especially the choice between traditional versus short-term modern methods. The intra-community correlations suggest that 19 percent of the total unexplained variation in the choice of traditional versus short-term modern methods is attributable to community factors, not included in the model. The results imply high homogeneity in the use of traditional methods

within communities but are unable to shed light on the whether the factors behind that homogeneity are cultural or service related.

The determinants of choice of specific modern methods

The parameter estimates for the models on choice of specific modern methods are presented in Appendix II and the corresponding predicted probabilities in Table 2.

(TABLE 2 ABOUT HERE)

The predicted probability of using injectables increased considerably from 0.2 in 1989 to 0.5 in 1998, while the probability of using IUD/Implants, and to some extent the pill, declined over this period. This suggests that Kenyan women who would have previously used other reversible modern contraceptive methods are now choosing the injectable. The use of injectables is associated with rural residence, while the use of IUD/Implants is associated with urban residence. Nairobi and Eastern provinces have the highest probability of pill use, while use of injectables is highest in Rift Valley and Nyanza.

The probability of using of the pill, and to some extent injectables, tends to decline with age. The probability of pill use is highest among women with 1-2 living children and lowest among women with 5 or more living children, but the probability of injectable use increases consistently with the number of living children. Overall, barrier methods are predominantly used by women who have not begun childbearing.

Educational attainment and partner's disapproval influence modern method choice. Use of injectables declines with increasing educational attainment, while use of barrier methods tends to increase with education. Women whose partners disapprove of contraceptives are more likely to use injectables, but less likely to use barrier methods, compared to those whose partners approve of family planning. This is not surprising since condom use requires partner's co-operation, while injectables may be used without the partner's knowledge. Community exposure to family planning media messages also has a significant effect on the choice of specific modern methods, with greater exposure to family planning messages being associated with increased use of pills, IUD/Implants and sterilization, but reduced use of injectables.

In addition to the above factors, the choice of injectables versus choice of the pill varies significantly across communities (see Appendix II). The intra-community correlations suggest that 12 percent of the total variation in injectable versus pill choice is attributable to unobserved community factors. Such factors may include the availability of specific services within the communities, or communities' perceptions on specific contraceptive methods.

Contraceptive Method Mix and Reproductive Needs

Family planning clients have different needs: young women who want to delay childbearing; couples who want to space births; and those who want to stop childbearing. An important question that this paper seeks to address is whether the contraceptive method choices of users are consistent with their reproductive needs. The analysis draws on previous studies on appropriate contraceptive method mix (Choe and Bulatao, 1992; Galway and Stover, 1994; WHO, 1999) to

assess if different groups of women are using methods most likely to be suitable for them. Table 3 shows trends in method mix by type of user.

(TABLE 3 ABOUT HERE)

Over the years, married limiters have constituted more than half of all family planning users in Kenya, while unmarried women have constituted more than 20 percent of users. The most popular method among the older limiters (aged 35+) is sterilization, accounting for about one-third of overall contraceptive use among this group of women. On the other hand, the pill and, more recently, the injectable, are the most popular methods among the younger limiters aged below 35 years. In general, the married spacers tend to favor mainly the pill (constituting at least one-third of contraceptive use among this subgroup across the years). However, this group also equally favored the use of traditional methods in the earlier period, and to some extent, use of injectables, during the latter period. Traditional methods are the most popular among unmarried women, although their use has declined from 43 percent in 1989 to 28 percent in 1998. Use of barrier methods, and to some extent long-term methods (IUD/ Implants), has remained low among all types of users. Although an appreciable proportion of younger married limiters (21%) were using IUDs or Implants in 1989, this proportion has dropped significantly to 6 percent by 1998. The use of barrier methods is rapidly gaining popularity among the unmarried women, though the level is still relatively low at about 11 percent.

The consistent increasing trend in injectables use, accompanied with a declining trend in the use of IUD/Implants among the young married limiters suggests an apparent shift from

IUD/Implants to injectables among young limiters. This implies possible underutilization of long-term methods. On the other hand, the apparent general shift by all user types from traditional methods to the injectables during the 1989-93 period is a positive change towards greater use of more effective contraceptive methods.

Discussion

A clear picture that has emerged from this analysis of method choice in Kenya is the dramatic rise in the use of injectables. The results suggest that women who would have previously chosen other reversible contraceptive methods (including the pill, IUD/Implants and traditional methods) are shifting to the injectable. During the period 1989-1993 the increase in injectable use was primarily at the expense of traditional methods, particularly in rural areas. More recently, the increased use of injectables has been primarily at the expense of the pill and long-term modern methods. There is no sign of the popularity of this method declining. In separate analyses, the injectable was observed to be the most commonly cited preferred method among current non-users who intend to use contraception in the future, and also has the lowest discontinuation rate during the first 12 months of use with only 22 percent discontinuing compared to discontinuation rates of 33-62 percent observed for the other methods (Magadi et al., 2001). This rate of discontinuation for injectables in Kenya is low by international standards, probably suggesting general satisfaction with the method.

What are the program implications of this trend? Of possible concern to programs is the apparent shift from IUD/Implants to injectables among limiters (especially younger ones) for whom long-term methods might be a suitable option. The fact that higher educational attainment

and exposure to family planning messages through the mass media are both associated with reduced use of injectables suggests that the usage may not always be well informed. Also, the increased use of injectables as opposed to IUD/Implants in rural areas suggest that service availability could be a factor in method choice. From the perspective of service delivery, the rising popularity of injectables underscores the need for safe infection practices in the health sector given the context of high HIV prevalence in Kenya and recent debate on the transmission of HIV in Africa (Brewer et al., 2003; WHO, 2003). In addition, costing, logistics, and staff training all need to take into account the rising popularity of injectables over alternative methods.

There are, however, many positive aspects in the shift to injectables. The higher use of injectables (as opposed to barrier methods) by women whose partners disapprove of family planning suggests that this is a viable option for family planning where spousal support is lacking. While injectables may provide an option for family planning for women with non-supportive partners, programs should aim at encouraging partner support (e.g. through male involvement initiatives) to ensure that individuals have the opportunity to make informed choices between the various methods available. Another positive aspect is the apparent shift from traditional methods to injectables, which suggests increasing use of more effective contraceptive methods.

One critical question in the analysis of contraceptive method choice is whether method choice is predominantly supply driven or demand driven. Are women using contraceptive methods that they prefer to use, or are the methods used based on what the providers recommend or what is available at the facilities? The 1999 Kenya Service Provision Assessment (KSPA) survey data

suggest that method choice in Kenya is mainly demand driven, but to some extent also influenced by the supply. More than 85 percent of the 341 facilities surveyed provided injections, condoms and pills, while about half of the facilities provided IUD. Natural family planning was provided by about 40 percent of the facilities, and only about 10 percent or less provided Norplant, female sterilization or vasectomy (NCPD, MOH and ORC Macro, 2000). Although the health workers in the KSPA survey were observed to promote or emphasize a particular method in a number of consultations, the distribution of new family planning clients by whether or not they received their preferred method shows that all women expressed a method preference either spontaneously or when asked, and most of them (88%) received the preferred method. The injectable is the most preferred method (and the popularity is increasing), followed by the pill, whose popularity is declining.

The analysis of trends in method mix suggest a steady increase in the use of barrier methods among unmarried women. This could be attributed to increasing use of condoms for the prevention of sexually transmitted diseases, including HIV/AIDS. However, from a program perspective it is disappointing that the multivariate analysis, controlling for year and other important factors, shows no evidence of increased use of barrier methods among adolescents or unmarried women. In fact, having no living child is the main factor in use of barrier methods, the same factor that primarily determines use of traditional methods.

Overall, the patterns of contraceptive method mix by type of user observed in this study suggests that to a large extent, most family planning users in Kenya are using methods that are suitable for their reproductive needs. This is reflected in the predominant use of sterilization by older

limiters, and use of pills and injectables by spacers and younger limiters, respectively. Pills and injectables are generally recommended for spacers given their high level of effectiveness and high level of user control over continuity. However, the relatively low use of barrier methods among unmarried women and the use of IUD/Implants by this group of women (albeit low levels) are of potential concern⁴. Sexual activity among the unmarried may be sporadic and have high possibility of multiple sexual partners with unknown medical history. For this group, non-clinical supply methods, which are simple to use and provide protection against sexually transmitted diseases, such as condoms, are preferred (Choe and Bulatao, 1992). On the other hand, IUD and implants are generally considered less suitable because of the lack of user control over use. In addition, IUD is not usually recommended for women who have multiple sexual partners because of the increased risk of pelvic inflammatory disease associated with increased risk of STIs (Kost et al., 1991; WHO, 2000). Nevertheless, the trend of increasing use of barrier methods and reduction in the use of IUD/Implants by unmarried users is encouraging.

Kenya has seen dramatic rises in contraceptive use over the last two decades and with that success come new challenges. Understanding women's choices of contraceptive methods is an important step in ensuring that the family planning program meets the challenge of providing women with a range of methods from which to make an informed choice and the service delivery mechanism to fulfil that choice.

⁴ The level of condom use is sensitive to the way questions are asked. In this study, condom use is determined from questions on use for contraceptive purposes. Questions on use for STD prevention or specifically on condom use at

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last sex typically yield higher levels of condom use than questions on use for contraception.

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Table 1 Predicted probabilities for choice of short-term modern, long-term modern, permanent, and traditional contraceptive methods in Kenya : 1989-98.

Variable	Type of Method			
	Short-term (modern) ¹	Long term (modern) ²	permanent (modern) ³	Traditional ⁴
Year*residence interaction				
Urban 1989	0.54	0.22	0.08	0.17
Rural 1989	0.32	0.05	0.07	0.56
Urban 1993	0.64	0.18	0.05	0.13
Rural 1993	0.60	0.05	0.04	0.31
Urban 1998	0.67	0.11	0.10	0.13
Rural 1998	0.58	0.03	0.08	0.32
Region				
Nairobi	0.67	0.08	0.06	0.19
Central	0.63	0.18	0.06	0.14
Coast	0.74	0.06	0.06	0.13
Eastern	0.57	0.10	0.05	0.28
Nyanza	0.65	0.06	0.11	0.18
Rift Valley	0.61	0.08	0.06	0.25
Western	0.63	0.08	0.07	0.22
Age group				
15-24	0.72	0.05	0.01	0.21
25-34	0.67	0.08	0.06	0.18
35+	0.49	0.13	0.18	0.19
Marital status				
Single	0.59	0.06	0.06	0.29
Currently married	0.65	0.10	0.06	0.19
Previously married	0.64	0.07	0.11	0.17
No. of Living children				
0	0.32	0.02	0.00	0.65
1-2	0.65	0.09	0.03	0.23
3-4	0.66	0.11	0.08	0.16
5+	0.60	0.10	0.15	0.15
Religion				
Catholic	0.64	0.09	0.05	0.22
Protestant	0.65	0.09	0.07	0.19
Muslim/ other	0.59	0.12	0.06	0.22
Education level				
None	0.64	0.04	0.07	0.24
Primary incomplete	0.66	0.08	0.06	0.19
Primary complete	0.66	0.08	0.07	0.19
Secondary +	0.60	0.14	0.06	0.20
Partner's attitude on FP				
Approves	0.68	0.10	0.05	0.17
Disapproves	0.50	0.07	0.03	0.39
Unsure/ missing	0.21	0.02	0.47	0.30
Ideal family size				
Less than 3	0.67	0.10	0.07	0.16
4	0.62	0.09	0.07	0.23
5 +	0.60	0.08	0.06	0.27
Non-numeric	0.68	0.09	0.03	0.20
Recent unplanned birth?				
No	0.62	0.10	0.07	0.21
Yes	0.68	0.07	0.06	0.19
Correctly knows ovulatory cycle				
No	0.64	0.09	0.07	0.20
Yes	0.62	0.11	0.08	0.19
Prop. heard FP on radio				
0	0.68	0.07	0.04	0.21
1	0.61	0.11	0.09	0.19
Overall mean	0.64	0.09	0.07	0.20

1- includes injectables, pill and barrier methods, 2- includes morplant and IUD, 3- includes TL and vasectomy, 4- includes periodic abstinence and withdrawal

Table 2. Predicted probabilities for choice of specific modern contraceptive methods 1989-98.

Variable	Specific Modern Method				
	Pill	Injectables	IUD/Implants	Sterilization	Barrier
Year					
1989	0.39	0.19	0.21	0.15	0.05
1993	0.41	0.33	0.15	0.05	0.06
1998	0.28	0.45	0.08	0.14	0.05
Residence					
Urban	0.34	0.29	0.22	0.11	0.04
Rural	0.37	0.36	0.11	0.10	0.06
Region					
Nairobi	0.47	0.25	0.11	0.09	0.07
Central	0.36	0.29	0.24	0.08	0.04
Coast	0.39	0.37	0.09	0.09	0.07
Eastern	0.45	0.23	0.16	0.09	0.06
Nyanza	0.28	0.44	0.09	0.16	0.04
Rift Valley	0.26	0.47	0.11	0.10	0.05
Western	0.35	0.37	0.11	0.11	0.06
Age group					
15-24	0.48	0.37	0.08	0.02	0.06
25-34	0.39	0.36	0.12	0.09	0.04
35 +	0.24	0.27	0.18	0.25	0.06
Marital Status					
Single	0.34	0.41	0.10	0.10	0.05
Currently married	0.37	0.33	0.15	0.09	0.05
Formerly married	0.30	0.36	0.10	0.18	0.06
Living children					
0	0.36	0.08	0.05	0.01	0.50
1-2	0.48	0.27	0.13	0.05	0.08
3-4	0.36	0.36	0.14	0.10	0.04
5 +	0.26	0.39	0.13	0.19	0.04
Education level					
None	0.35	0.44	0.07	0.11	0.03
Primary incomplete	0.36	0.37	0.12	0.10	0.05
Primary complete	0.37	0.36	0.12	0.10	0.06
Secondary +	0.35	0.28	0.21	0.09	0.07
Partner's attitude on FP					
Approves	0.37	0.35	0.15	0.08	0.06
Disapproves	0.37	0.40	0.14	0.06	0.03
Unsure/ missing	0.10	0.09	0.02	0.78	0.01
Ideal family size					
Less than 3	0.37	0.34	0.14	0.10	0.05
4	0.34	0.36	0.14	0.10	0.06
5 +	0.37	0.33	0.12	0.10	0.08
Non-numeric	0.45	0.34	0.12	0.04	0.05
Recent unplanned birth?					
No	0.36	0.33	0.15	0.11	0.05
Yes	0.36	0.37	0.11	0.09	0.07
Prop. heard FP on radio					
0	0.33	0.44	0.10	0.07	0.06
1	0.37	0.28	0.16	0.13	0.05
Overall mean	0.36	0.34	0.14	0.10	0.05

Table 3 Percent distribution of methods according to type of user, by year of survey.

Year	Type of user	% of users	Percent using method						No. of Cases
			Pill	Injectable	Barrier	IUD/Implants	Sterilization	Traditional	
1989	Unmarried	25.3	25.3	8.2	2.7	12.2	8.7	42.9	368
	Married spacer	18.1	35.2	8.0	4.9	15.2	0.0	36.7	264
	Married limiter U35	26.3	25.3	15.4	2.1	20.9	15.7	20.6	383
	Married limiter 35+	30.3	10.9	12.5	3.6	16.6	32.2	24.3	441
	Total	100.0	22.7	11.3	3.2	16.3	16.1	30.3	1,456
1993	Unmarried	24.5	27.8	19.5	7.6	4.6	8.0	32.4	435
	Married spacer	17.0	42.2	19.9	5.0	11.0	0.0	21.9	301
	Married limiter U35	30.3	31.4	31.0	2.6	10.4	14.1	10.4	538
	Married limiter 35+	28.1	11.0	22.2	3.0	14.2	37.1	12.4	499
	Total	100.0	26.6	23.9	4.3	10.2	16.7	18.3	1,773
1998	Unmarried	21.2	20.3	27.7	10.9	5.3	8.1	27.7	433
	Married spacer	20.8	33.6	31.9	5.5	6.9	0.0	22.1	420
	Married limiter U35	25.0	24.8	41.8	3.2	6.1	10.5	13.7	505
	Married limiter 35+	32.8	12.2	25.9	2.6	10.7	35.3	13.3	663
	Total	100.0	21.5	31.5	5.1	7.6	15.9	18.3	2,021

Figure 1
Background Trends in Contraceptive Method Choice (Current Use) among Married Women Aged 15-49 years in Kenya (1984-98)

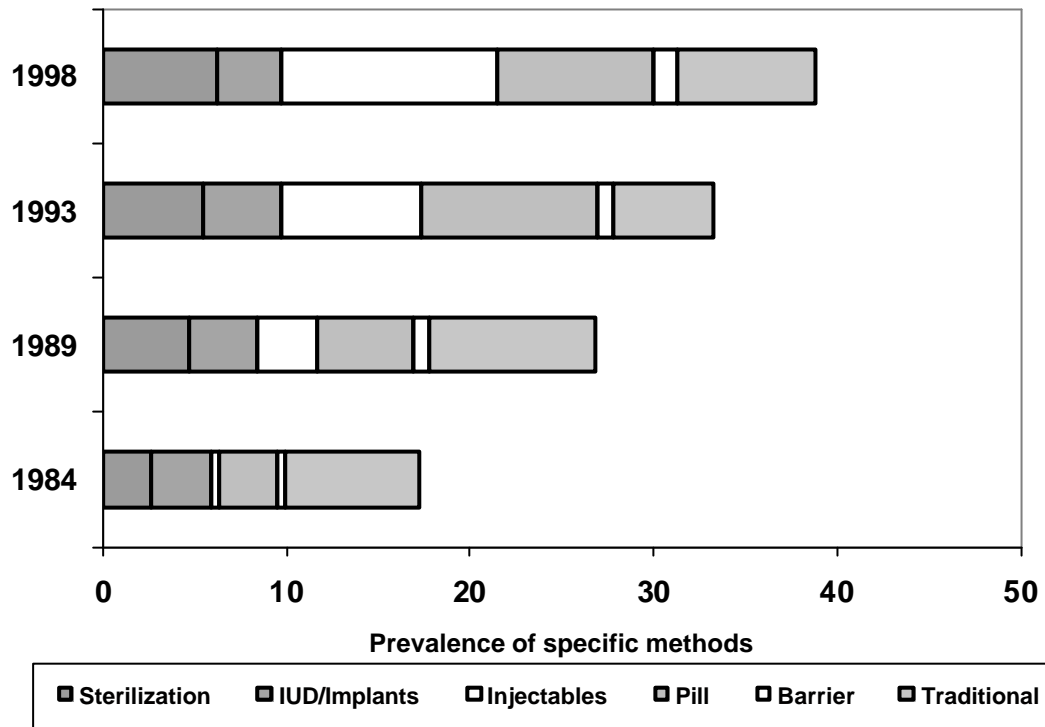
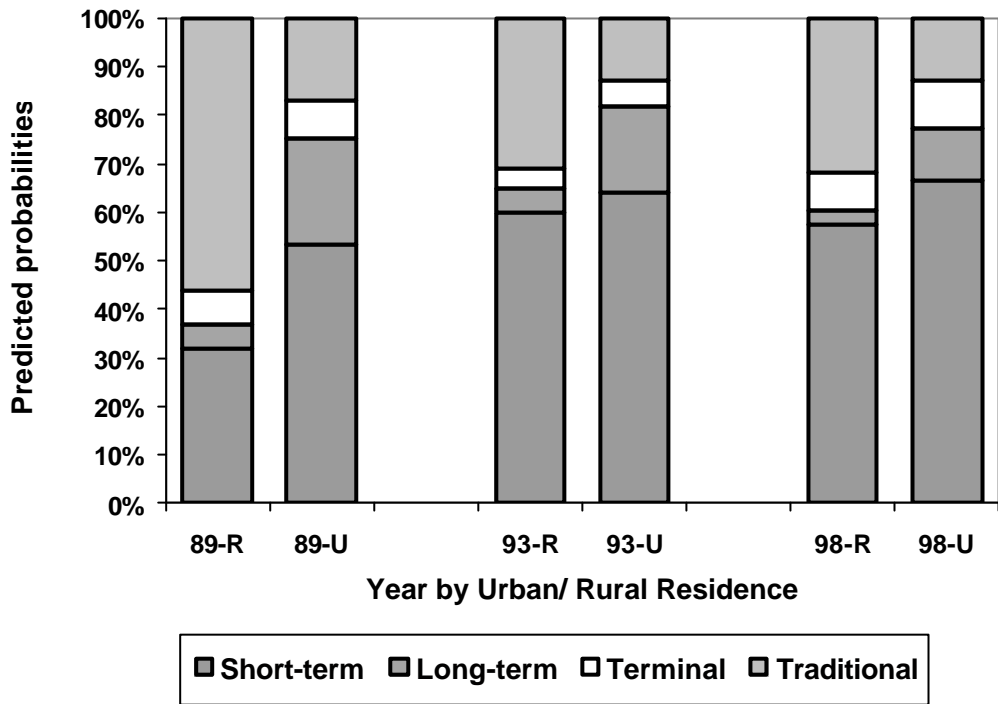


Figure 2
Urban/ Rural Differentials in Method Choice by Year.



APPENDIX I

Parameter estimates for choice of long-term modern or traditional contraceptive methods, versus short-term modern methods (Standard errors given in brackets)

Parameter	Estimates (standard errors)		
	Long-term (modern)	Permanent	Traditional
Constant	-2.28 (0.527)	-6.66 (1.255)	0.05 (0.435)
Year of survey			
1989 ¹	-	-	-
1993	-0.38 (0.215)	-0.64 (0.366)	-0.46 (0.330)
1998	-0.92 (0.195)*	0.05 (0.278)	-0.52 (0.322)
Residence			
Urban ¹	-	-	-
Rural	-0.50 (0.182)*	0.21 (0.278)	0.96 (0.282)*
Region			
Nairobi	-0.92 (0.192)*	-0.01 (0.287)	0.24 (0.300)
Central ¹	-	-	-
Coast	-1.25 (0.193)*	-0.07 (0.209)	-0.23 (0.245)
Eastern	-0.49 (0.155)*	0.05 (0.175)	0.80 (0.165)*
Nyanza	-1.05 (0.181)*	0.58 (0.174)*	0.21 (0.192)
R. Valley	-0.83 (0.157)*	0.15 (0.156)	0.60 (0.166)*
Western	-0.86 (0.193)*	0.14 (0.193)	0.45 (0.195)*
Age Group			
15-24 ¹	-	-	-
25-34	0.52 (0.166)*	1.62 (0.425)*	-0.06 (0.127)
35 +	1.28 (0.213)*	2.99 (0.432)*	0.28 (0.172)
Marital status			
Never married	-0.37 (0.226)	0.07 (0.337)	0.52 (0.153)*
Currently married ¹	-	-	-
Formerly married	-0.33 (0.192)	0.60 (0.166)*	-0.10 (0.183)
Living children			
0 ¹	-	-	-
1-2	0.77 (0.398)	1.27 (1.249)	-1.74 (0.181)*
3-4	1.02 (0.421)*	2.15 (1.259)	-2.14 (0.225)*
5 +	1.01 (0.447)*	2.87 (1.270)*	-2.13 (0.251)*
Religion			
Catholic ¹	-	-	-
Protestant	0.04 (0.111)	0.25 (0.120)*	-0.17 (0.092)
Muslim /other	0.44 (0.203)*	0.25 (0.238)	0.19 (0.210)
Education level			
None ¹	-	-	-
Primary incomplete	0.56 (0.220)*	-0.24 (0.144)	-0.27 (0.150)
Primary Complete	0.57 (0.224)*	0.02 (0.154)	-0.29 (0.155)
Secondary +	1.24 (0.220)*	-0.03 90.158)	-0.14 (0.155)
Partner's attitude			
Approves ¹	-	-	-
Disapproves	-0.09 (0.230)	-0.24 (0.220)	1.15 (0.145)*
Unsure	-0.49 (0.367)	3.35 (0.170)*	1.78 (0.190)*
Ideal family size			
<3 ¹	-	-	-
4	-0.01 (0.114)	0.03 (0.127)	0.46 (0.099)*
5+	-0.16 (0.165)	-0.06 (0.146)	0.67 (0.129)*
Non numeric	-0.16 (0.386)	-0.82 (0.307)*	0.22 (0.325)
Wanted status of last birth			
Wanted ¹	-	-	-
Unplanned	-0.42 (0.117)*	-0.26 (0.128)*	-0.17 (0.097)
Correct knowledge of ovulatory cycle			
No ¹	-	-	-
Yes	0.17 (0.107)	0.22 (0.117)	0.30 (0.096)*
Prop. heard FP on radio	0.54 (0.300)	0.87 (0.279)*	0.06 (0.281)
Interactions with year			
Rural_93	-0.27 (0.238)	-0.54 (0.389)	-0.75 (0.347)*
Rural_98	-0.31 (0.237)	-0.50 (0.302)	-0.62 (0.347)
Community effect (s.d)	0.10 (0.094)	0.38 (0.098)*	0.87 (0.079)*

1 – reference category, *p<0.05

APPENDIX II

Parameter estimates for choice of specific modern methods versus pill .

Parameter	Estimates (standard errors)			
	Injectable	IUD/Implants	Sterilization	Barrier
Constant	-2.16 (0.485)	-1.76 (0.579)	-6.29 (1.161)	-1.20 (0.713)
Year of survey				
1989 ¹	0.00	0.00	0.00	0.00
1993	0.51 (0.157)*	-0.38 (0.153)*	-1.27 (0.199)*	0.02 (0.236)
1998	1.22 (0.154)*	-0.59 (0.150)*	0.26 (0.147)	0.24 (0.230)
Residence				
Urban ¹	0.00	0.00	0.00	0.00
Rural	0.14 (0.172)	-0.75 (0.159)*	0.15 (0.191)	0.27 (0.255)
Region				
Nairobi	-0.40 (0.278)	-1.04 (0.226)*	-0.12 (0.288)	0.24 (0.346)
Central ¹	0.00	0.00	0.00	0.00
Coast	0.16 (0.206)	-1.11 (0.218)*	0.04 (0.218)	0.38 (0.326)
Eastern	-0.44 (0.189)*	-0.63 (0.169)*	-0.14 (0.190)	0.18 (0.262)
Nyanza	0.69 (0.196)*	-0.73 (0.207)*	0.95 (0.212)*	0.16 (0.329)
R. Valley	0.82 (0.161)*	-0.43 (0.178)*	0.57 (0.173)*	0.60 (0.278)*
Western	0.26 (0.187)	-0.73 (0.204)*	0.28 (0.210)	0.34 (0.309)
Age Group				
15-24 ¹	0.00	0.00	0.00	0.00
25-34	0.19 (0.144)	0.63 (0.174)*	1.79 (0.413)*	-0.14 (0.223)
35 +	0.36 (0.193)	1.51 (0.233)*	3.30 (0.421)*	0.77 (0.311)*
Marital status				
Never married	0.28 (0.170)	-0.27 (0.245)	0.15(0.345)	-0.09 (0.286)
Currently married ¹	0.00	0.00	0.00	0.00
Formerly married	0.28 (0.172)	-0.21 (0.215)	0.83 (0.193)*	0.30 (0.322)
Living children				
0 ¹	0.00	0.00	0.00	0.00
1-2	0.91 (0.342)*	0.56 (0.424)	1.77 (1.153)	-2.16 (0.304)*
3-4	1.48 (0.365)*	0.94 (0.447)*	2.79 (1.144)*	-2.53 (0.402)*
5 +	1.89 (0.386)*	1.20 (0.480)*	3.78 (1.160)*	-2.30 (0.458)*
Education level				
None ¹	0.00	0.00	0.00	0.00
Incomplete primary	-0.19 (0.173)	0.46 (0.247)	-0.10 (0.183)	0.67 (0.421)
Complete primary	-0.28 (0.168)	0.41 (0.248)	-0.14 (0.186)	0.72 (0.415)
Secondary +	-0.46 (0.180)*	1.07 (0.247)*	-0.21 (0.200)	0.95 (0.423)*
Partner's attitude				
Approves ¹	0.00	0.00	0.00	0.00
Disapproves	0.15 (0.180)	-0.07 (0.254)	-0.35 (0.254)	-0.58 (0.449)
Unsure	0.03 (0.298)	-0.50 (0.406)	3.63 (0.245)*	-0.57 (0.542)
Ideal family size				
<3 ¹	0.00	0.00	0.00	0.00
4	0.13 (0.110)	0.05 (0.124)	0.07 (0.143)	0.24 (0.195)
5+	0.03 (0.145)	-0.16 (0.182)	-0.09 (0.174)	0.48 (0.269)
Non numeric	-0.20 (0.327)	-0.36 (0.436)	-1.09 (0.360)*	-0.23 (0.764)
Recent unplanned birth:				
No ¹	0.00	0.00	0.00	0.00
Yes	0.10 (0.104)	-0.39 (126)*	-0.14 (0.146)	0.35 (0.188)
Prop heard FP on radio	-0.56 (0.285)*	0.33 (0.338)	0.56 (0.323)	-0.26 (0.441)
Community effect (s.d)	0.65 (0.093)*	0.14 (0.120)	0.12 (0.133)	0.15 (0.167)

p<0.05,

¹ - Reference categories.