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THE STALL IN THE FERTILITY TRANSITION IN KENYA

DHS ANALYTICAL STUDIES 9



MAY 2006

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The Stall in the Fertility Transition in Kenya

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Contents

Tables and Figures	v
Executive Summary	ix
Preface	xi
Acknowledgments	xiii
1 Introduction	1
2 Fertility in Kenya	3
3 Contraceptive Use in Kenya	7
3.1 Trends in Contraceptive Prevalence	7
3.2 Trends in the Contraceptive Mix	10
3.3 Trends in Contraceptive Prevalence by Background Characteristics	11
3.4 Trends in Contraceptive Failure Rates and Discontinuation	15
3.5 Trends in Sources of Methods	16
3.6 Trends in Attitudes Toward Family Planning	17
3.7 Trends in Unmet Need for Family Planning	18
3.8 HIV/AIDS and Contraceptive Use	18
4 Reproductive Preferences	21
4.1 Perspective of a Quarter of a Century	21
4.2 Trends by Residence	23
4.3 Trends by Education	24
4.4 The “Wanted and Unwanted” Explanation	27
4.5 Trends by Ethnicity, Religion, and Wealth	28
4.6 Trends in Male Preferences	31
4.7 The AIDS Hypothesis	32
4.8 Child Mortality Trends and Reproductive Preferences	33
4.9 Multivariate Analysis	34
5 Summary and Conclusions	37
References	41

Tables and Figures

Figure 2.1	Trends in the total fertility rate, Kenya 1977-78 to 2003	3
Figure 2.2	Trends in age-specific fertility rates, Kenya 1975-78 to 2000-03	4
Table 2.1	Percentage of women age 15-19 who are mothers or pregnant with their first child, by background characteristics, Kenya 1993- 2003	4
Table 2.2	Trends in the total fertility rate, by background characteristics, Kenya 1993-2003	5
Table 2.3	Trends in percentage of women who had a birth in the five years preceding the survey, by number of children ever born at the beginning of the five-year period, Kenya 1993-2003	5
Figure 3.1	Trends in percentage currently using contraception, Kenya 1993-2003	7
Figure 3.2	Annual estimates of the percentage of all women using a modern method of contraception during the ten years preceding the 2003 DHS survey in Kenya	8
Figure 3.3	Trends in the use of any contraceptive method among all women and among women who had sex in the past four weeks, Kenya 1993-2003	9
Figure 3.4	Trends in the use of modern methods of contraception and traditional methods of contraception among women who had sex in the past four weeks, Kenya 1993-2003	9
Figure 3.5	Change in the method mix for modern contraceptive methods: percentage of woman-months of use of modern methods Kenya 1993-2003	11
Figure 3.6	Trends in current use of contraception among currently married women by age, Kenya 1993-2003	12
Figure 3.7	Trends in current use of contraception among currently married women by number of living children, Kenya 1993-2003	12
Figure 3.8	Trends in current use of contraception for spacing and for limiting births among currently married women, Kenya 1993-2003	13

Figure 3.9	Trends in current use of contraception among currently married women by province	13
Figure 3.10	Trends in current use of contraception among currently married women by education, Kenya 1993-2003	14
Figure 3.11	Annual estimates of married woman-years of use of modern contraceptive methods during the ten years preceding the 2003 DHS survey in Kenya, by level of education	15
Figure 3.12	Trends in annual contraceptive failure rates during the ten years preceding the 2003 DHS survey in Kenya	16
Table 3.1	Trends in percentage of contraceptive users who discontinued use after the first year of use for reasons other than “to become pregnant,” Kenya 1998 and 2003	16
Figure 3.13	Trends in the use of public sources of modern method of contraception by current users (most recent source), Kenya 1993-2003	17
Table 3.2	Trends in percentage of currently married women and men who approve of family planning, by level of education, Kenya 1998 and 2003	17
Table 3.3	Trends in unmet need for family planning among currently married women, by background characteristics, Kenya 1993-2003	18
Table 3.4	Trends in use of contraception by perceived risk of getting AIDS, Kenya 1993 and 1998	19
Figure 4.1	Trends in percentage of currently married, fecund women who want no more children, Kenya 1977-78 to 2003	22
Table 4.1	Trends in percentage of currently married, fecund women who want no more children by number of living children, Kenya 1977-78 to 2003	22
Table 4.2	Trends in percentage of currently married, fecund women who want no more children by age, Kenya 1977-78 to 2003	22
Figure 4.2	Trends in percentage of currently married women who want no more children (including those sterilized) by residence, Kenya 1989-2003	23

Figure 4.3	Trends in percentage of currently married women who want no more children (including those sterilized) by province, Kenya 1989-2003)	24
Figure 4.4	Trends in percentage of currently married women who want no more children (including those sterilized) by education, Kenya 1989-2003	25
Table 4.3	Trends in the percentage of currently married women with two to four children who want no more children (including those sterilized) by level of education, Kenya 1993-2003	25
Figure 4.5	Trends in wanted, unwanted, and total fertility rates by education, Kenya 1993-2003	26
Table 4.4	Trends in planning status of births in the three years preceding the survey (including current pregnancy), Kenya 1993-2003	27
Figure 4.6	Trends in percentage of currently married women who want no more children (including those sterilized) by ethnic group, Kenya 1993-2003	29
Figure 4.7	Trends in the percentage of currently married women who want no more children (including those sterilized) by religion, Kenya 1993-2003	30
Figure 4.8	Trends in wanted, unwanted, and total fertility rates by wealth quintile, Kenya 1993 and 2003	31
Table 4.5	Trends in percentage of currently married men who want no more children, by background characteristics, Kenya 1993, 1998, and 2003	31
Table 4.6	Percentage of currently married women and men who want no more children by the perceived chance of contracting AIDS and whether they know anyone with the disease or who has died from it, Kenya 2003	32
Table 4.7	Percentage of married women who want no more children by whether they experienced the death of a child under five years of age in the five years preceding the survey, by number of living children, Kenya 2003	34
Table 4.8	Percentage of currently married men (with two, three, or four living children) who want no more children by whether they ever experienced the death of a child, Kenya 1998 and 2003	34
Table 4.9	Odds ratios of wanting no more children for currently married women in 1998 and 2003	35

Executive Summary

A stall occurred in the decline of fertility in Kenya between 1998 and 2003. The fertility rate had been declining and contraceptive prevalence had been increasing for a quarter of a century. This unexpected interruption of an established trend is the focus of this inquiry.

The stall or reversal of the fertility decline is seen throughout the country but is particularly evident among the least educated women while those with a secondary or higher education still show a modest decline in childbearing. The stall in contraceptive prevalence is seen mainly among younger women and among those with less education. The use of oral contraceptives, the IUD, and sterilization declined over the preceding decade while the use of injectables increased.

A finding of particular interest is that while use of contraception among all women remained constant between 1998 and 2003, the expected increase did occur among sexually active women, regardless of marital status. There was a decline in the proportion of women who had sex in the four weeks preceding the survey. This trend has also been seen in other countries in southern and eastern Africa (but not in West Africa) and may be related to the higher prevalence of HIV/AIDS in that region.

Another factor underlying the stall in the increase in contraceptive prevalence and the decrease in fertility is the observed decline in the proportion of women who want no more children, a marked departure from the steady increase in this variable since 1977. This recent change is seen in urban and rural areas, in all provinces and ethnic groups, and among women with less than a secondary education. A similar change is seen among men.

HIV/AIDS may have a role in the reversal of reproductive preferences in Kenya because it has contributed to the increase in child mortality. Women who have experienced the death of a young child are more likely than other women to want another child.

Although the analysis has identified the demographic dynamics of the stall in the fertility transition in Kenya, a full explanation is lacking. Shortages of contraceptive supplies have probably played some role but this does not explain the increase in the proportion of women who want more children.

Preface

One of the most significant contributions of the MEASURE DHS program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The *DHS Analytical Studies* series and the *DHS Comparative Reports* series examine these data, focusing on specific topics. The principal objectives of both series are: to provide information for policy formulation at the international level, and to examine individual country results in an international context. Whereas *Comparative Reports* are primarily descriptive, *Analytical Studies* take a more analytical approach.

The *Analytical Studies* series comprises in-depth, focused studies on a variety of substantive topics. The studies are based on a variable number of data sets, depending on the topic under study. A range of methodologies is used, including multivariate statistical techniques. The topics covered are selected by MEASURE DHS staff in conjunction with the MEASURE DHS Scientific Advisory Committee and USAID.

It is anticipated that the *Analytical Studies* will enhance the understanding of significant issues in the fields of international population and health for analysts and policymakers.

Martin Vaessen
Project Director

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1

Introduction

For the past 25 years, Kenya has been a prominent example of the fertility transition in sub-Saharan Africa. From one of the world's highest fertility rates, 8.1 births per woman in 1975-78, fertility dropped dramatically to 4.7 by 1995-98. At the same time, contraceptive use increased rapidly as women began wanting fewer children. These trends came to an abrupt halt in the first few years of this century according to the findings of the 2003 Kenya Demographic and Health Survey (Central Bureau of Statistics, 2004). The following analytical study examines this recent development, describing the details of the stall in the fertility transition and attempting to explain its dynamics (McDevitt and Johnson, 2005). The 2003 Kenya Demographic and Health Survey (KDHS) data used throughout this analysis exclude the Northeast province and several other districts not represented in the earlier surveys.

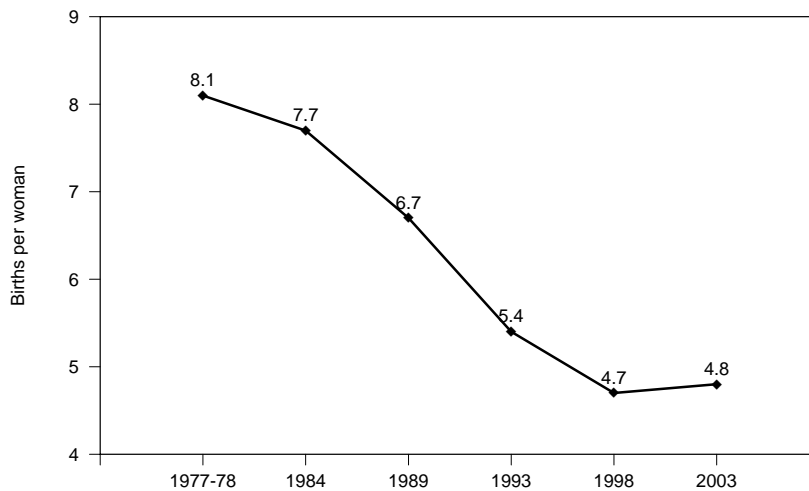
The analysis begins with a description of the changes that have occurred in fertility in Kenya, followed by trends in contraceptive prevalence, and concludes with a discussion of the changes in reproductive preferences.

2

Fertility in Kenya

The long-term decline in the total fertility rate (TFR) is depicted in Figure 2.1. The plateau between 1995-98 and 2000-03, at about 4.8 births per woman, has come as quite a surprise to observers. The trends by age group (Figure 2.2) indicate that the decline has been interrupted at almost every age.

Figure 2.1 Trends in the total fertility rate, Kenya 1977-78 to 2003



Note: Rates are based on the three-year period preceding each survey except for the 1984 estimate, which is based on a one-year period.

Figure 2.2 Trends in age-specific fertility rates, Kenya 1975-78 to 2000-03

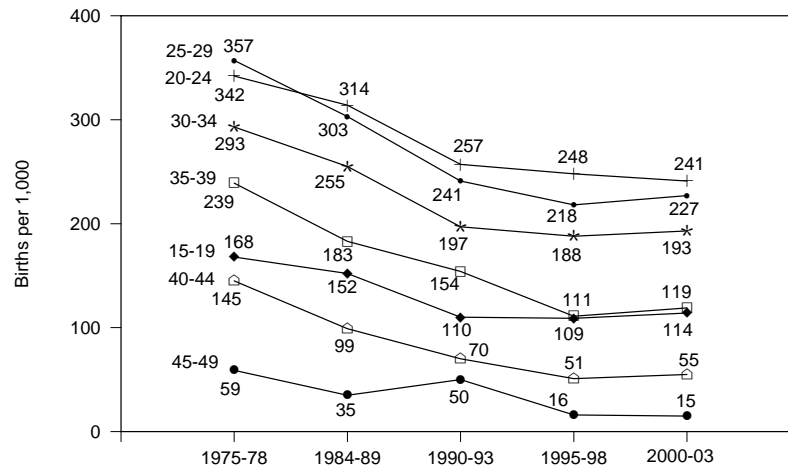


Table 2.1 Percentage of women age 15-19 who are mothers or pregnant with their first child, by background characteristics, Kenya 1993-2003

Background characteristic	KDHS 1990-93	KDHS 1995-98	KDHS 2000-03
Residence			
Urban	17	18	22
Rural	21	22	23
Province			
Nairobi	19	10	20
Central	16	15	14
Coast	17	28	29
Eastern	20	16	14
Nyanza	28	23	26
Rift Valley	20	28	30
Western	22	22	21
Education			
No education	30	41	55
Incomplete primary	20	22	23
Complete primary	24	30	29
Secondary+	12	9	21
All teenagers	21	21	22

Special interest attaches to teenage childbearing trends. In Table 2.1, the percentages of teenagers who are either already mothers or who are pregnant with their first child are shown for each of the last three surveys. Overall, there is little change. In rural areas the percentage is also little changed, but in cities there is an increase in the last five years from 18 to 22 percent. Some of this results from the dramatic rise in teenage childbearing in Nairobi, from 10 to 20 percent in the most recent period, a return to its level of ten years earlier.

There is little change in the other provinces, with the possible exception of Nyanza, where the earlier decline reversed from 23 to 26 percent. By education, there has been little recent change except among those teenagers with no schooling, among whom the percentage of teenage childbearing has increased substantially over the decade, from 30 percent in 1993 to 41 percent in 1998 to 55 percent by 2003.

To identify more precisely the recent changes in fertility in Kenya, trends are examined by residence and education (Table 2.2). Urban or rural residence does not alter the trend; the most recent TFRs show a slight increase in both populations. The greatest changes have occurred in Nyanza and in the Rift

Valley, where fertility over the five-year interval actually increased by about 10 percent. Elsewhere, the picture is largely one of a stall in the decline, with the exception of Central province, where the TFR has dropped from 3.7 to 3.4. In Western province, there is no evidence of any change over a decade.

The trends in fertility by educational attainment are revealing. There have been sharp increases in fertility (by about 16 percent) in the two least-educated strata while in the primary complete category, the TFR shows no change at all. Only among the most educated women do fertility rates continue a pattern of decline, moving from 3.5 in 1998 to 3.2 in 2003.

Table 2.2 Trends in the total fertility rate, by background characteristics, Kenya 1993-2003

Background characteristic	KDHS 1990-93	KDHS 1995-98	KDHS 2000-03
Residence			
Urban	3.4	3.1	3.3
Rural	5.8	5.2	5.4
Province			
Nairobi	3.4	2.6	2.7
Central	3.9	3.7	3.4
Coast	5.3	5.1	4.9
Eastern	5.9	4.7	4.8
Nyanza	5.8	5.0	5.6
Rift Valley	5.8	5.3	5.8
Western	5.7	5.6	5.8
Education			
No education	6.0	5.8	6.7
Primary incomplete	6.2	5.2	6.1
Primary complete	5.0	4.8	4.8
Secondary+	4.0	3.5	3.2

Table 2.3 Trends in percentage of women who had a birth in the five years preceding the survey, by number of children ever born at the beginning of the five-year period, Kenya 1993-2003

Number of children ever born at beginning of five-year period	Percentage with a birth in past five years		
	1993	1998	2003
0	37	39	39
1	76	72	71
2	71	64	64
3	72	59	57
4	64	49	54
5	61	52	51
6	57	43	49
7	58	48	51
8	58	37	46
9	46	46	49
10+	37	29	36
Total	52	48	49

All these patterns of change in the TFR are also evident in the proportions of women who are currently pregnant, the most recent indicator of fertility (not shown).

In Table 2.3, the analysis shifts to the fertility of women over the next five years according to their parity at the beginning of the five-year period. For example, 64 percent of women with four children ever born by 1989 had another birth (one or more) in the ensuing years to 1993, while between 1993 and 1998

only 49 percent had another birth. In the most recent five-year period, this direction was reversed and climbed to 54 percent. In general, between 1993 and 1998, fertility declined at most parities, while between 1998 and 2003 there was little or no change at the low parities and then an increase in most higher parities, beginning at parity four. Most of these increases at higher parities appear to be the result of increases in unwanted fertility (data not shown).

3

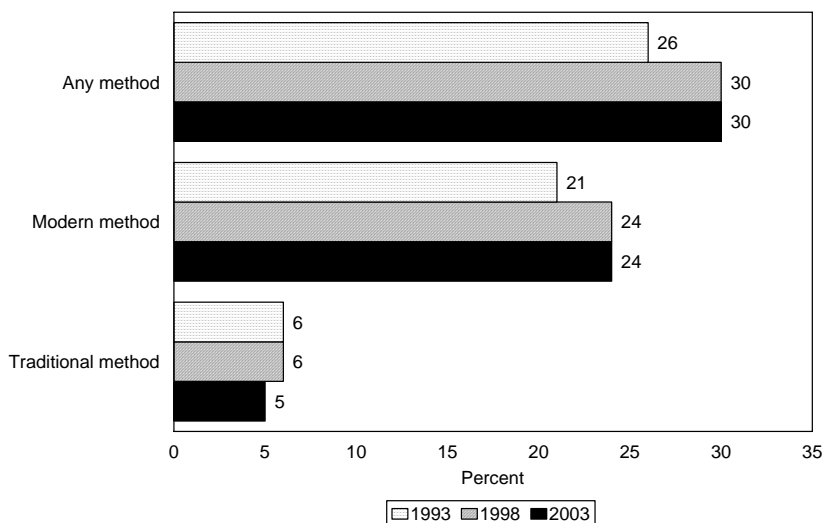
Contraceptive Use in Kenya

There has been a plateauing of contraceptive use in Kenya according to DHS data on all women interviewed in the 1998 and 2003 surveys.

3.1 Trends in Contraceptive Prevalence

The percentage of women using any method of contraception increased from 26 percent in 1993 to 30 percent in 1998, but remained unchanged at 30 percent in 2003 (Figure 3.1). The prevalence of modern methods also remained the same, at 24 percent. Among currently married women, prevalence increased by only 2 percent for all methods and 1 percent for modern methods, following major increases between 1993 and 1998. The only trend that might have been anticipated is the continued increase in contraceptive use among unmarried, sexually active women. In this group, overall method use in the preceding five years increased from 47 to 54 percent, while modern method use increased from 36 to 44 percent. This increase is not sufficient to affect the prevalence among all women because the proportion of sexually active unmarried women is comparatively small—3-6 percent of women. Young, never-married women who think that abstaining from sex is the best way to avoid AIDS are more likely never to have had sexual intercourse (69 percent) than those who cite other means of HIV/AIDS prevention (49 percent).

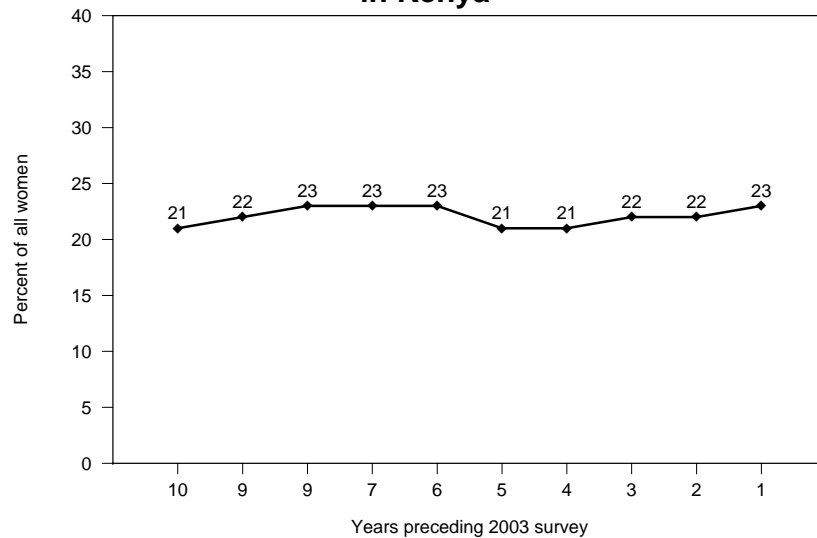
Figure 3.1 Trends in percentage currently using contraception, Kenya 1993-2003



Both the 1998 and the 2003 KDHS included monthly retrospective calendars covering five to six years preceding the survey. Recent births and pregnancies and months of gestation were first entered in the appropriate calendar months going back in time from the most recent events. Questions were then asked about contraceptive practice before and after these events, about reasons for any discontinuation of use, and about whether each month was in or out of marriage. These monthly data can be used to reconstruct more detailed trends over the past ten years in contraceptive prevalence, in the mix of methods used, and in contraceptive failure rates. In addition such trend data can be produced for various subsets of the population, for example for all women or for married women of experience, for the different regions of the country, by parity, by education, and so forth. The calendar tabulation is organized to represent women age 15-44 in each year.

The annual series for prevalence of the use of modern methods shows a fairly flat trajectory over the 10 years preceding the 2003 survey (Figure 3.2). Use of modern methods increased slowly to 23 percent, declined to 21 percent in 1998, and then gradually rose again to 23 percent.¹ Whether the sudden decline in 1998 was real or the result of a problem with the data is not known. What is clear, however, is that contraceptive prevalence has not changed much over the decade. A similar picture can be seen for married women and for the lesser use of traditional methods.

Figure 3.2 Annual estimates of the percentage of all women using a modern method of contraception during the ten years preceding the 2003 DHS survey in Kenya



¹ The level of 23 percent for woman-years is slightly lower than the 24 percent for all women.

However, although the increase in contraceptive prevalence among all women has stalled between 1998 and 2003, contraceptive use among women currently sexually active (had sex in the past four weeks) has continued to increase (Figure 3.3). In fact, there is no evidence of any plateau in this relevant subpopulation. Moreover, the increase is evident for all marital statuses (Figure 3.4).

Figure 3.3 Trends in the use of any contraceptive method among all women and among women who had sex in the past four weeks, Kenya 1993-2003

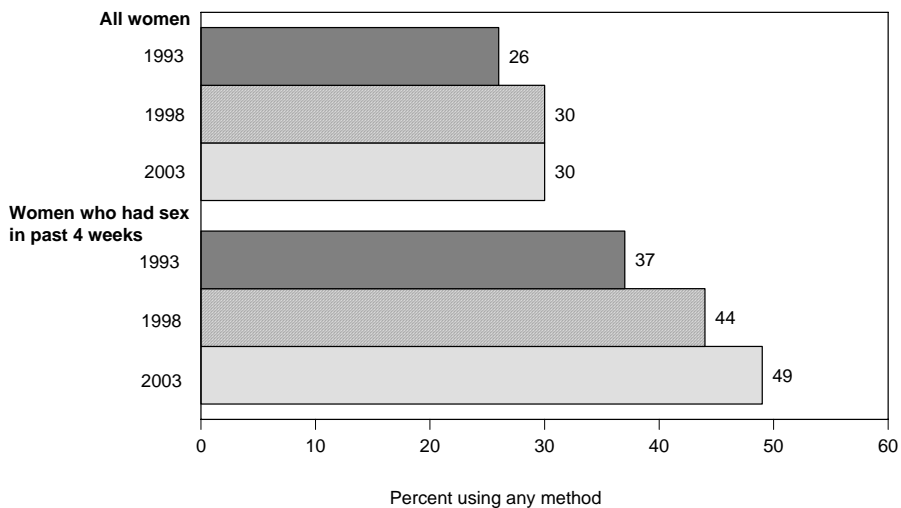
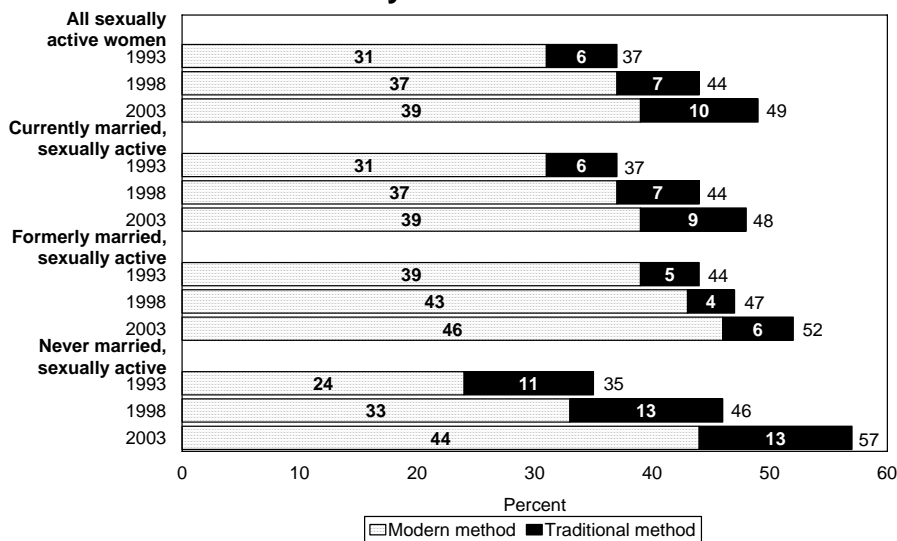


Figure 3.4 Trends in the use of modern methods of contraception and traditional methods of contraception among women who had sex in the past four weeks, Kenya 1993-2003



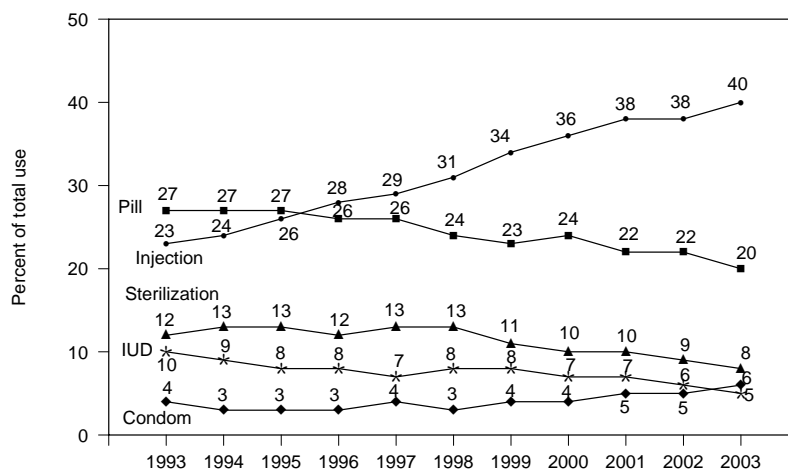
This distinction between all women and sexually active women (comprising about half of all women) is important because it affects the nature of the apparent stall. Rather than attributing the stall to shortages of contraceptive supplies, which also have occurred, it focuses attention on the trend in sexual activity. In Kenya, the proportion of women who had sex in the past four weeks declined from 52 percent in 1998 to 48 percent in 2003. The decline was greatest among never-married women but even among currently married women there was a slight drop, and there has been a decline across every age. None of the standard background variables (including changes in the proportion of husbands away from home, which has actually decreased over time) accounts for this change. Concern about HIV/AIDS seems like a plausible explanation but there is no hard evidence for this in the extensive DHS coverage of that subject. Over time, the order of the questions on sex in the DHS questionnaires has changed somewhat; this might have had some effect on the estimated proportions that never had sex, but the declines in sexual activity seem too pervasive to attribute to measurement differences. Moreover, similar declines in recent sex are evident also among women who ever had sex. And recent declines in sexual activity are also apparent in other countries, for example Namibia, Uganda, and Zambia.

One might reasonably ask why, if sexual activity has diminished, the fertility rate has not declined. The problem is that there is no close, unambiguous link between the recency of sex (for women who ever had sex) and recent fertility. On the other hand, the proportion of women who never had sex has increased and this change does affect nonmarital fertility: 10.3 percent of never-married women in 2003 had a birth in the past three years, down from 13.1 percent in 1998. But aside from this direct and obvious effect of an increase in premarital abstinence, one would not expect a clear connection of the recency of sex and fertility among currently married women. An analysis is also obscured by the fact that recency of sex is a current status measure while fertility is measured over the preceding three years, or at least one year. A recent birth or current pregnancy also has an effect on sexual activity, further obscuring the connection. The fact that there has been an increase in the proportion of women who want more children (see Section 4) may be another reason why a decline in recent sexual activity does not translate into a decline in fertility.

3.2 Trends in the Contraceptive Mix

The main change in the method mix has been the rise in the use of injectables and the decline in reliance on the pill. This increase in injectables began more than five years ago: “Injectables have recorded the most dramatic and consistent increase over the years” (Magadi et al., 2001). Our evidence from the calendar data (Figure 3.5) shows a strong continuation of the upward trend to the point in 2003 that injection use, along with implants at 4 percent, amounts to 40 percent of all method use. All other methods, except condoms, declined in the total mix, with use of the pill dropping from 27 to 20 percent of use over the decade and sterilization declining from a high of 13 percent in 1998 to 8 percent five years later. The IUD also declined in popularity over the past 10 years from 10 to 5 percent.

Figure 3.5 Change in the method mix for modern contraceptive methods: percentage of woman-months of use of modern methods, Kenya 1993-2003



Note: Injection includes implants, which in 2003 were 4 percent of all modern method use.

3.3 Trends in Contraceptive Prevalence by Background Characteristics

Trends in contraceptive prevalence by age and by parity among currently married women are shown in Figures 3.6 and 3.7 for the current status data for the three surveys. The stall is evident mainly among the younger women while increased use continues above age 35. Similarly, the clearest evidence of increased use is for women with three or more children. Nonetheless, the use of modern contraception has increased in the past five years among women with one child from 25 to 28 percent and among those with two from 35 to 38 percent. In fact, all of the small increase in contraceptive use among married women is concentrated among those using it to space births. When current users are divided into those who want more children and those who want no more—spacers and limiters—there is a small continuing increase in use among spacers but a plateau among limiters (Figure 3.8).

Figure 3.6 Trends in current use of contraception among currently married women by age, Kenya 1993-2003

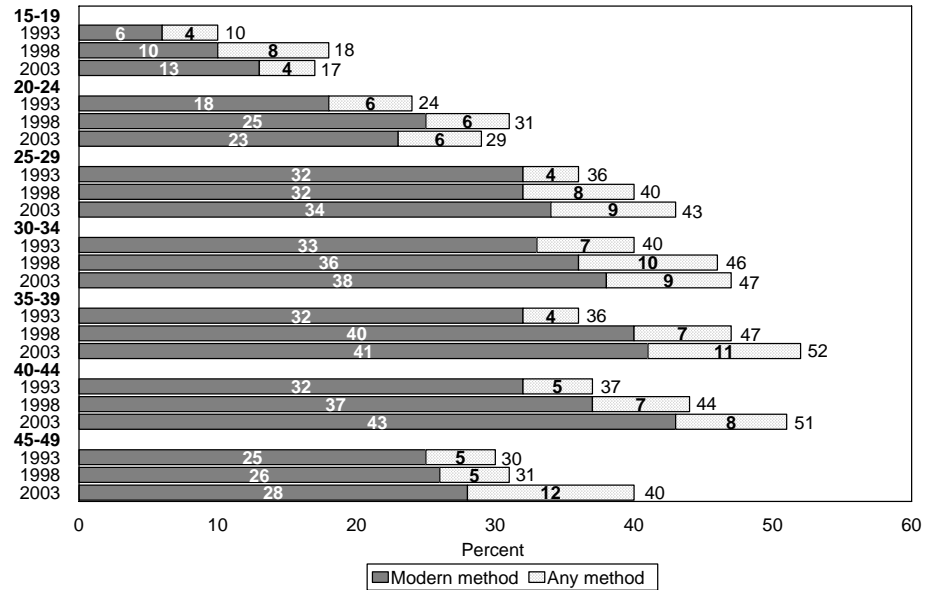


Figure 3.7 Trends in current use of contraception among currently married women by number of living children, Kenya 1993-2003

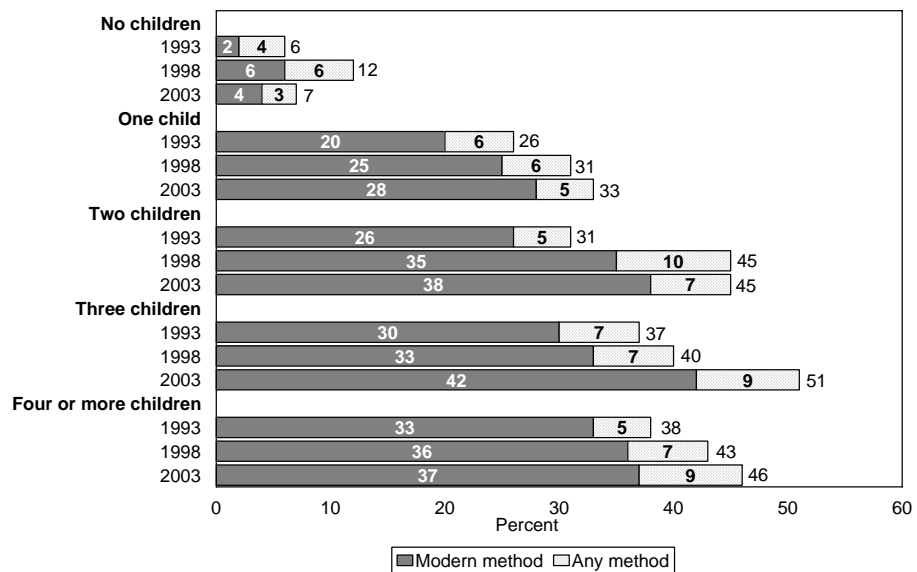
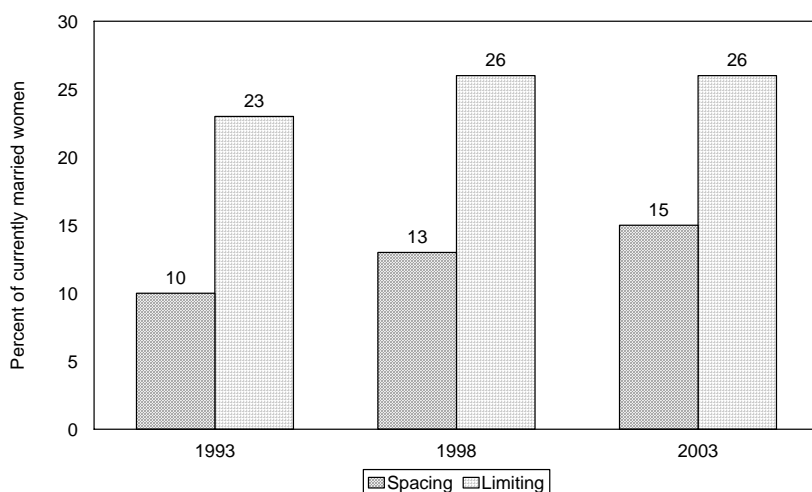
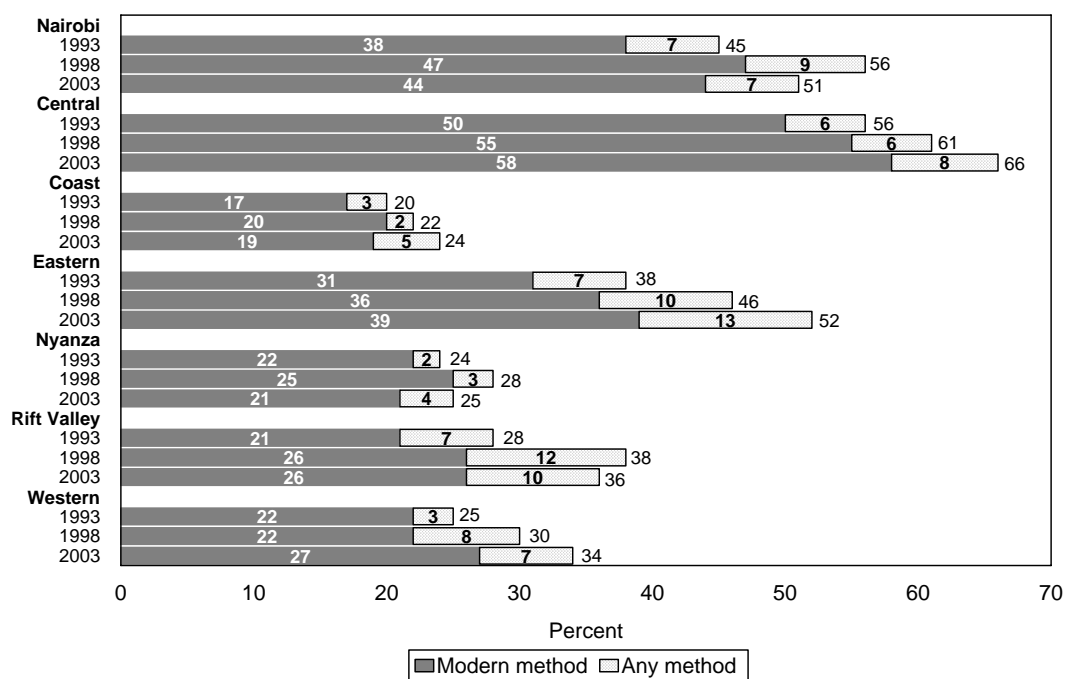


Figure 3.8 Trends in current use of contraception for spacing and for limiting births among currently married women, Kenya 1993-2003



The trends by region are quite diverse (Figure 3.9). In Nairobi and Nyanza contraceptive prevalence both in the use of modern and all methods has declined between 1998 and 2003, after having increased over the preceding five years. In contrast, there have been increases in Central, Eastern, and Western provinces. Little change is apparent in Coast and in Rift Valley.

Figure 3.9 Trends in current use of contraception among currently married women by province



The picture by education (Figure 3.10) shows a significant decline in contraceptive use among those women with no education (who are a decreasing proportion of the population); it plateaus at the primary levels and shows a continued increase among women with secondary or more schooling. These trends are shown in annual estimates from the calendar data in Figure 3.11. The abrupt change in use among those with no schooling is curious; it seems unlikely that this can be explained by the small decline in the proportion of married women with no schooling (from 12.1 to 10.5 percent over the five years).

We have also looked at the reasons women offer for not using any method of contraception, to see whether there have been any changes between 1998 and 2003. But the same reasons prevail throughout that period. The main ones are menopause and infecundity, concerns over health and side effects, and opposition to use; and these reasons show no change over the five years.

Figure 3.10 Trends in current use of contraception among currently married women by education, Kenya 1993-2003

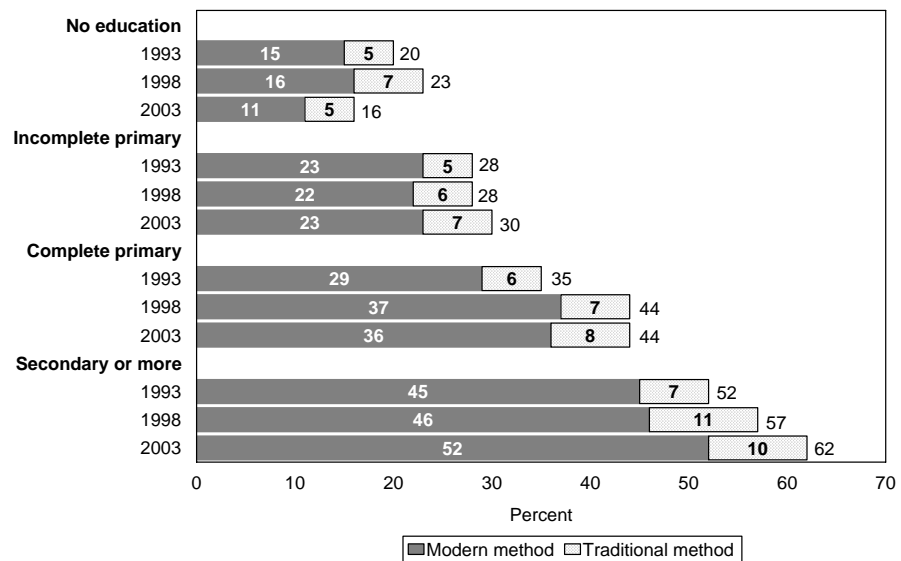
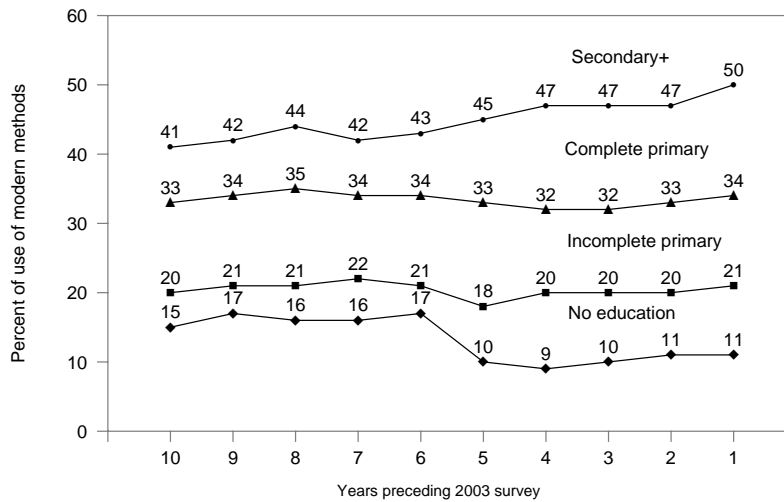


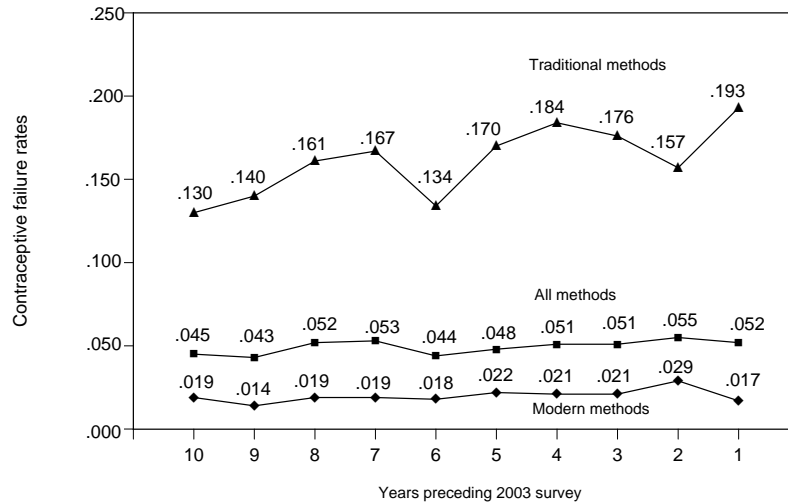
Figure 3.11 Annual estimates of married woman-years of use of modern contraceptive methods during the ten years preceding the 2003 DHS survey in Kenya, by level of education



3.4 Trends in Contraceptive Failure Rates and Discontinuation

Given the increasing use of injectables, the overall effectiveness of contraception could be expected to improve. Annual estimates from the calendar data (Figure 3.12), however, show little evidence of any overall change, with estimates ranging in a narrow band around the 0.04 and 0.05 levels (these are annualized monthly ratios of pregnancies from contraceptive failure to months of exposure to such risk). Failure rates for modern methods are mostly at the 0.02 level. There is some suggestion of an increase in failure rates for traditional method users, although the pattern is irregular, with a range between 0.13 and 0.19. There has been an increase in the use of periodic abstinence among married women (from 6.1 to 6.6 percent in the last five years) and that may explain some of the increase in the average failure rate in 1993-1998 of 0.15 to 0.18 between 1998-2003.

Figure 3.12 Trends in annual contraceptive failure rates during the ten years preceding the 2003 DHS survey in Kenya



First-year contraceptive discontinuation rates (excluding the reason “to become pregnant”) increased over the five years from 1998 to 2003 (Table 3.1). In 1998 the first-year discontinuation rate was 28 percent, which climbed to 33 percent by 2003. Most of this increase was not because of method failure. Side effects are the primary explanation for the overall increase in discontinuation. There have been higher discontinuation rates for the pill and injectables in the later survey.

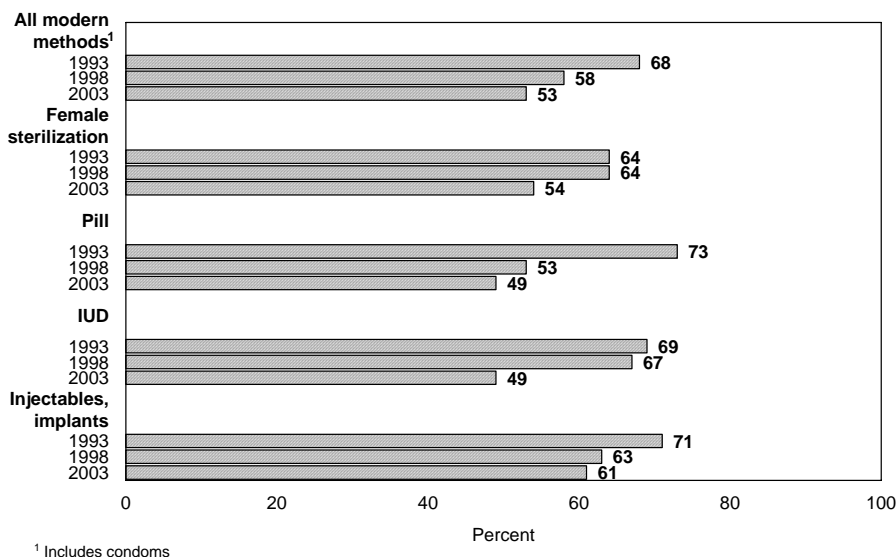
Table 3.1 Trends in percentage of contraceptive users that discontinued use after the first year of use for reasons other than “to become pregnant,” Kenya 1998 and 2003

Method	KDHS 1998	KDHS 2003
Pill	32	42
Injectables	18	28
Condom	54	53
Periodic abstinence	27	27
All methods	28	33

3.5 Trends in Sources of Methods

It seems clear that there is a trend toward reduced use of public sources for contraceptive supplies (Figure 3.13). In 1993 the public sector was responsible for 68 percent of modern methods; this proportion dropped to 58 percent by 1998 and is now at 53 percent, with private sources becoming more common. Of the observed decline in use of public sources to obtain contraceptive methods, the largest proportion is among those who formerly went to government hospitals to obtain their methods. This trend is affecting all of the main modern methods and may have some implications for the costs of contraception, although cost is not a reason frequently cited by women for not using a method.

Figure 3.13 Trends in the use of public sources of modern methods of contraception by current users (most recent source), Kenya 1993-2003



3.6 Trends in Attitudes Toward Family Planning

There has been a slight decline in the last five years in the proportion of both women and men who say they approve of family planning (Table 3.2), from 89 to 86 percent among women and from 89 to 87 percent among men. Although this difference is not great, the trend by educational attainment shows that the decline in approval is concentrated among less educated persons. What accounts for this decline is not clear although, as noted above, the less educated, particularly those with no education, are becoming a smaller proportion of the population and perhaps more selective in their choices. What is clear is that the trend in attitudes toward contraceptive use is consistent with the plateau in contraceptive prevalence.

Table 3.2 Trends in percentage of currently married women and men who approve of family planning, by level of education, Kenya 1998 and 2003

Level of education	Women		Men	
	1998	2003	1998	2003
No education	74	64	61	58
Incomplete primary	89	85	89	83
Complete primary	89	89	89	90
Secondary+	94	94	93	93
Total	89	86	89	87

3.7 Trends in Unmet Need for Family Planning

Unmet need for family planning among married women, which had declined by one-third between 1993 and 1998, remained unchanged, at 25 percent, by 2003. The stall in unmet need in the last five years has been pervasive—both for spacing and for limiting births—in urban and rural areas, in all but one of the provinces, and at different educational levels (Table 3.3). Coast province is the sole exception, with unmet need continuing its decline. In Nyanza there has been a significant rise in unmet need, from 26 to 35 percent in the last five years.

Background characteristic	KDHS 1993	KDHS 1998	KDHS 2003
Total unmet need	36	24	25
For spacing	22	14	15
For limiting	15	10	10
Residence			
Urban	26	17	17
Rural	38	26	27
Region			
Nairobi	27	13	16
Central	25	11	11
Coast	33	30	25
Eastern	41	22	22
Nyanza	39	26	35
Rift Valley	37	27	28
Western	43	32	32
Education			
No education	37	25	24
Primary incomplete	42	31	35
Primary complete	38	23	25
Secondary+	27	15	13

3.8 HIV/AIDS and Contraceptive Use

When considering the link between AIDS and contraception, the most attention has, understandably, gone to condom use. The question is whether the plateau in general contraceptive practice is related to the increase in AIDS in Kenya. There is concern about competition for resources, with those formerly targeted for family planning now going to HIV prevention activities. There has also been a decline in international donor funding for contraceptive supplies.

Women who are currently infected (and who may or may not know about their condition) show the same proportions using contraception as other women. There is also no difference in contraceptive use by men between those infected and uninfected. A better measure of the possible effects of AIDS is the perception of risk and the effect this has on contraceptive use. The association both for men and women (Table 3.4) shows the lowest use among those who perceive no risk, both in 2003 and in 1998. It is therefore possible that the lack of increase in contraceptive prevalence may be connected with the decline in the perception of risk between 1998 and 2003.

Perceived risk of AIDS	Percentage currently using a contraceptive method			
	Women		Men	
	1998	2003	1998	2003 ^a
None	25	22	43	39
Small	31	32	50	50
Moderate	34	39	58	59
Great	33	32	56	54

^a Method most recently used

One might infer, however, that such a connection would involve mainly condom use and yet there has been little change in the use of this method, except among the sexually active unmarried population.

Reproductive Preferences

The reversal of the decline in the number of children desired is perhaps the most unexpected change in Kenya. The importance of evaluating changes in these preferences for understanding changes in contraceptive behavior and fertility is clear (Westoff and Bankole, 2002). The decline in the number of children wanted that had been continuous from the early World Fertility Survey in 1977-78 (Central Bureau of Statistics, 1980) and the 1984 Contraceptive Prevalence Survey (Central Bureau of Statistics, 1984), has reversed itself and, in some segments of the population, shows major change. This analysis emphasizes trends based on data mainly from the 1993, 1998, and 2003 KDHS surveys, with initial reference to earlier survey estimates as well. The main focus is on trends in various strata and geographic divisions of the Kenyan population, in an effort to locate the sources of these changes in reproductive preferences and thereby sharpen the explanation of the reversal.

4.1 Perspective of a Quarter of a Century

The trend in the proportion of married (fecund)² women who want no more children is shown in Figure 4.1 at intervals of approximately five years for the past 25 years, from 1977-78 to 2003. The proportion increased sharply over the first ten years from 17 to 49 percent by 1989 and gradually to 52 and 53 percent in 1993 and 1998; it then dropped back down to 49 percent in 2003, the level that had been reached ten years earlier. The statistic for “want no more children” is obviously related to the number of living children and this distribution has changed over the 25 years with the decline of fertility. Nonetheless, the plateau or reversal between 1998 and 2003 has occurred at almost every parity (see Table 4.1).

The same observation applies to the trend by age group (Table 4.2). The recent reversal of the long-term increase in the proportion of women who want no more children is concentrated between ages 25-39.

² The definition of “fecund” differs somewhat between the early and late surveys. The restriction to fecund women in this section is necessary because in the early surveys infecund women were not asked about their reproductive intentions. In the rest of this section, the only restriction is to currently married women.

Figure 4.1 Trends in percentage of currently married, fecund women who want no more children, Kenya 1977-78 to 2003



Table 4.1 Trends in percentage of currently married, fecund women who want no more children by number of living children, Kenya 1977-78 to 2003

Survey	Number of living children				Total
	2	3	4	5+	
1977-78	4	7	16	32	17
1984	10	17	30	59	32
1989	24	35	50	78	49
1993	27	45	65	81	52
1998	34	53	73	87	53
2003	34	50	71	83	49

Table 4.2 Trends in percentage of currently married, fecund women who want no more children by age, Kenya 1977-78 to 2003

Survey	Age					
	20-24	25-29	30-34	35-39	40-44	45-49
1977-78	4	12	19	25	40	42
1984	11	23	45	54	67	76
1989	18	42	60	72	85	89
1993	22	47	65	80	89	88
1998	23	45	64	84	91	95
2003	23	37	60	77	90	97

4.2 Trends by Residence

In Figure 4.2 the trend in the proportion of women who want no more children indicates that the decline between 1998 and 2003 is evident in both urban and rural areas. These estimates are based exclusively on the KDHS surveys and the denominator is expanded to all currently married women rather than only to fecund women.

Figure 4.2 Trends in percentage of currently married women who want no more children (including those sterilized) by residence, Kenya 1989-2003

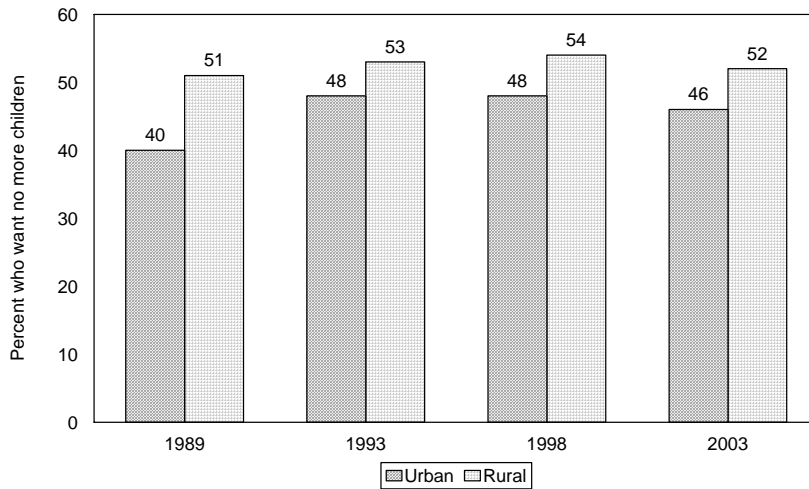
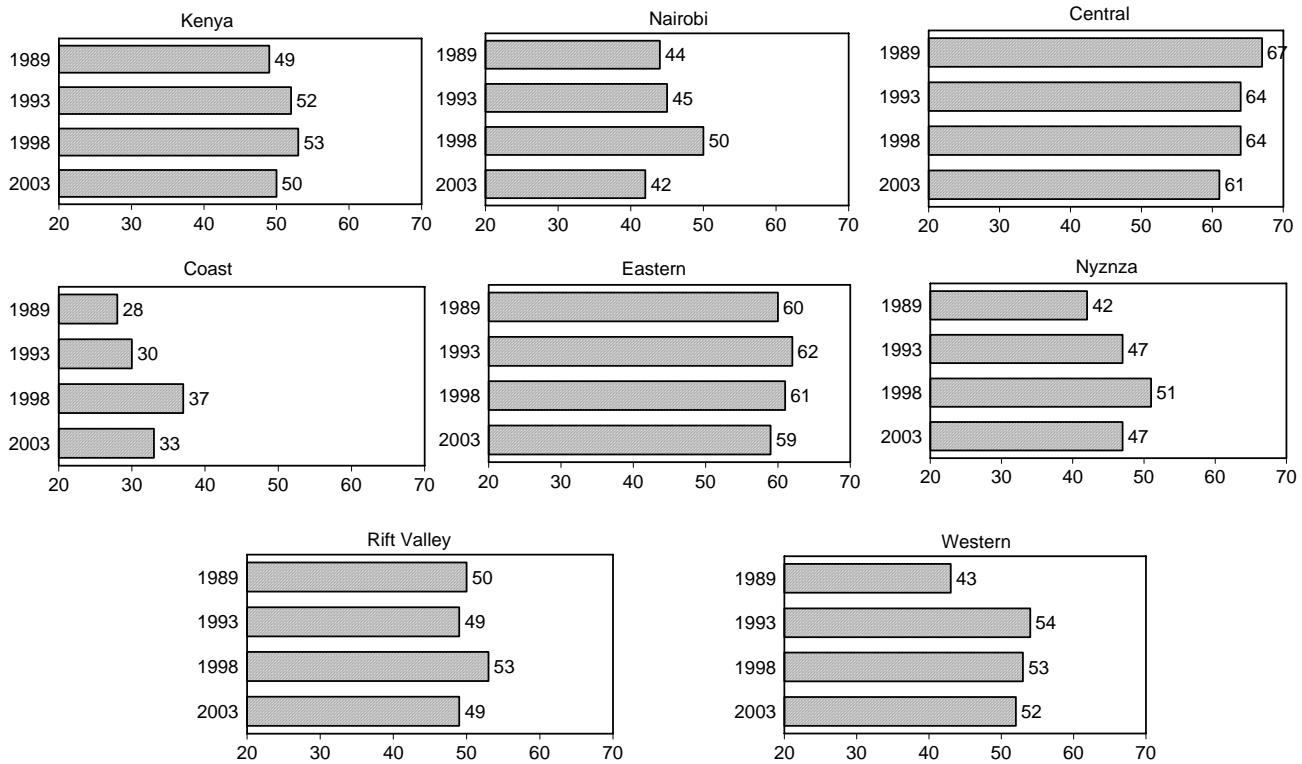


Figure 4.3 Trends in percentage of currently married women who want no more children (including those sterilized), by province, Kenya 1989-2003)



The trend in each of the provinces (Figure 4.3) also uniformly indicates the recent reversal. Although the earlier trend toward increasing proportions who want no more children is not completely consistent, the 2003 estimates for each province are all below the 1998 values. The recent decline in Nairobi has been the most pronounced, from 50 to 42 percent.

4.3 Trends by Education

The trend in reproductive preferences by education is the most interesting and revealing. Among women with no education—a segment of the female population that has declined from 25 percent in 1989 to 10 percent by 2003—the earlier increasing proportion who wanted no more children abruptly reversed in 2003, dropping to 46 percent from the 59 percent five years earlier (Figure 4.4). More moderate declines are also evident in the two primary school categories, but among women with more than a primary school education (now over 30 percent) the upward trend may be continuing. Since the proportion of women who want no more children is influenced by the number they already have, these tabulations were repeated with a parity control (women with 2-4 children), but the same pattern prevails (Table 4.3). The one exception is a continued increase in the proportion who want no more children that is evident for women with at least a completed primary education.

Figure 4.4 Trends in percentage of currently married women who want no more children (including those sterilized) by education, Kenya 1989-2003

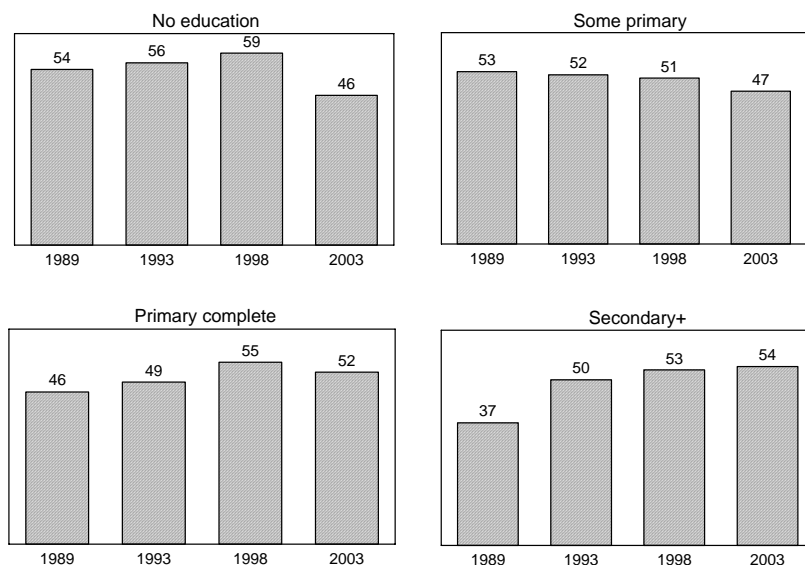


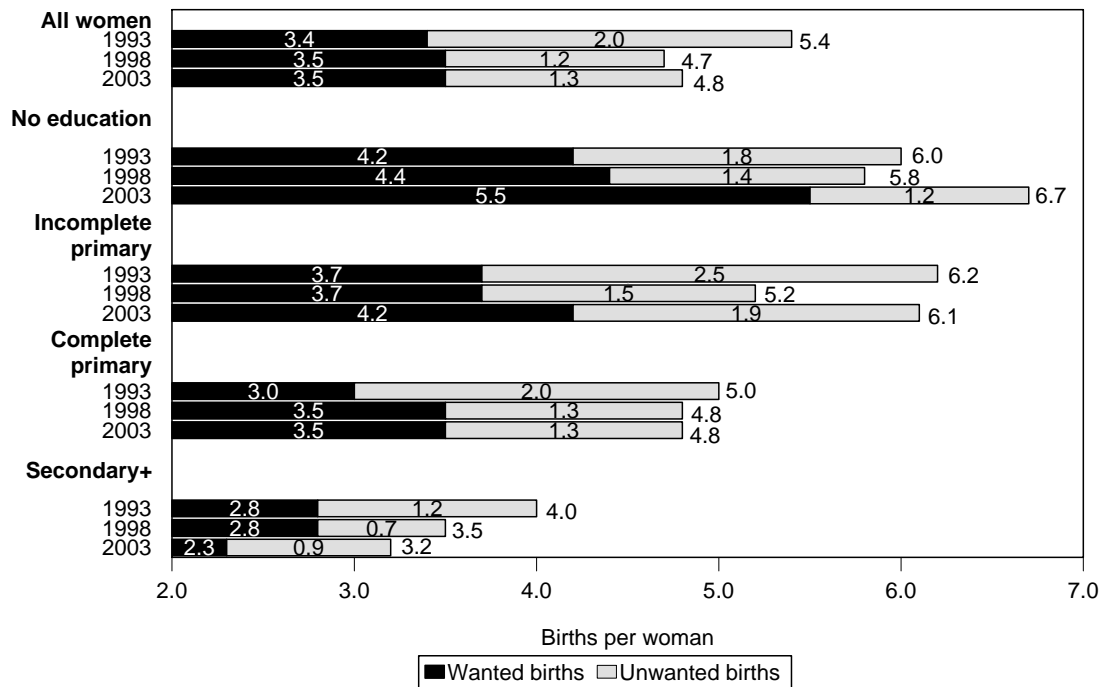
Table 4.3 Trends in the percentage of currently married women with two to four children who want no more children (including those sterilized), by level of education, Kenya 1993-2003

Level of education	KDHS 1993	KDHS 1998	KDHS 2003
No education	32	48	30
Primary incomplete	42	41	38
Primary complete	50	51	54
Secondary+	54	60	63
Total	45	51	50

Another measure of reproductive preferences focuses on comparison of wanted and unwanted fertility, which are the two components of the total fertility rate (Figure 4.5). As discussed in Section 2, the sum of these two components—the TFR—shows a nationwide decline from 5.4 births per woman in the 1993 survey to 4.7 births per woman in the 1998 survey, and then plateaus at 4.8 births per woman in the 2003 survey. During this decade, the wanted component of total fertility remained constant at 3.5 births per woman while the unwanted component dropped from 2.0 to 1.2 births per woman and then stalled. Since 1998, no further decline in unwanted fertility has been observed.

The picture by education is quite different, especially at the extremes of the distribution. Among the women with no education, there has been a sharp increase in the wanted component, from 4.2 in 1993 to 5.5 in 2003 and a decrease in unwanted fertility, from 1.8 to 1.2. The net result was an increase in the overall TFR among those with no education, from 5.8 in 1998 to 6.7 in 2003 (calculated over the three years preceding each survey), all of which is concentrated in the wanted component.

Figure 4.5 Trends in wanted, unwanted, and total fertility rates by education, Kenya 1993-2003



At the opposite end of the educational scale—women with more than primary school education—the expected pattern emerges. The TFR for these women declined from 4.0 to 3.5 to 3.2 over the ten-year period (1991-93 to 2001-03). The primary change was in the wanted component, which declined from 2.8 to 2.3 in the last five years.

In the incomplete primary category (a third of the women in 2003), the wanted component increased in the recent five-year period as it did among those with no education, but not by as much (from 3.7 to 4.2). In contrast to those with no education, for those with incomplete primary education, unwanted fertility also increased from 1.5 to 1.9, after having declined from the 1993 level of 2.5.

Among women with completed primary education (26 percent in 2003), both components of the fertility rate were unchanged between 1998 and 2003, following a decrease in the unwanted fertility from 2.0 in 1993 to 1.3 in each of the later surveys.

These figures show that most of the changes in fertility have occurred among the least educated segment of the population, largely in the wanted component.

Another measure of preferences, the ideal number of children, shows a similar pattern; it is not shown here because it is similar to the wanted and unwanted indicators that capture the difference between the ideal and actual fertility.

4.4 The “Wanted and Unwanted” Explanation

Overall, the evidence presented so far indicates that an important explanation for the lack of any further decline in fertility in Kenya between 1998 and 2003 lies in women’s fertility preferences, as evidenced by the decline of the proportion of women who want no more children and the plateauing of the wanted total fertility rate (WTFR). The WTFR is unchanged, while the unwanted component increased slightly from the three years before the 1998 to before the 2003 surveys (top panel of Figure 4.5). This accounts for the slight rise in the overall TFR from 4.7 to 4.8. These rates measure the recent past while the decline in the proportion of women who want no more children suggests that the WTFR might increase in the near future.

A more direct measure of the contribution of the unwanted dimension to the reversal phenomenon is the trend in the planning status of recent births. Each survey included a question about whether recent births had been wanted at that time (“then”), wanted later, or not wanted at all. The distribution of the planning status of births in the three years preceding each survey is shown in Table 4.4. Two statistics are noteworthy: the lack of any change reported in 1998 and 2003 in the proportion of births wanted “then” and a near doubling of the proportion of unwanted births over this same period, following a significant decline between 1993 and 1998. This unwanted percentage declined from 18 percent in the three years prior to the 1993 survey to 11 percent five years later but then increased to 21 percent in the three years before the 2003 survey. Since contraceptive failure has not increased, this is probably related to the stall of contraceptive prevalence. Other analyses, not presented here, show that this increase in unwanted births occurred at every age at birth and at every birth order, as well as in every province. The only exception is that it has remained unchanged at 22 percent for women with no education while increasing at all higher levels. Figure 4.5 indicates that the primary change among least educated women has been in the wanted fertility component.

Table 4.4 Trends in planning status of births in the three years preceding the survey (including current pregnancy), Kenya 1993-2003

Survey	Wanted then	Wanted later	Wanted no more	Total
1993	45	37	18	100
1998	51	37	11	100
2003	51	29	21	100

Note: Total includes a small number of cases with missing information.

The most current measure of wantedness is the report of currently pregnant women (included in the analyses above). The proportion of pregnant married women who reported that pregnancy as unwanted dropped from 20 percent in 1993 to 9 percent in 1998 but then increased to 16 percent by 2003.

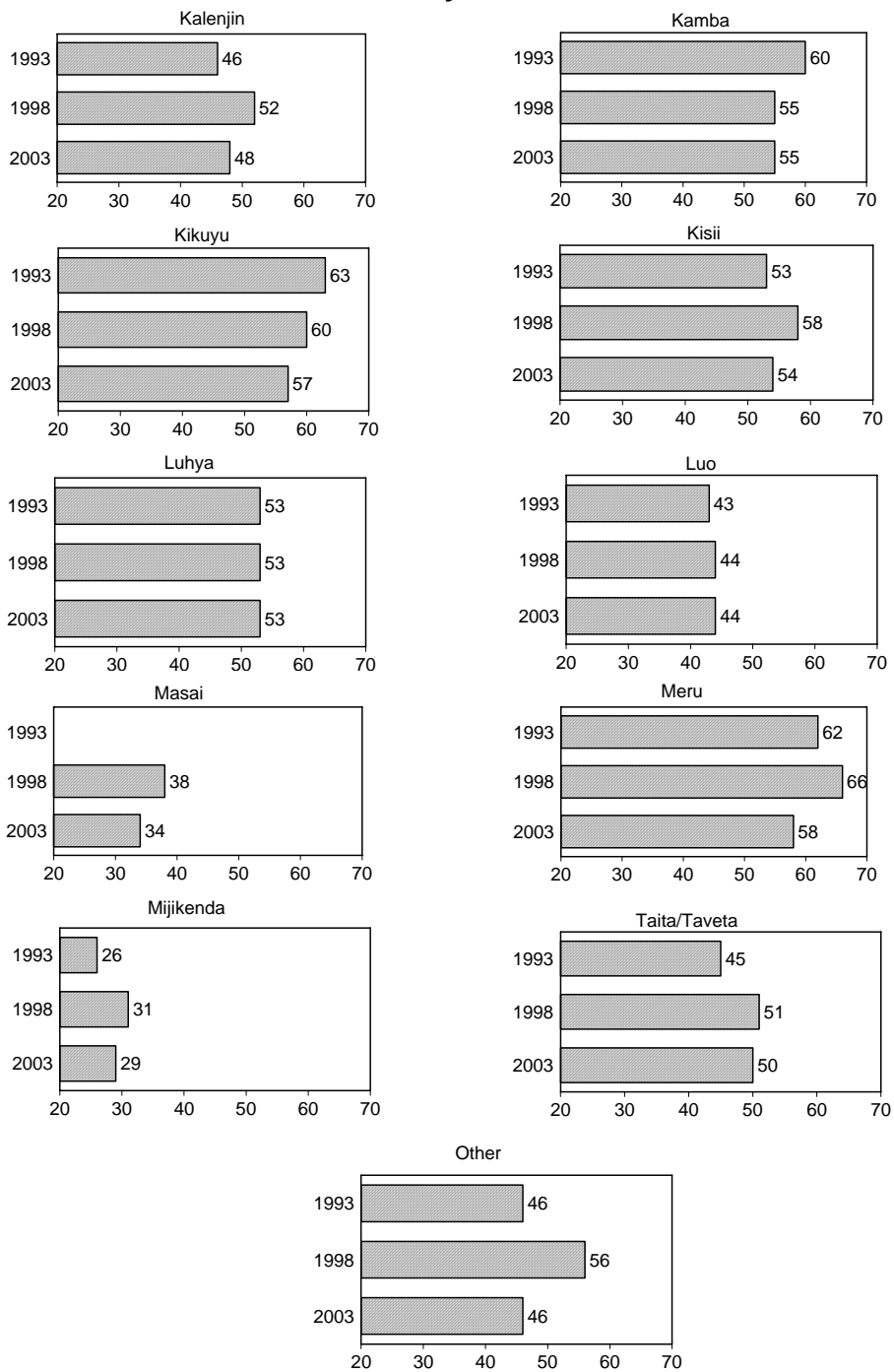
The large increase in unwanted pregnancies—a doubling over the recent five-year period—prompts some concern about the reliability of the data. The fact that the current pregnancy information shows the same magnitude of change as that for the last birth provides some assurance, since the questions are asked at different stages of the interview. Moreover, the phrasing of the answer categories to the question on current pregnancy was identical across surveys whereas there had been a slight change in wording relating to the last birth. Another analysis has been undertaken to assess the consistency of the report on the planning status of the last birth with reproductive intentions. Women who say they did not want their last birth could be presumed more likely to say they want no more children in the future, although one can imagine circumstances when this might not be the case. This kind of “inconsistency” (the percent of women who reported their last birth as unwanted but say they want more children) has in fact increased to nearly 20 percent in 2003 from half that proportion in both earlier surveys. Analysis of the characteristics of these women reveals that they are much younger (by nine years) and have only half the number of children as those who want no more and who also reported their last birth as unwanted. This suggests that the “inconsistency” is probably real and that there is more conflict among these younger, low parity women in 2003 about their future reproductive preferences.

The conclusion about the reversal is that there has been both an increase in unwanted births and a decline in the proportion of women who currently want no more children.

4.5 Trends by Ethnicity, Religion, and Wealth

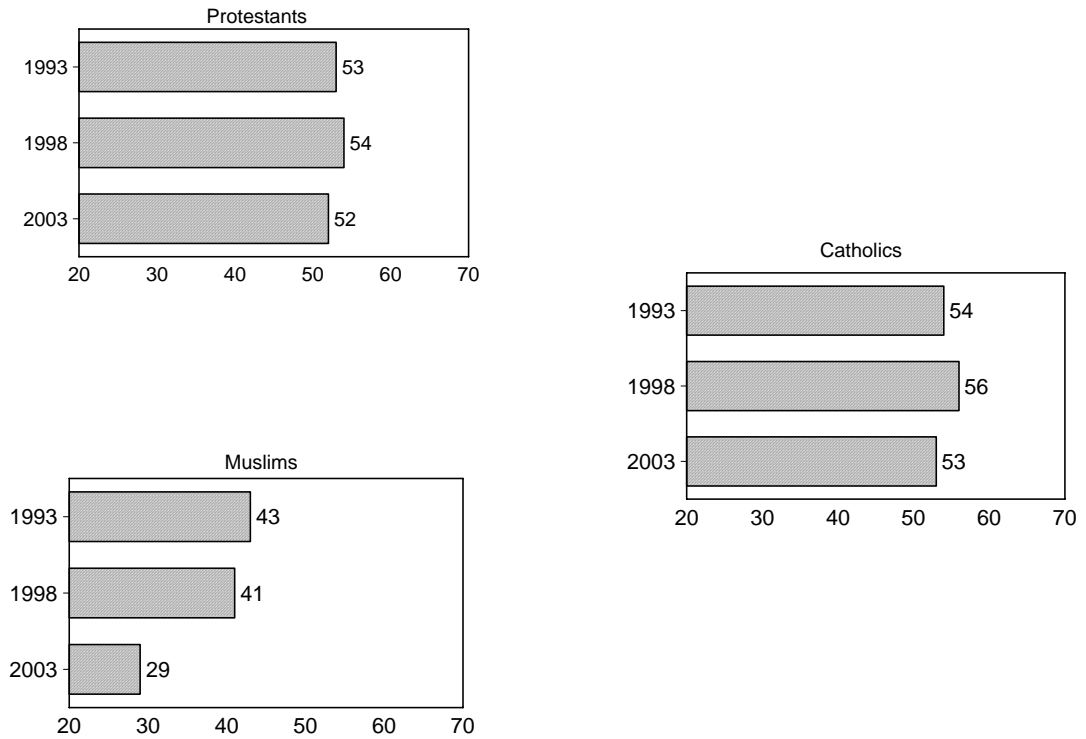
The reversal or plateauing of the decline in fertility preferences is evident in all the major ethnic groups in Kenya (Figure 4.6).

Figure 4.6 Trends in percentage of currently married women who want no more children (including those sterilized), by ethnic group, Kenya 1993-2003



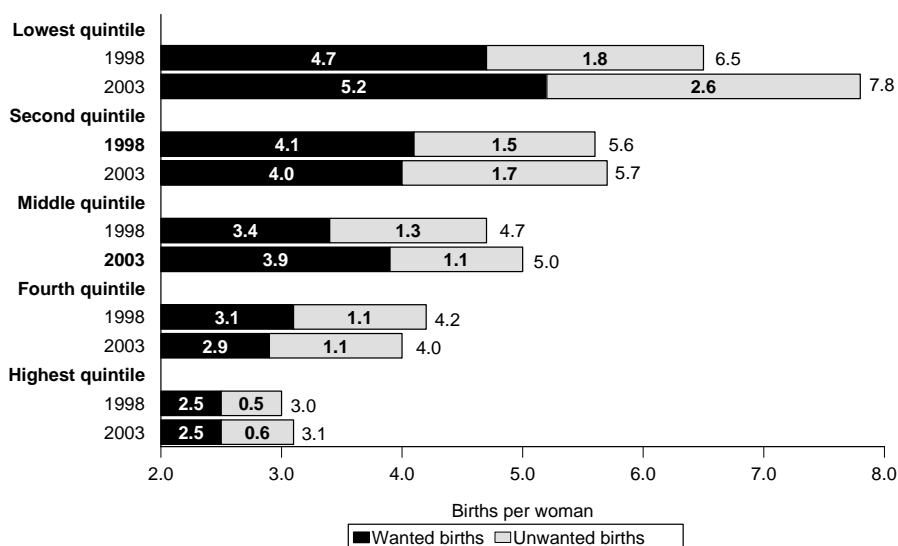
There is a slight decline in the proportion of women who want no more children among Roman Catholics and Protestants. Among the minority Muslim population (6 percent of the total population), the decline is more pronounced, dropping from 41 to 28 percent between 1998 and 2003 (Figure 4.7).

Figure 4.7 Trends in the percentage of currently married women who want no more children (including those sterilized) by religion, Kenya 1993-2003



The main feature of the recent trend in reproductive preferences in terms of wealth is the increase in both wanted and unwanted fertility in the lowest quintile of the wealth distribution (Figure 4.8). Overall, the TFR in this category increased from 6.5 to 7.8 births per woman. The increase in the unwanted component from 1.8 to 2.6 births in the five-year interval is especially important. Only in this lowest wealth quintile has the unwanted birthrate shown such a change. The only other large difference is in the middle quintile where the wanted component increased from 3.4 to 3.9 births.

Figure 4.8 Trends in wanted, unwanted, and total fertility rates by wealth quintile, Kenya 1998 and 2003



4.6 Trends in Male Preferences

Samples of men have been included in the last three surveys in Kenya. As in the trends observed among women, there has been a reversal in the preference for fewer children among married men (Table 4.5). The proportion who say they want no more children has dropped from 46 to 40 percent between 1998 and 2003. This decline is concentrated among men with four or more children. It is evident in both urban and rural areas, but particularly among men in cities.

Table 4.5 Trends in percentage of currently married men who want no more children, by background characteristics, Kenya 1993, 1998, and 2003

Background characteristic	KDHS 1993	KDHS 1998	KDHS 2003
Number of living children			
2	22	24	29
3	38	41	44
4	50	63	59
5	61	72	57
6+	66	69	66
Residence			
Urban	41	48	37
Rural	45	45	42
Education			
No education	36	36	27
Some primary	49	42	35
Primary complete	46	49	42
Secondary or more	40	46	45
Total	44	46	40

The trend by education shows the largest reversal among the less educated men.

Among those with some secondary education or more, the proportion of men who want no more children in 2003 has remained at essentially the same level as in 1998.

4.7 The AIDS Hypothesis

One speculation about the reversal of reproductive intentions in Kenya is that increasing concern about AIDS might induce parents to want more children—as a way of insuring that they have some surviving children. In fact, the highest levels of the disease are among women age 25-39 (Central Bureau of Statistics, 2004), the same age group in which the reversal of reproductive preferences is seen. However, concern about AIDS appears to have diminished somewhat in Kenya. An increasing proportion of women now say that their chances of contracting the infection are small or nonexistent (rising from 66 to 75 percent between 1998 and 2003). Among men there has been almost no change in their perception of risk.

Nonetheless, we examined the association between the perception of risk and reproductive intentions and found that in fact the relationship is the reverse from that hypothesized: the proportion of women who want no more children *increases* as the perceived risk increases (Table 4.6). For men there is little relationship. Another measure—whether the respondent knows someone who has AIDS or who has died from the disease (known by three-fourths of Kenyan men and women)—also shows the same association with reproductive intentions: for both men and women there is a slight increase in the proportion who want no more children among those who know someone with the disease. Imposing an age control on these tabulations does not alter the picture. The general results are consistent with other research in Zimbabwe (Grieser et al., 2001).

Table 4.6 Percentage of currently married women and men who want no more children by the perceived chance of contracting AIDS and by whether they know anyone with the disease or who has died from it, Kenya 2003

Perceived risk of AIDS/ has AIDS or who has died of AIDS	Percent who want no more children	
	Women	Men
Perceived risk of AIDS		
None at all	46	40
Small	50	42
Moderate	56	35
Great	55	37
Knows someone who has AIDS or who has died of AIDS		
No	44	34
Yes	52	42

Another (limited) test of this hypothesis is to examine the association among persons who actually have the disease, based on the HIV testing in the 2003 DHS. This is a limited test because an unknown fraction of those who tested positive are aware of their HIV status (only 21 percent of these women and men reported having had a previous blood test, which may or may not be currently relevant for those who then tested negative). The HIV-positive women in the survey show a lower proportion (40 percent) who want no more children compared with women with negative blood test results (51 percent). This could imply higher future fertility with the increasing prevalence of AIDS, although men do not follow the same pattern. Among men the corresponding estimates are 42 and 36 percent.

The conclusion from these tabulations is that HIV prevalence and related concerns in Kenya do not directly explain the reversal of the trend toward a smaller desired number of children. The possible effect of the increase in AIDS on reproductive preferences may, however, operate through child mortality.

4.8 Child Mortality Trends and Reproductive Preferences

The mortality rate of children under five increased between the five-year period before 1998 and the five years before 2003 by an estimated 15 percent, after being relatively unchanged from the 1993 estimate.³ The rate increased in every province compared with the 1998 estimates and is now even higher in every province than the estimates for the ten years before the 1993 survey.⁴ The increase is probably the result of a general deterioration of health services related to children, such as immunization coverage and prenatal care, as well as to AIDS (Hill, Bicego, and Mahy 2003; Newell 2004). Of women who tested positive for the virus, 14 percent reported the death of a child under five over the preceding five years compared with 7 percent for those who tested negative). An increase in child mortality could plausibly lead to the interruption of the decline in the proportion of women who want no more children. What is the evidence?

In Table 4.7 the proportions of women who want no more children are shown for women who did or did not have a child who died in the past five years. Overall the difference is in the hypothesized direction, with a lower proportion who want no more found in the category with a child who had died in the last five years. To state it more directly, the evidence (as hypothesized) suggests that women who have recently experienced the death of a young child are more likely to want another child than those who have not. The same picture appears when the comparison is confined to women who had a birth in the preceding five years. The “effect” of a child death is strongest for women with two or three living children; it diminishes as parity increases and women grow older because most women at this stage want no more children regardless of a recent child death. (Conversely, at the lower parities, virtually all women want another child).⁵ The same pattern can be seen in the 1993 and 1998 data, so with an increase in child mortality it seems reasonable to expect a decline in the proportion of women who want no more children.

³ This is based on a recalculation of the rate from the 1998 data, standardizing the estimate using the 2003 distribution of the weighted sample by province. Comparison of the province distributions for 1993, 1998, and 2003 suggests strongly that Central province is significantly under-represented and Nyanza over-represented in 1998. Since Central province has the lowest mortality rate (54) and Nyanza the highest rate (206), adjusting on the basis of the 2003 distribution lowers the 1998 national rate from 112 to 99. The result is that there is then little change from the 1993 estimate of 96 and a much greater increase between 1998 and 2003 (from 99 to 115).

⁴ The province mortality rates are calculated for ten-year periods because of sampling error concerns.

⁵ The differences for all women and for women at parities 2, 3, and 4 are statistically significant at the .001 level.

Table 4.7 Percentage of married women who want no more children by whether they experienced the death of a child under five years of age in the five years preceding the survey, by number of living children, Kenya 2003

Occurrence of child death	Number of living children					Total
	1	2	3	4	>4	
No	15	36	57	71	83	51
Yes	16	22	32	65	86	45

A similar association is evident for men, as indicated in Table 4.8. Because of smaller samples and less available information, the comparison is limited to those with or without any experience of a child who had died at any age (among men who currently have two, three, or four children). The evidence is consistent with that for women and shows a lower proportion of men who want no more children among those with a child death in their history. The same association exists in the 1998 sample of men.

Table 4.8 Percentage of currently married men (with two, three, or four living children) who want no more children by whether they ever experienced the death of a child, Kenya 1998 and 2003

Occurrence of child death	Percentage who want no more children	
	1998	2003
No	42	43
Yes	33	37

In general, the evidence about the connections of AIDS, child mortality, and reproductive intentions presented here for Kenya are consistent with the conclusions of a study in Tanzania (Ainsworth et al., 1998) that an increase in child mortality can be expected to increase fertility (Gyimah and Rajulton, 2004) while an increase in adult mortality or concern about AIDS would reduce fertility.

4.9 Multivariate Analysis

The question arises whether the covariates of reproductive preferences have changed at all in the last five years and if so, whether related changes in the composition of the population might explain the reversal. In Table 4.9, the odds ratios from two logit regressions are shown for identical covariates for 2003 and 1998, in which the dichotomy of want more-want no more children is the dependent variable. The odds ratio for a particular variable estimates the predictive power of that variable with all other covariates controlled. For example, the odds ratios for number of children in both surveys indicate that with each additional child the odds of wanting no more children approximately double, an effect that is independent of all of the other variables in the regression. Or, residents in Nairobi in 2003 are only 39 percent as likely as those in Central province (the reference category) to want no more children.

The main impression from a comparison of these odds ratios is how similar they are at the two times. The odds of wanting no more children at both times are significantly and similarly associated in both surveys with age, number of children, urban residence, exposure to mass media, wealth, and province. At both times, educational achievement (contrasted with no education) is related

to wanting no more children and the effect increases with increasing schooling. The impact of education on preferences seems stronger in 2003 than in 1998 but this is probably because of the characteristics of the women with no schooling who are the reference category. In 2003, these women are younger than in 1998 and are more likely to be in the poorest quintile.

One difference in the values is in the religion covariate: in 1998 it is not significantly associated with reproductive preferences but in 2003 being Muslim implies a lower proportion wanting to cease childbearing. If the trend in the proportion who want no more children is confined to non-Muslim women as well as to women with some education, the difference across the five years in the proportion who want no more children shrinks from 3 to 1 percent, but it is not enough to change the direction of the trend.

Table 4.9 Odds ratios of wanting no more children for currently married women in 1998 and 2003

Covariate	Want no more children	
	1998	2003
Age (in single years)	1.05	1.06
Number of living children	2.04	1.98
Rural residence	0.59	0.78
Province		
Central	1.00	1.00
Nairobi	0.46	0.39
Coast	0.22	0.34
Eastern	ns	ns
Nyanza	0.45	0.57
Rift Valley	0.38	0.57
Western	0.41	0.67
Education		
No education	1.00	1.00
Primary incomplete	1.57	2.08
Primary complete	1.73	2.74
Secondary incomplete	1.96	2.53
Secondary complete	1.97	2.95
Higher	2.29	2.93
Religion		
Protestant	1.00	1.00
Catholic	ns	ns
Muslim	ns	0.60
Mass media	1.13	1.14
Wealth (in quintiles)	1.08	1.22
R squared	.323	.317
Number of women	4,745	4,446
Chi squared	2,114	1,954

ns = Not statistically significant at the .05 level

5

Summary and Conclusions

This report addresses the recent unexpected plateau of the fertility decline in Kenya. The overall fertility rate, estimated from successive Kenyan Demographic and Health Surveys, has remained unchanged in the past five years after three preceding decades of decline. The stall is also evident for teenage pregnancy and childbearing rates. With the exception of Central province, where the TFR has continued its decline, the lack of decline is evident in all of the provinces except Nyanza and the Rift Valley, where fertility actually increased by about 10 percent over these five years. A similar increase in fertility has occurred among the least educated women, while a continuing decline is evident for women with at least some secondary education. No change in fertility appears for women with fewer than four children, while increases are evident at higher parities.

Contraceptive prevalence among all women has not changed. However, when the analysis is confined to sexually active women (those who reported sex in the past four weeks), contraceptive prevalence has increased, as had been expected. This alters the possible explanation and focuses it on what appears to be a pervasive decline in recent sexual activity—at all ages and marital statuses (especially among the unmarried)—a trend that also appears in several other African countries in the region. Concerns about HIV/AIDS would seem relevant in the abstract but are difficult to connect unambiguously.

The overall plateau in contraceptive prevalence has occurred mainly among younger women, while those over 35 years of age continue to show an increase in use. As in trends in fertility, the least educated women show a significant decline in prevalence while the most educated continue to show an increase in use. Contraceptive failure rates have not changed for the most part, but there has been some increase in discontinuation rates for reasons other than failure or seeking pregnancy. Changes in the mix of methods have continued, with an increase in the use of injectables and a decline in the use of the pill, sterilization, and the IUD.

There has been a continuing increase in reliance on the private sector for contraceptive supplies. Approval of family planning has declined slightly, especially among the least educated women. At the same time, the level of unmet need for family planning has remained unchanged throughout the country. There seems to be little connection between overall changes in contraceptive use and current HIV infection or perceived risk of getting AIDS. However, shortages of contraceptive supplies have been linked in the Kenya press to increases in support for HIV prevention programs as well as to the reduction of international donor funding for contraception.

Perhaps the most intriguing and more basic change has been in the historically steady increase in the proportion of Kenyan women who want no more children, which has reversed direction since 1998. This change is pervasive; it affects all parities and ages. It has occurred in both urban and rural areas and in every one of the seven provinces, although it is most extreme in Nairobi. With few exceptions, a plateauing or reversal of reproductive intentions has occurred at every age group, in every province.

The reversal is especially dramatic among women with no education; it is moderate for those who reached or completed primary grades; among women with secondary or more education, the long-term trend toward preferences for smaller families continues. This educational contrast is particularly evident with the wanted fertility rate, where the average number of children desired by women with at least some secondary education dropped from 2.8 to 2.3 over this recent period in contrast to the increase from 4.4 to 5.5 births wanted among women with no education.

Examination of these trends by ethnicity shows no exception in the 11 groups identified; in each ethnic group, the increase in the desire to stop childbearing stalled or reversed. The same is true for Protestants and Catholics and is especially dramatic for the Muslim minority.

We have searched for other indicators in the 2003 KDHS data that might elucidate the reasons for the stall or reversal in reproductive preferences, with mixed success. For example, there does not seem to be any connection with concern about AIDS, although some additional work is needed here. A more promising lead lies in the increase in child mortality between 1998 and 2003. There is a clear association between wanting more children and having experienced the loss of a child under five in the past five years. It seems reasonable to conclude that the increase in child mortality, partly because of AIDS, has played a role in the changes in reproductive intentions.

We also know that there has been a significant increase in unwanted births between 1998 and 2003. Thus, changes in reproductive intentions are not the only explanation.

In conclusion, we return to the original questions. The decline of fertility has stalled because of the plateau in contraceptive prevalence and, perhaps more fundamentally, a shift toward wanting more children. We have been able to identify the segments of the population where stalls or reversals have occurred and some of the mechanisms. These changes in reproductive preferences have been pervasive; women with no education and Muslim women show dramatic reversals while women with at least some secondary education have continued to want and have fewer births. Women without any education and Muslim women in Kenya are not very large segments of the population and cannot account for the overall pattern of change. Even the child mortality increase associated with wanting additional children is not enough to explain the reversal of reproductive preferences. Also, the multivariate examination of the covariates of these preferences shows values in 2003 very similar to those for 1998. In conclusion, it would appear that more general social or economic changes have recently occurred in Kenya beyond the individual characteristics

measured in these surveys. For example, the role of the government and international donor support for family planning may very well have contributed to the stall in contraceptive prevalence. The increase in the proportion of women who want more children is more puzzling.

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