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THE STALL IN THE FERTILITY TRANSITION IN KENYA

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1 Introduction

For the past 25 years or so, Kenya has been something of a fertility transition showcase in sub-Saharan Africa. From perhaps the world's highest fertility rate (8.1 births per woman) as estimated for 1975-78, the rate had dropped dramatically to 4.7 by 1995-98. Contraceptive prevalence had increased rapidly as more women began to want fewer children. All of this has suddenly ceased by the first few years of the 21st century as indicated in the 2003 Kenya Demographic Survey (Central Bureau of Statistics, 2004). This report is an analysis of this recent development that describes the details of the stall and attempts to understand its dynamics (McDevitt and Johnson, 2005). The 2003 KDHS data used throughout this analysis exclude the Northeast province and several other districts not represented in the earlier surveys.

2 Fertility

The long-term decline in the Total Fertility Rate is depicted in Figure 2.1. The plateau between 1995-98 and 2000-03 at 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.

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 is due to the dramatic rise in teenage childbearing in Nairobi, from 10 to 20 percent in this recent period placing it back to its level 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.

In order to locate more precisely the recent changes in total fertility, trends by residence and by education are shown in Table 2.2. Urban or rural residence does not alter the trend; the most recent TFR has increased slightly 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 around 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 Completed category, the TFR shows no change at all. At the highest level, Secondary +, the expected continuation of a declining rate appears with the TFR down from 3.5 to 3.2. In Section 4, these changes are disaggregated into wanted and unwanted components.

All of these changes 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 then 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 (not shown).

3.1 Trends in Contraceptive Prevalence

There has clearly been a plateauing of contraceptive prevalence in Kenya as measured for all women at the time of the 2003 interview compared with 1998. As displayed in Figure 3.1.1, the percent of all women using any method, which increased from 26 percent in 1993 to 30 percent in 1998, remained unchanged at 30 percent in 2003. The prevalence of modern methods also remained the same at 24 percent. Among currently married women, prevalence increased only by 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 continuation of increased method use among unmarried, sexually active women. In this group, overall method use in the preceding five years increased from 47 to 54 percent and modern method use 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 dropped by half in the past five years, from 6 percent of all women in 1998 to 3 percent in 2003, an increase in abstinence that may be related to concerns about AIDS. Young, never-married women who think that abstaining from sex is the best way to avoid AIDS are much more likely to be virgins (69 percent) than those who believe more in other means of prevention (49 percent).

Both the 1998 and the 2003 KDHS included monthly retrospective calendars covering 5-6 years before the interview. 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, reasons for any discontinuation of use, and whether each month was in or out of marriage. These monthly data can be used to reconstruct more detailed trends over the past 10-12 years in contraceptive prevalence, in the mix of methods and in contraceptive failure rates. In addition, such trend data can be produced for various subsets of the population, e.g., for all women or for married months of experience, for the different regions of the country, by parity, by education, and so forth. The tabulation is organized to represent women 15-44 in each year.

The annual series for the prevalence of modern methods shows a fairly flat trajectory over the past 11 years (Figure 3.1.2). Prevalence of modern methods among all women was slowly increasing to 1998 but then declined and resumed the slow rise culminating at the same 23 percent[1] as in the earlier period. Whether the sudden decline five years ago is real or whether the quality of the recall data deteriorates with the length of the recall period is not known. What is clear, however, is that contraceptive prevalence has not changed much over the decade. A very similar picture obtains for married women and for the lesser use of traditional methods.

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 3.1.3). In fact, there is no evidence at all of any plateau in this relevant sub-population. And, the increase is evident for all marital statuses (Figure 3.1.4).

This distinction between all women and sexually active women (comprising about half of all women) is important because it affects the nature of the possible explanation. 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 it has declined 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. There have been some changes over time in the ordering of the questions on sex in the DHS questionnaires that conceivably might have had some effect on the estimated proportions that never had sex but the changes seem too pervasive to attribute to measurement differences. Moreover, similar declines in recent sex are also evident among women who ever had sex. Recent declines in sexual activity are also apparent in other countries, for example Namibia, Uganda and Zambia.

One might reasonably ask why the fertility rate has not declined if sexual activity has diminished. The problem is that there is no close, unambiguous link between the recency of sex

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

(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 non-marital 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. Such 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 also has an effect on sexual activity which further obscures 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 preceded the past five years and was described several years ago: "Injectables have recorded the most dramatic and consistent increase over the years ……." (Magadi, et.al.). Our evidence from the calendar data (Figure 3.2.1) shows a strong continuation of the upward trend to the point in 2003 that the method 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 from a high of 13 percent as recently as 1998 to 8 percent five years later. The IUD also declined in popularity from 10 to 5 percent.

3.3 Trends in Prevalence by Characteristics

Trends in contraceptive prevalence by age and by parity among currently married women are shown in Figures 3.3.1 and 3.3.2 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 the use of contraception among married women is concentrated among those using for birthspacing purposes. 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 3.3.2a).

The trends by region are quite diverse (Figure 3.3.3). 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. A stall is apparent in Coast and in Rift Valley.

The picture by education (Figure 3.3.4) shows a significant decline in prevalence among those women with no education (who are a decreasing proportion of the population), plateaus at the

primary levels, and a continued increase among women with secondary or more schooling. These trends are shown in annual estimates from the calendar data in Figure 3.3.5. What is particularly curious is the abrupt change in prevalence among those with no schooling; it seems unlikely that this can be explained by the small decline in the proportion of married women with no schooling that has dropped 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. The main reasons relate to menopause and infecundity, to health concerns and side effects, and opposition to use, and these reasons show no particular change over the five years.

3.4 Trends in Contraceptive Failure Rates and Discontinuation

Given the increasing use of injectables, one would think that the overall effectiveness of contraception would improve. Annual estimates from the calendar data (Figure 3.4.1), however, show little evidence of any overall change with estimates ranging in a narrow band around the .04 and .05 levels (these are Pearl rates). Failure rates for modern methods are mostly all at the .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 .13 and .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) that may explain some of the increase in the average failure rate in 1993-1998 of .15 to .18 between 1998-2003.

First-year contraceptive discontinuation rates (excluding the reason "to become pregnant" increased over the five years (Table 3.4.1). In 1998, the first-year discontinuation rate was 28 percent which climbed to 33 percent by 2003. Most of this increase was for reasons other than method failure. Side effects is the primary explanation for the overall increase in discontinuation. There have been higher discontinuation rates for the pill and injectables in the later survey.

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 3.5.1). Overall, the public sector was responsible in 1993 for 68 percent of methods which dropped to 58 percent by 1998 and is now at 53 percent with private sources becoming more common. Most of the decline in the use of public sources is in government hospitals. This trend is affecting all of the main modern methods and may have some implications for the costs of contraception, though cost is not a reason frequently cited by women for not using a method.

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 3.6.1), 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. It is not clear what accounts for this although, as noted above, the less educated, particularly those with no education, are becoming smaller proportions of the population and perhaps more selective. In any event, the trend is consistent with the plateau in contraceptive prevalence.

3.7 Trends in Unmet Need

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 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 3.7.1). Coast province is the only exception where unmet need continued its decline. In Nyanza, there has been a significant rise in unmet need from 26 to 35 percent in the last five years.

3.8 HIV-AIDS and Contraceptive Practice

Most attention to the connections between AIDS and contraception has understandably been focused on condom use. Whether the plateau in general contraceptive practice is related to the increase in AIDS in Kenya is the question here. There is concern about competition for resources formerly targeted for family planning with HIV prevention activities in addition to a decline in international donor funding for contraceptive supplies.

Women who are currently infected (who may or may not know about their condition) show the same proportions using contraception as other women. There is also no difference for men. A better measure of the possible effects of AIDS is the perception of risk and its bearing on contraceptive use. The association both for men and women (Table 3.8.1) shows the lowest use among those who perceive no risk both in 2003 and in 1998. There is thus the possibility that the lack of increase in contraceptive prevalence may be connected with the decline in the perception of risk between 1998 and 2003. One would surmise, however, that such a connection would relate mainly to condom use and there has not been much of a change in the use of this method except among the sexually active unmarried population.

4 Reproductive Preferences

4.1 Introduction

Perhaps the most unexpected development in the recent stall of the increase of contraceptive prevalence and the lack of continued fertility decline in Kenya since 1998 is the evidence of a significant change in reproductive preferences. The importance of evaluating changes in preferences for understanding changes in contraceptive behavior and fertility itself is clear

(Westoff and Bankole). 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 turned around, and in some segments of the population shows major change. This analysis emphasizes trends based on data mainly from the 1993, 1998 and 2003 DHS, 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 in order to sharpen the explanation of the reversal.

4.2 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 4.2.1 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 "want no more children" is obviously related to the existing 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 each parity (see Table 4.2.1).

Essentially the same observation applies to the trend by age group (Table 4.2.2). The recent reversal of the long-term increase in the proportion of women who want no more children is concentrated between ages 25-39.

4.3 Trends by Residence

In Figure 4.3.1, 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 DHS program and the denominator is expanded to all currently married women.

The trend in each of the provinces (Figure 4.3.2) 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 .4 Trends by Education

The trend in reproductive preferences by education is perhaps the most interesting and revealing. Among women with no education, a segment of the female population that has declined from 25

[2] The definition of "fecund" differs somewhat between the early and late surveys. The restriction to fecund women in this section is necessitated because in the early surveys in fecund women were not asked about their reproductive intentions. In the remainder of this section, the only restriction is to currently married women.

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 4.4.1). 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 4.4.1). The one exception is a continuation of the increase in the proportion who want no more that is evident for women with at least a completed primary education.

Another measure of reproductive preferences – the Wanted and Unwanted Total Fertility Rates – shows the implications for fertility (Figure 4.4.2). The sum of these two components – the Total Fertility Rate – shows the nationwide decline in the TFR from 5.4 in the three years before 1993 to 4.7 five years later (as shown in Section 2) and then essentially plateaus at 4.8 estimated in the 2003 survey. The Wanted component remained constant at 3.5 while the Unwanted dropped between 1993 and 1998 from 2.0 to 1.2 but shows no further decline since 1998.

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 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.

At the opposite end of the educational scale – women with more than primary school education – the more 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 among those with no education but not by as much (from 3.7 to 4.2) but Unwanted fertility also increased from 1.5 to 1.9 after having declined from the 1993 level of 2.5.

Both components of the fertility rate among women with completed primary education (26 percent in 2003) 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.

Thus, most of the changes have occurred among the least educated segment of the population and most of that in the Wanted component.

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

4.5 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 the decline of the proportion of women who want no more children and the plateauing of the Wanted Total Fertility Rate. The WTFR is unchanged while the Unwanted component increased slightly in the three years before the 1998 and before the 2003 surveys (top panel of Figure 4.4.2) which 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 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 4.5.1. 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 19 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. This is probably related to the stall of contraceptive prevalence since contraceptive failure has not increased. 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. This is consistent with the evidence in Figure 4.4.2 that indicates that the primary change among the least educated women has been in the Wanted fertility component.

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 births – 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. Presumably, women who say they did not want their last birth would be likely to say they want no more children in the future, although one can imagine circumstances when this might not hold. 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 than those who want no more 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 general conclusion about the reversal thus 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 of the major ethnic groups in Kenya (Figure 4.6.1).

The decline of the proportion of women who want no more children is the same for Roman Catholic and Protestant women but is particularly pronounced for the minority Muslim population (6 percent of the population) among whom it dropped from 41 to 28 percent between 1998 and 2003 (Figure 4.6.2).

The main feature of the recent trend of reproductive preferences in terms of wealth is the increase in both wanted and unwanted fertility in the lowest quintile of the wealth distribution (Figure 4.6.3). 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.

4.6 Trends in Male Preferences

Samples of men have been included in the last three surveys in Kenya. Similar to the trends observed among women, the preference for fewer children has also turned around among married men (Table 4.7.1). 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.

The trend by education shows the largest reversal among the less educated men.
Among those with more than a primary education, 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 perhaps increasing concern about AIDS might induce parents to want more children – a kind of child insurance

notion. In fact, the prevalence of the disease is concentrated among women 25-39 (Central Bureau of Statistics, 2004), the same ages featured in the reversal of reproductive preferences. It seems, however, that concern about AIDS has diminished somewhat in Kenya. One indication of this is the increasing proportion of women who now say that their chances of contracting the infection are small or nonexistent (from 66 to 75 percent between 1998 and 2003). Among men, there has been hardly any change at all in this perception of risk.

Nonetheless, we examined the association between the perception of risk and reproductive intentions and find that, if anything, the relationship is in the opposite direction from that hypothesized – the proportion of women who want no more children increases as the perceived risk increases (Table 4.8.1). 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-quarters 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 in these tabulations does not alter the picture. The general results are consistent with other research in Zimbabwe (Grieser, et.al.).

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 the condition (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). For what it's worth, 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, though men do not follow the same pattern. Among men, the corresponding estimates are 42 and 36 percent.

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

4.9 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[4] compared with the 1998 estimates and is now even higher in every province than the estimates for the ten years before the 1993 survey.

[3] This is based on a re-calculation 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.

The increase is probably due to 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; Newell). 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 4.9.1, 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 age because most women at this stage want no more 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.

A similar association is evident for men, as indicated in Table 4.9.2. 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.

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.) that an increase in child mortality can be expected to increase fertility (Gyimah and Rajulton) while an increase in adult mortality or concern about AIDS would reduce fertility.

4.10 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 4.10.1, 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

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

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 due to the characteristics of the women with no schooling who are the reference category. In 2003, these women are younger than in 1998 and are somewhat poorer.

One difference in the values is in the religion covariate which in 1998 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.

5 Summary and Conclusions

This report addresses the 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 change is evident in all of the provinces, while in Nyanza and in the Rift Valley, 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.

There has clearly been a stall of the increase in contraceptive prevalence among all women. However, when the analysis is confined to sexually active women (those who reported sex in the past four weeks), there is no indication of any stall – 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. Similar to the 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. Unmet need for family planning has also stalled throughout the country. There seems to be little connection between overall changes in contraceptive prevalence and AIDS. However, shortages of contraceptive supplies have been linked 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 now 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, though it is most extreme in Nairobi. With only 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, moderate for those who reached or completed primary grades, but 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 trend toward desired fewer children stalled or reversed. The same is true for Protestants and Catholics and is especially dramatic for the Muslim minority.

We have searched for other clues 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 though 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 that the increase in child mortality, partly due to 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 fundamental, a change toward wanting more children. In general, 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 which is 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 might very well have contributed to the stall in contraceptive prevalence but the increase in the proportion of women who want more children is more puzzling.

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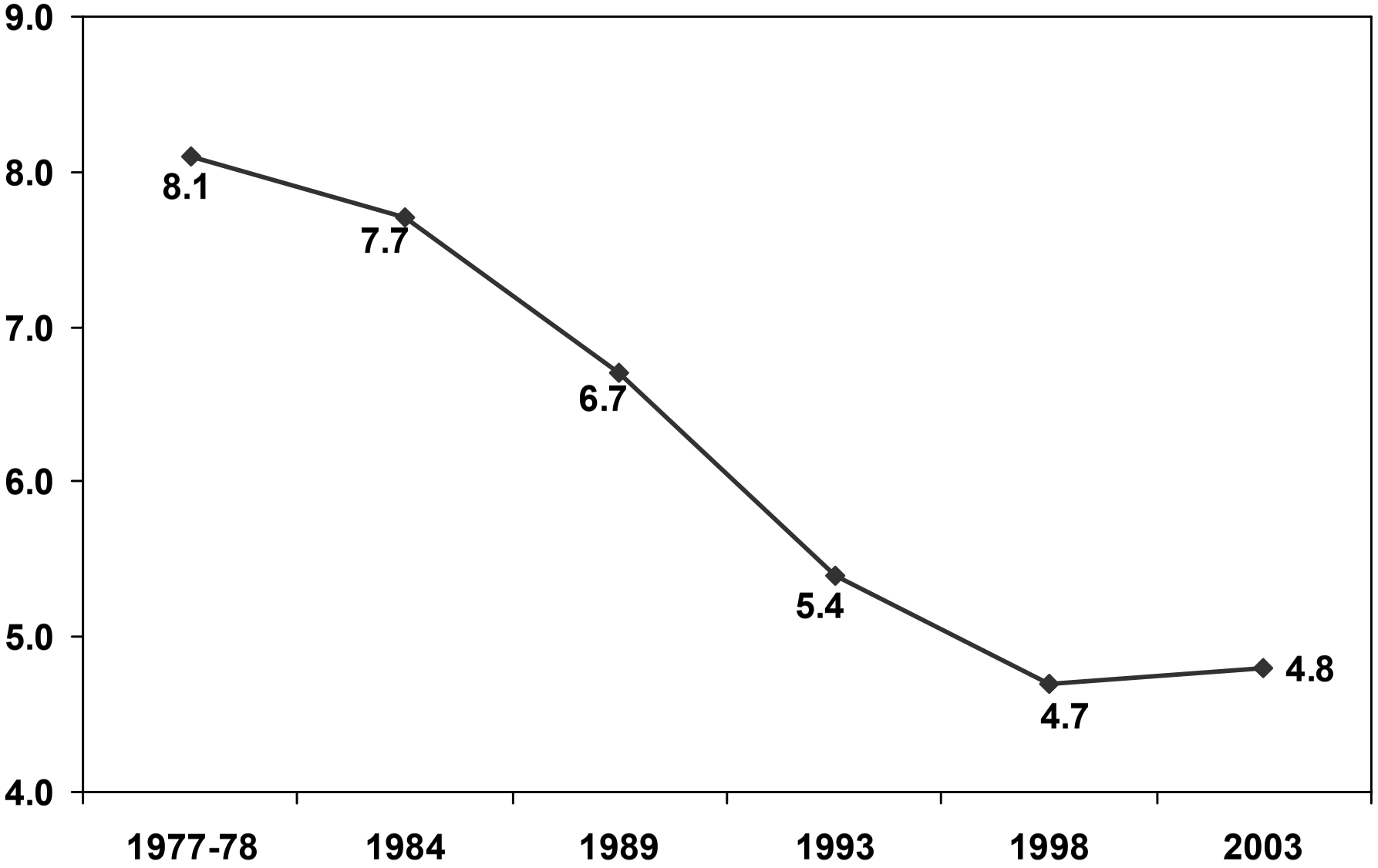
Figure 2.1. Trends in the total fertility rate[1] 1977-78 to 2003.



[1] Rates are based on the three-year period before each survey except for the 1984 estimate which is based on one year.

Table 2.1. Percentage of teenage women 15 – 19 who are mothers or pregnant with first child: Kenya 1993, 1998 and 2003.

	1993	1998	2003
All Teenagers	21	21	22
Urban	17	18	22
Rural	21	22	23
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
No Education	30	41	55
Incomplete Primary	20	22	23
Complete Primary	24	30	29
Secondary +	12	9	9

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

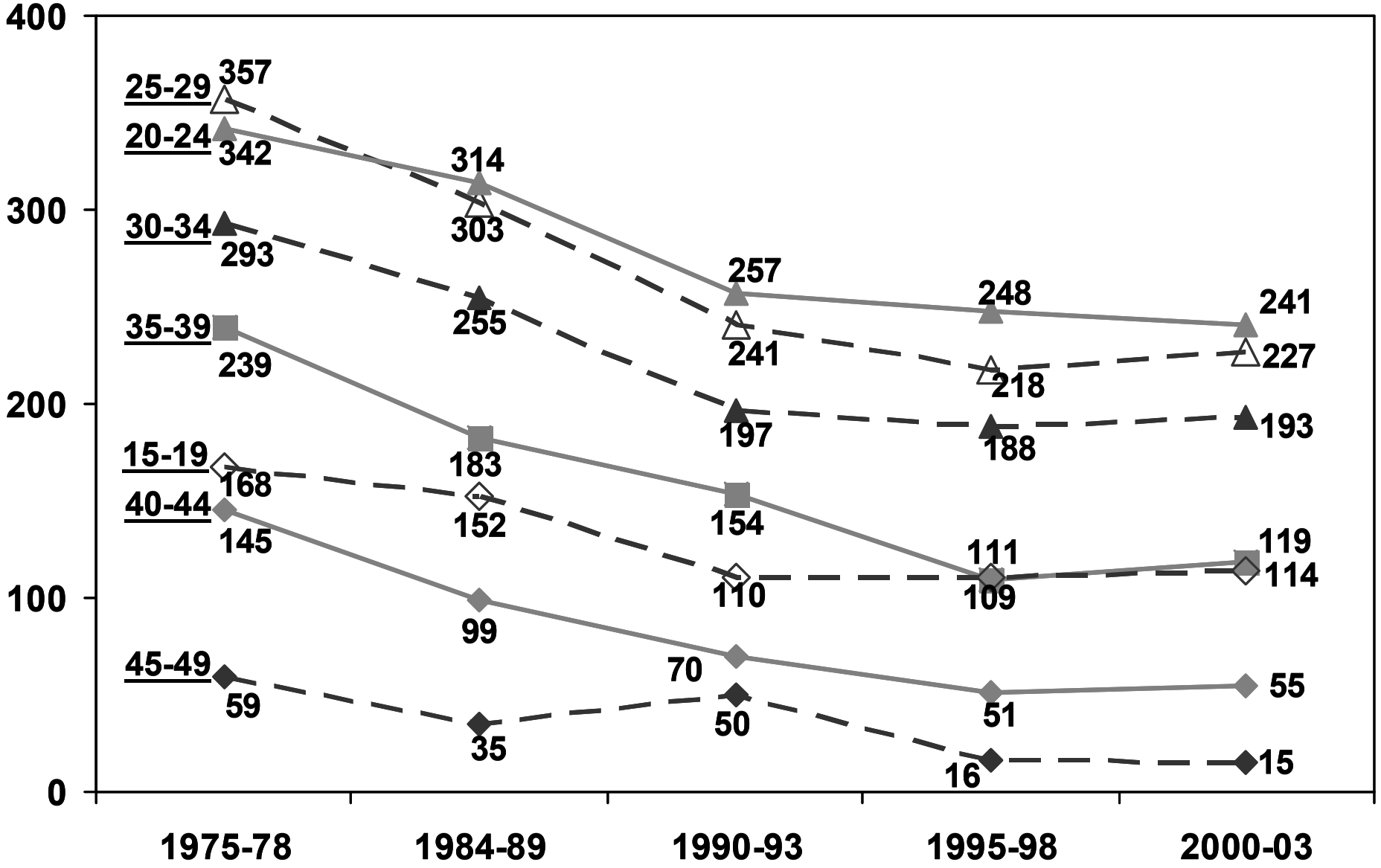


Table 2.2. Trends in total fertility by residence, province and education: Kenya 1993,1998 and 2003.

	1990-92	1995-98	2000-03
Urban	3.4	3.1	3.3
Rural	5.8	5.2	5.4
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
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. Percent of women who had a birth (one or more) in the preceding five years, by number of births at the beginning of that time: Kenya 1993, 1998, 2003.

Children Ever Born 5 Years Earlier	Percent Had A Birth in Past 5 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

Figure 3.1.1. Trends in percent currently using contraception: Kenya 1993, 1998 and 2003.

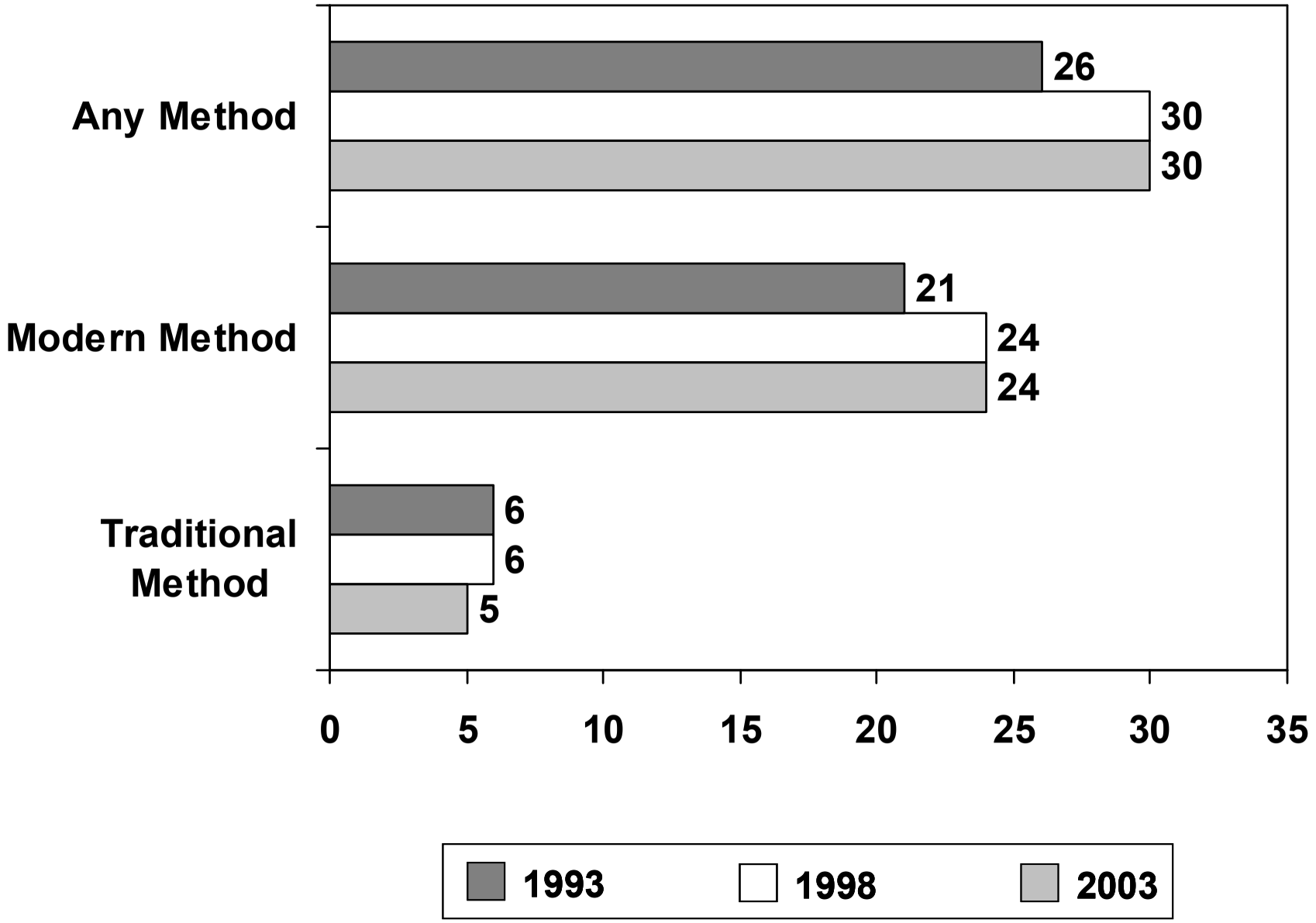


Figure 3.1.2. Annual estimates of all women – years of modern contraceptive use.

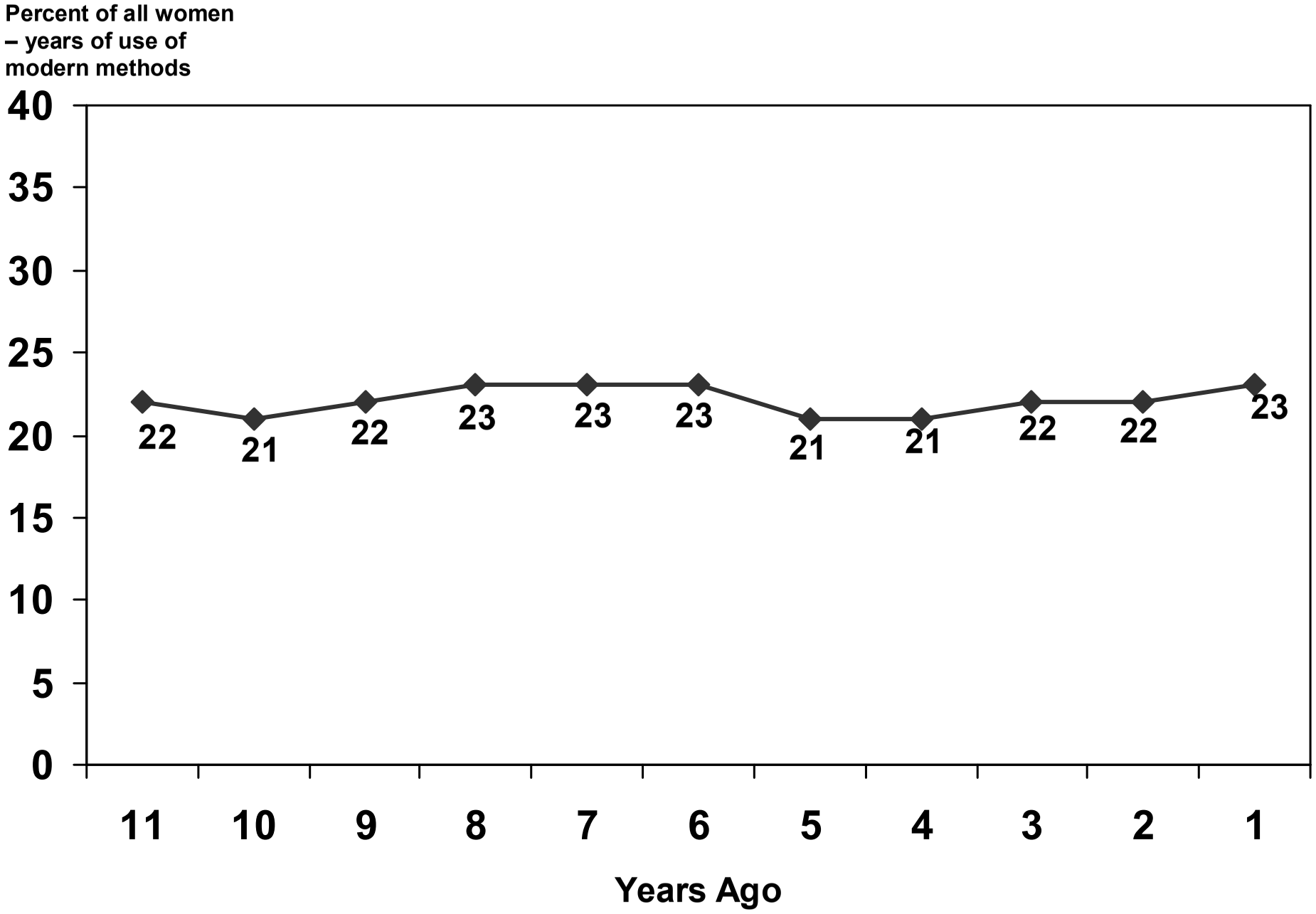


Figure 3.1.3. Trends in the use of any method among all women and among women who had sex in the past four weeks.

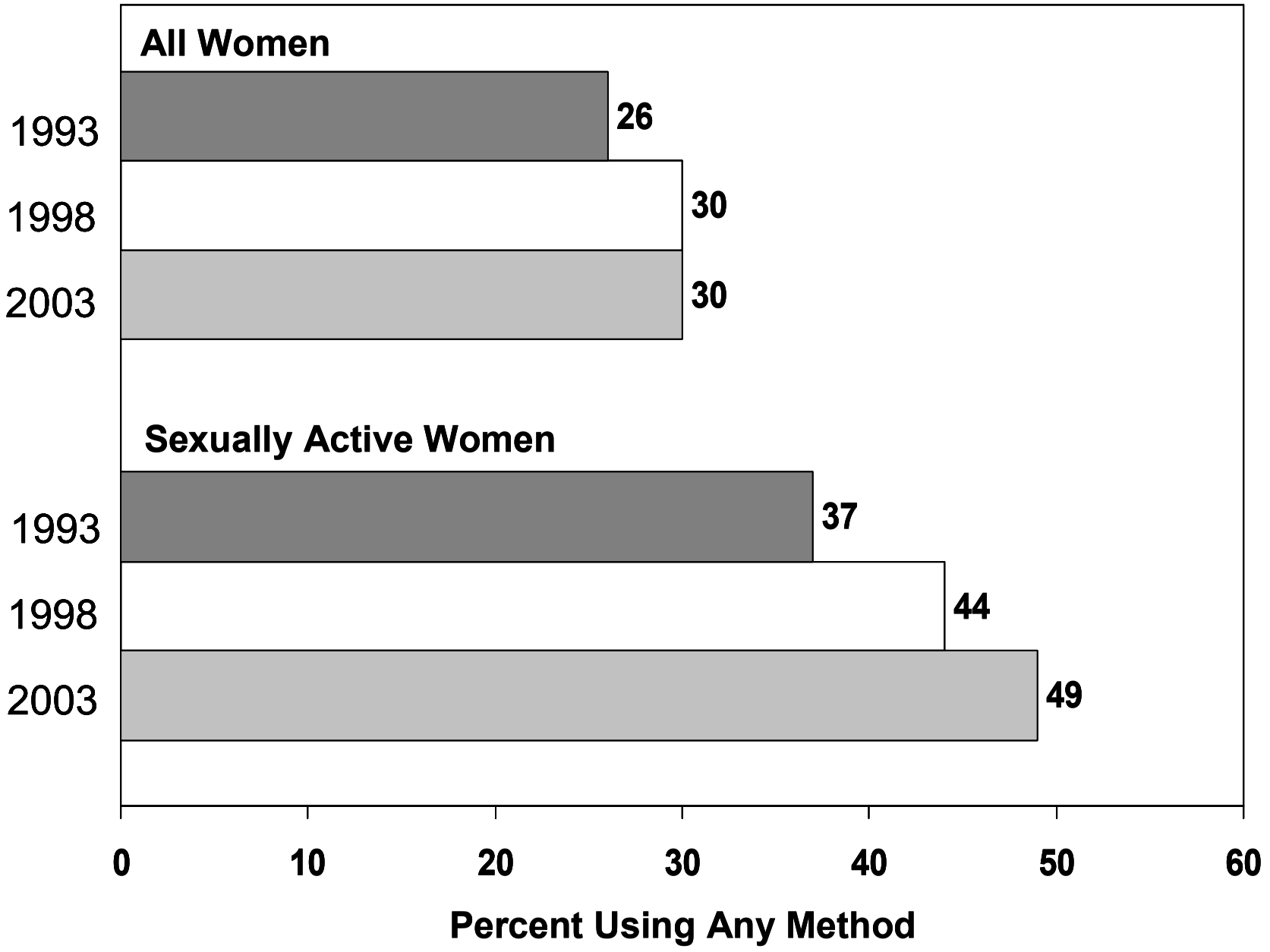


Figure3.1.4 . Trend in percent using contraception among women who had sex in past four weeks.

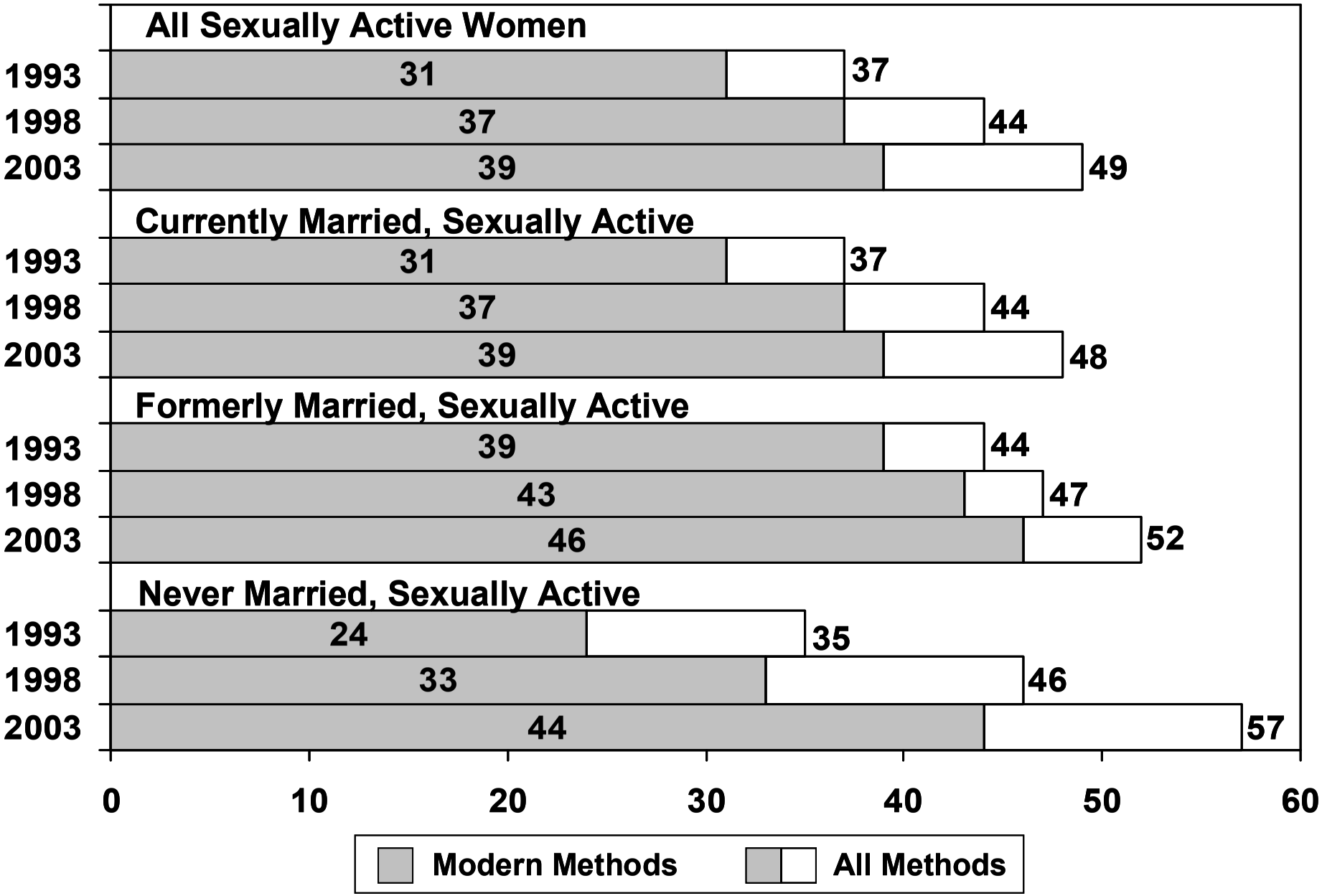
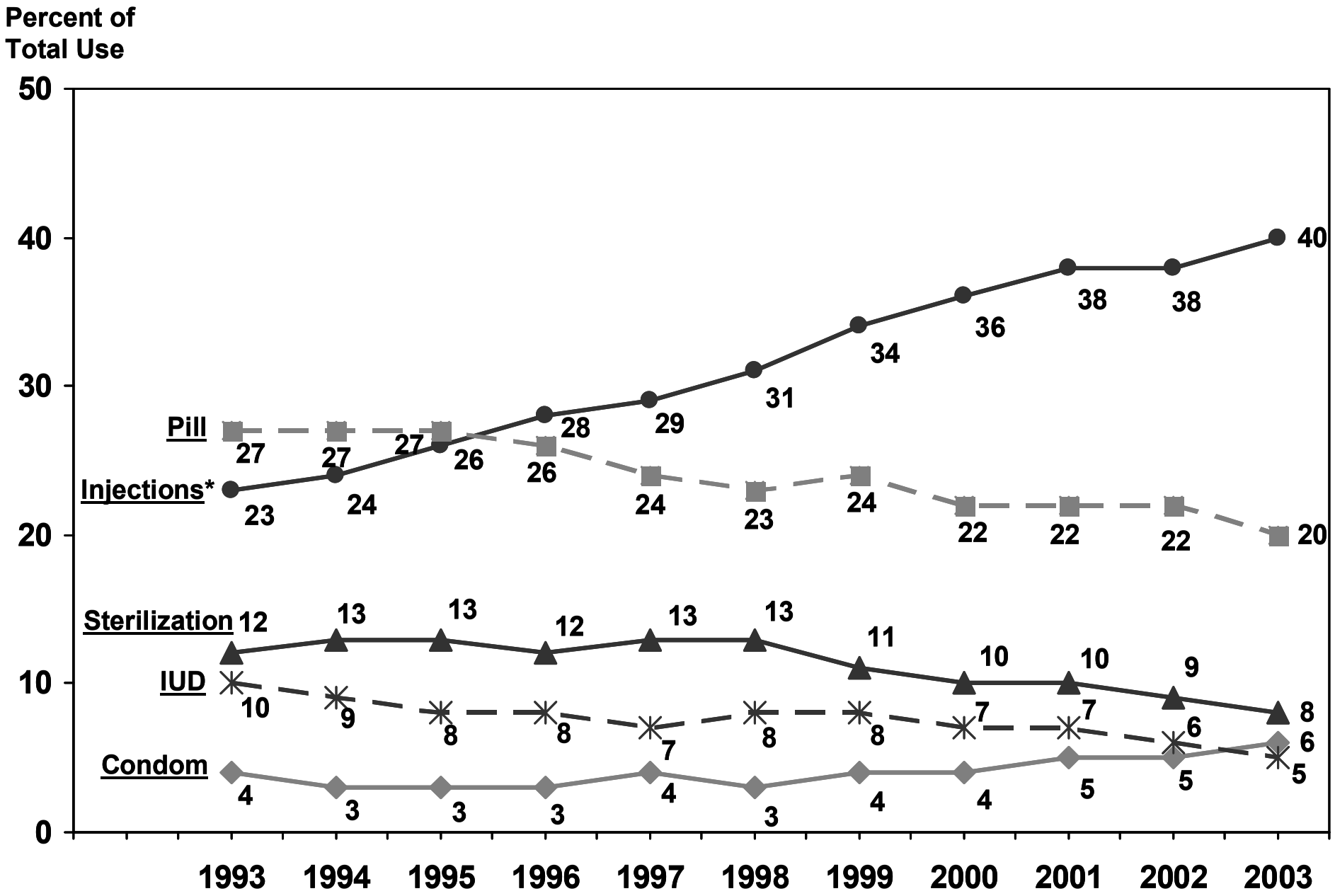


Figure 3.2.1. Changing mix of modern methods: percent of months of use.



* Includes implants which in 2003 were 4 percent of all use.

Figure 3.3.1. Trends in current use of contraception among currently married women by age: 1998-2003.

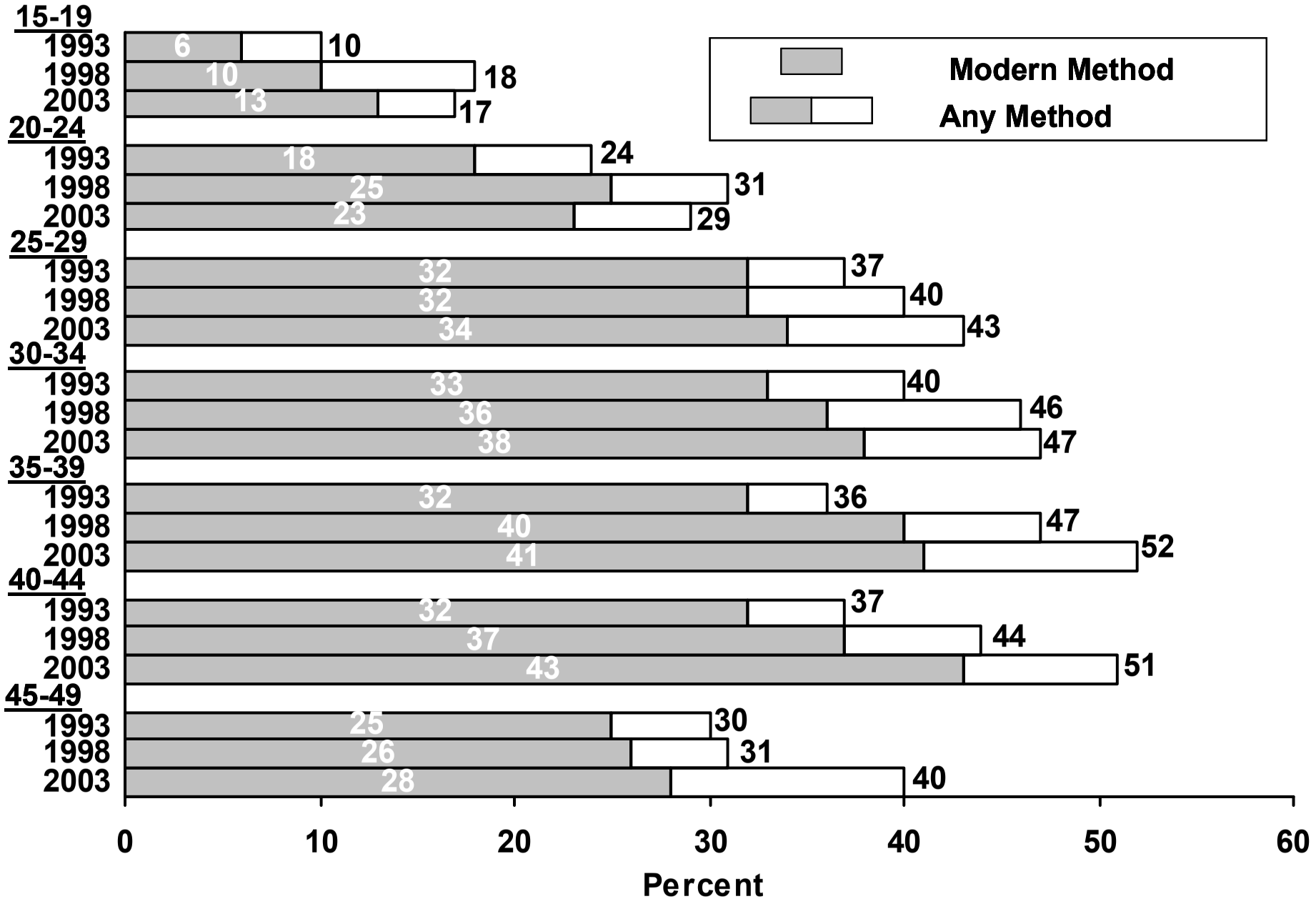


Figure 3.3.2. Trends in current use of contraception among currently married women by number of living children.

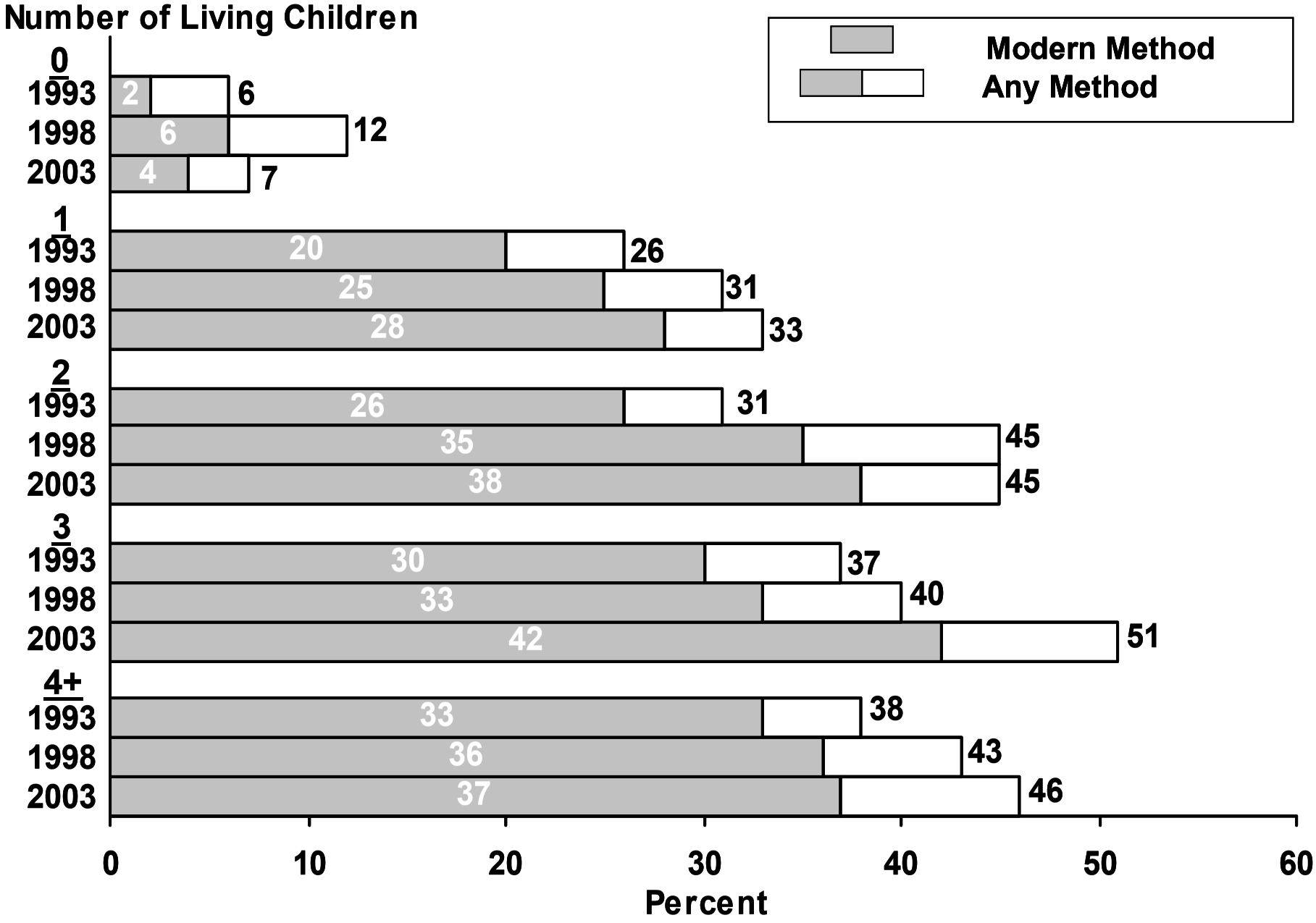
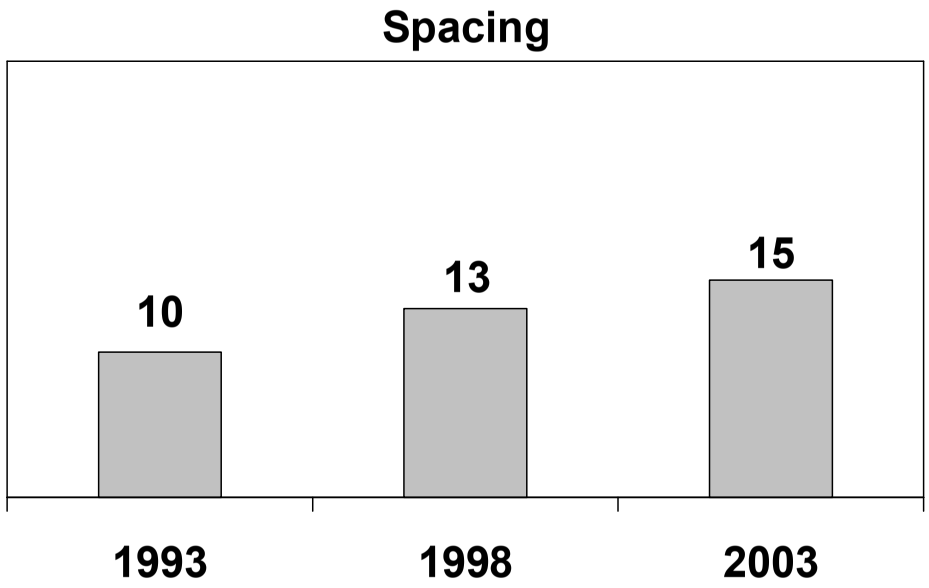


Figure 3.3.2a. Trends in current use of contraception for spacing and for limiting births among currently married women.



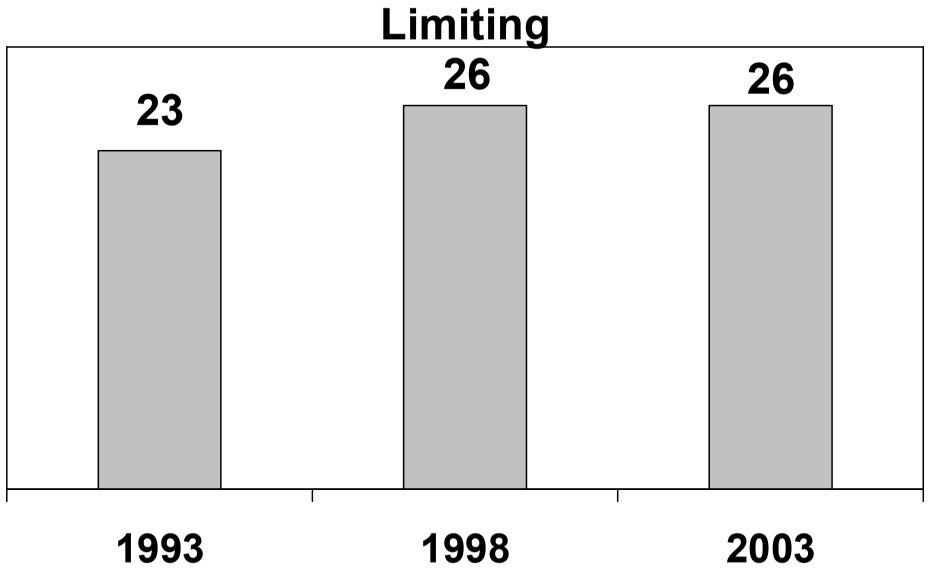


Figure 3.3.3. Trends in current use of contraception among currently married women by province.

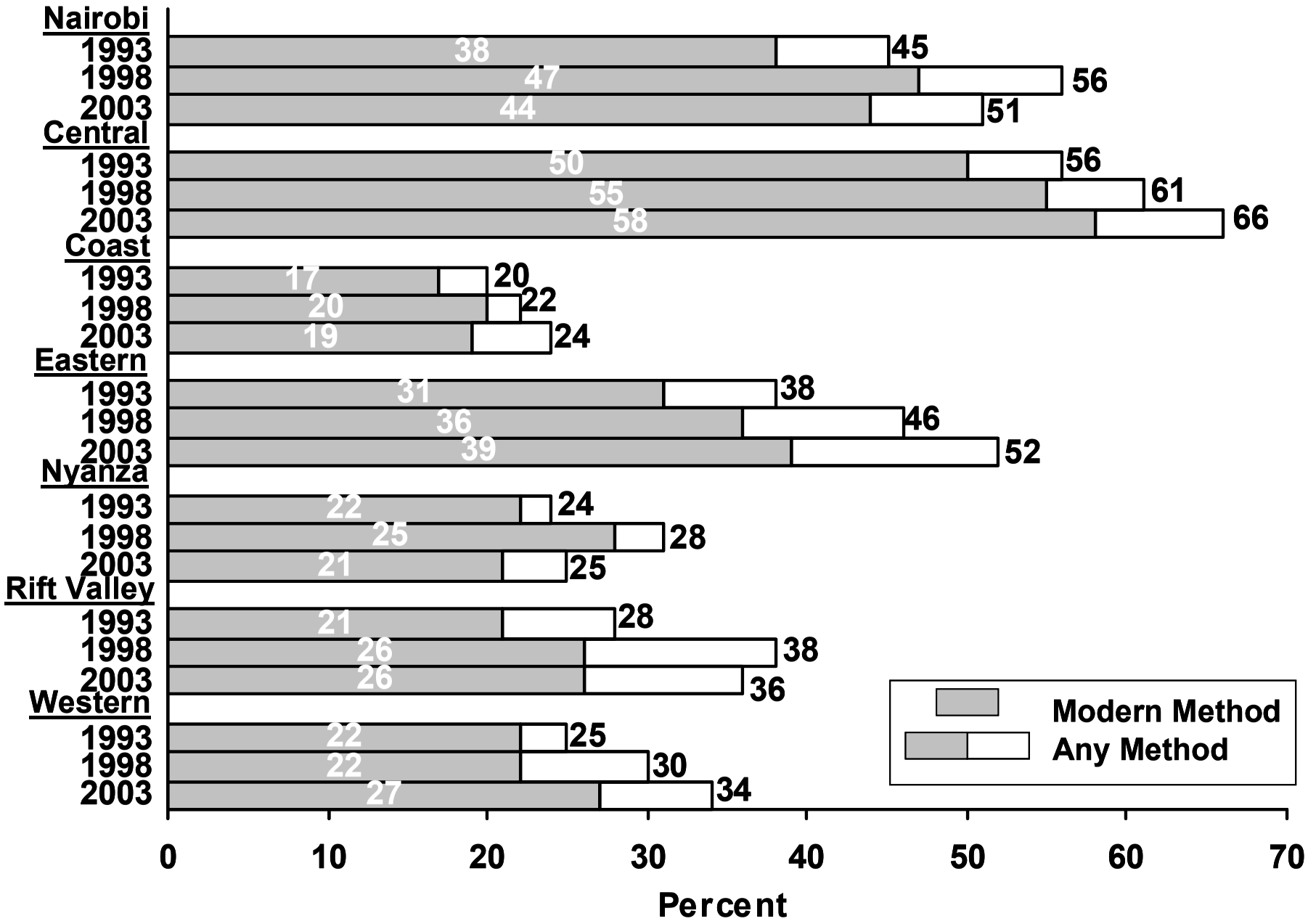


Figure 3.3.4. Trends in current use of contraception among currently married women by education.

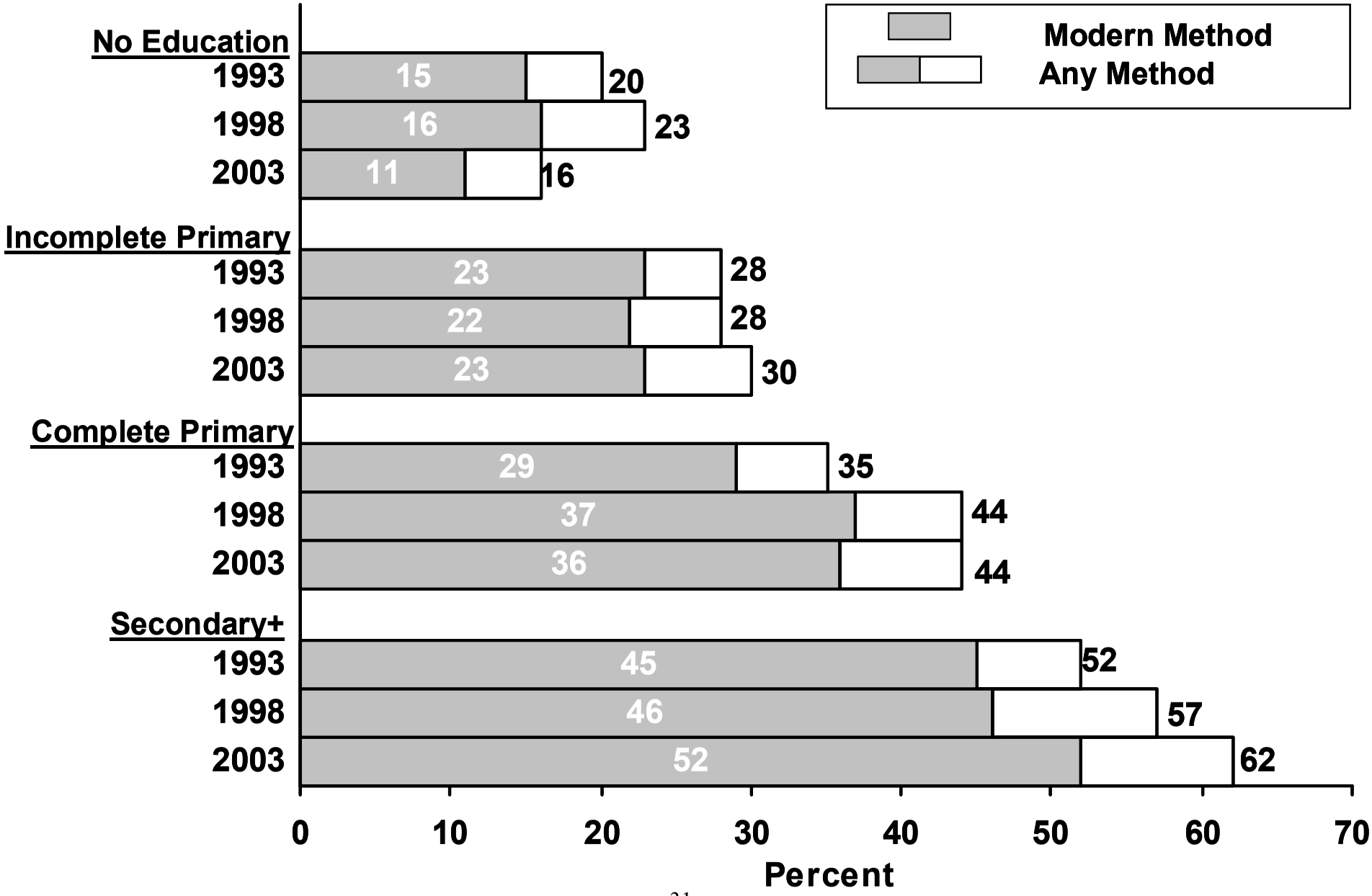


Figure 3.3.5. Annual estimates of married women – years of modern contraceptive use, by education.

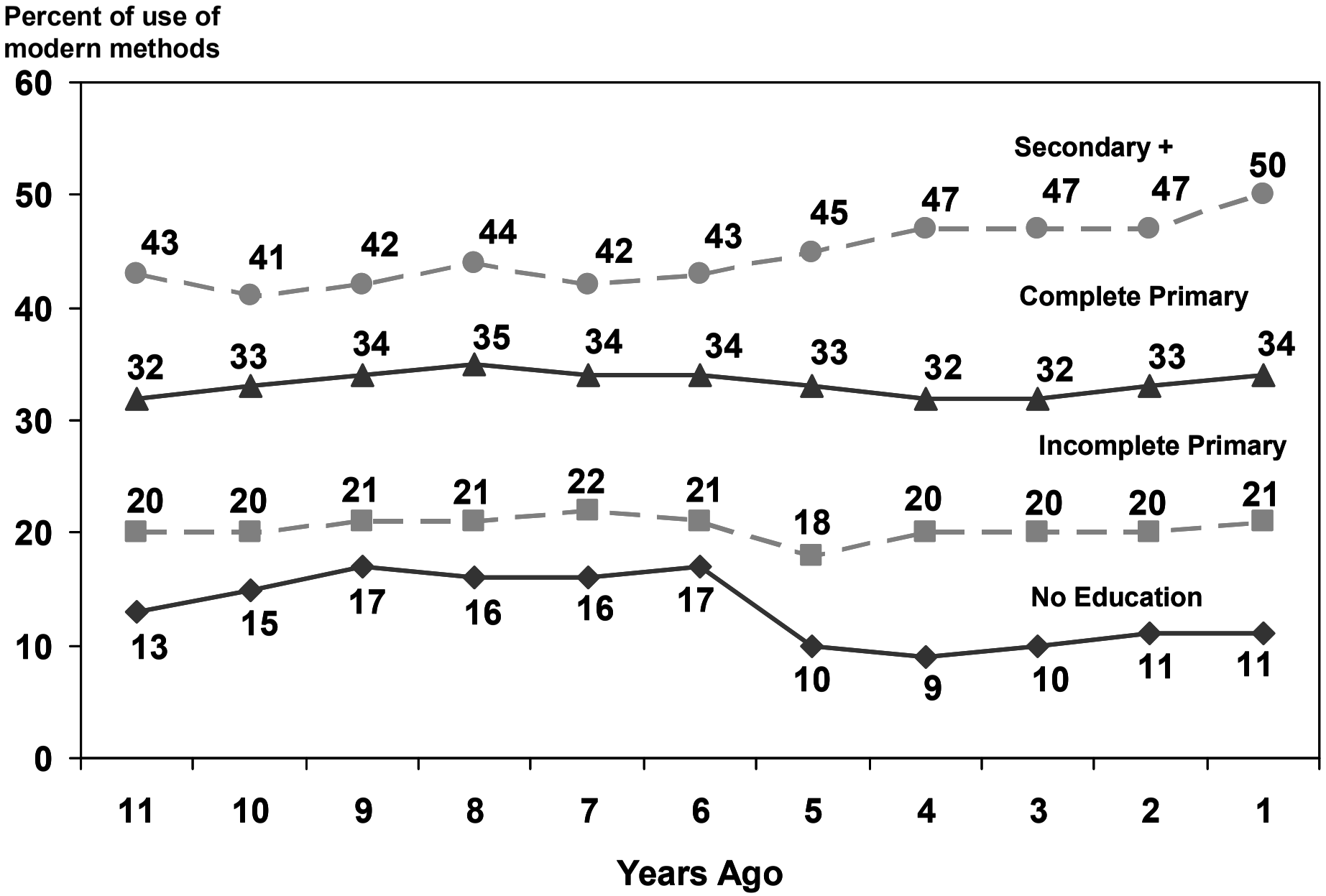


Figure 3.4.1. Trends in annual contraceptive failure rates

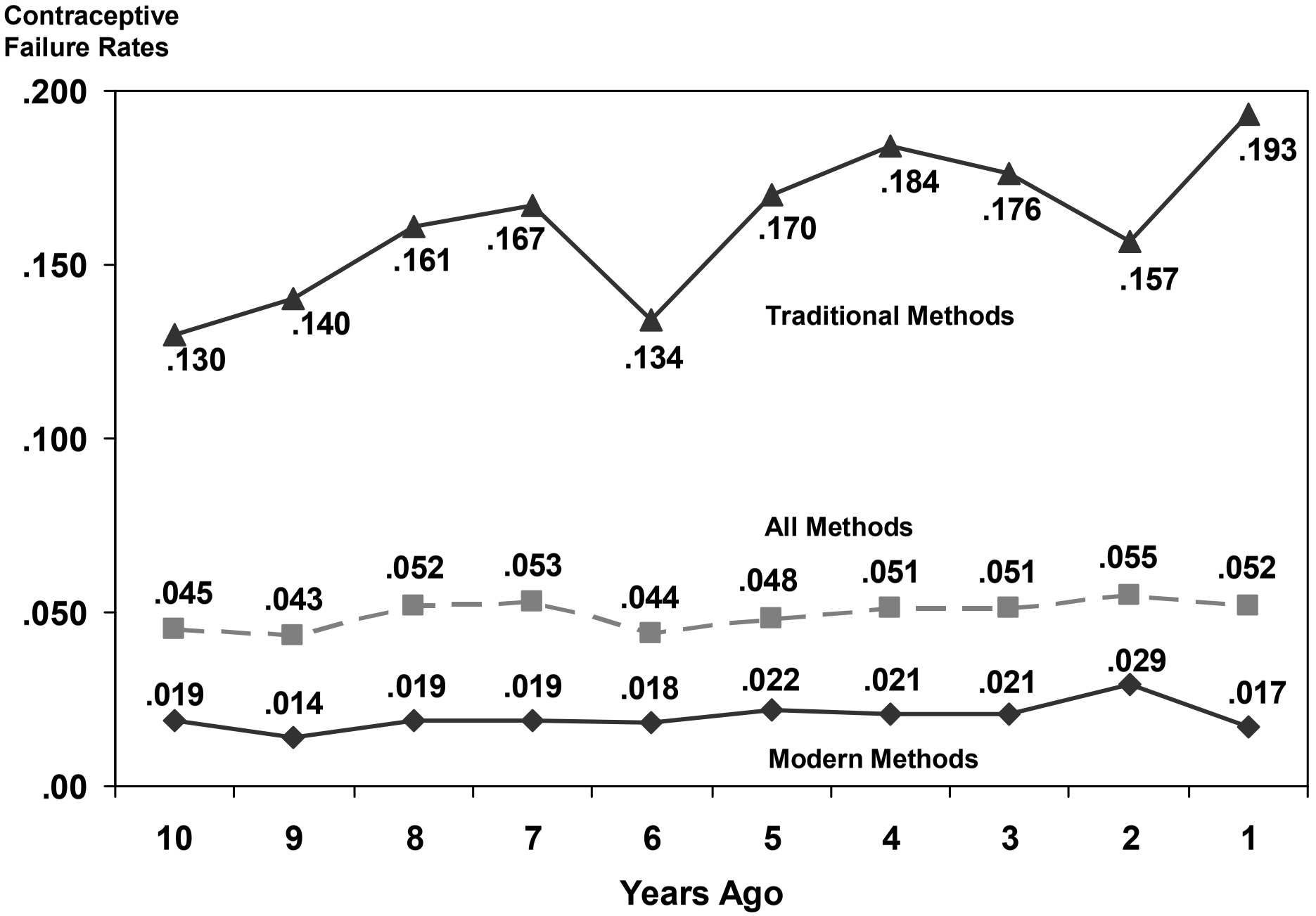
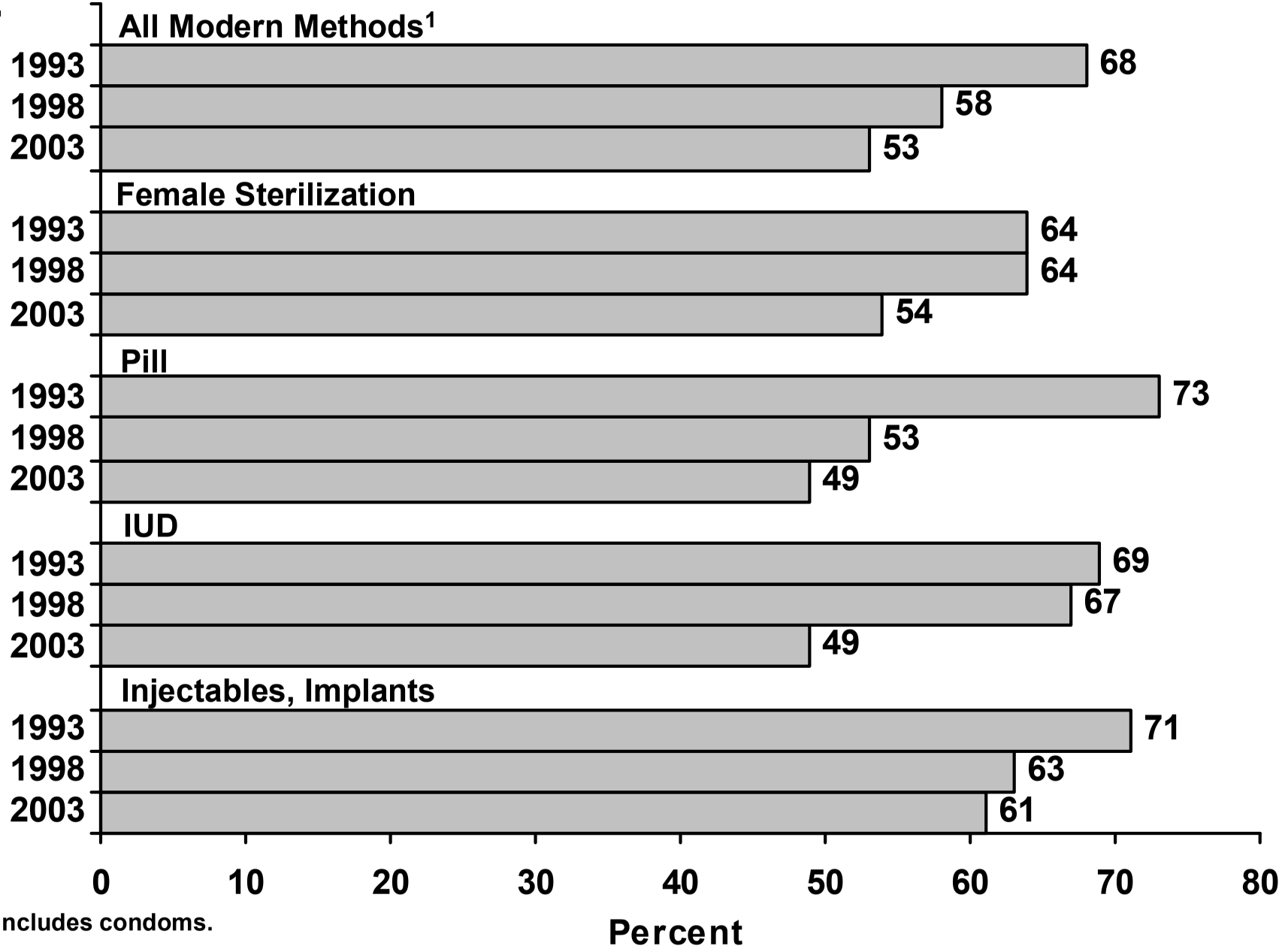


Table 3.4.1. Percentage of contraceptive users that discontinued use after the first year of use for reasons other than "to become pregnant": Kenya 1998 and 2003.

	1998	2003
Pill	32	42
Injectables	18	28
Condom	54	53
Periodic Abstinence	27	27
All Methods	28	33

Figure 3.5.1. Trends in the use of public sources of modern methods of contraception by current users (most recent source): Kenya 1993,1998, 2003.



[1] Includes condoms.

Table 3.6.1. Percent of currently married women and men who approve of family planning by education: Kenya 1998 and 2003.

	Women		Men	
	1998	2003	1998	2003
Total	89	86	89	87
No Education	74	64	61	58
Incomplete Primary	89	85	89	83
Complete Primary	89	89	89	90
Secondary +	94	94	93	93

Table 3.7.1. Trends in unmet need for family planning among currently married women: Kenya 1993,1998 and 2003.

	1993	1998	2003
Total Unmet Need	36	24	25
For Spacing	22	14	15
For Limiting	15	10	10
Urban	26	17	17
Rural	38	26	27
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
No Education	37	25	24
Incomplete Primary	42	31	35
Complete Primary	38	23	25
Secondary+	27	15	13

Table 3.8.1. Contraceptive use and the perception of risk of getting AIDS.

Perception of Risk	Percent Currently Using Any Method			
	Women		Men	
	1998	2003	1998	2003
None	25	22	43	39
Small	31	32	50	50
Moderate	34	39	58	59
Great	33	32	56	54

Figure 4.2.1 Trend in the proportion of currently married, fecund women who want no more children: Kenya 1977-78 to 2003.

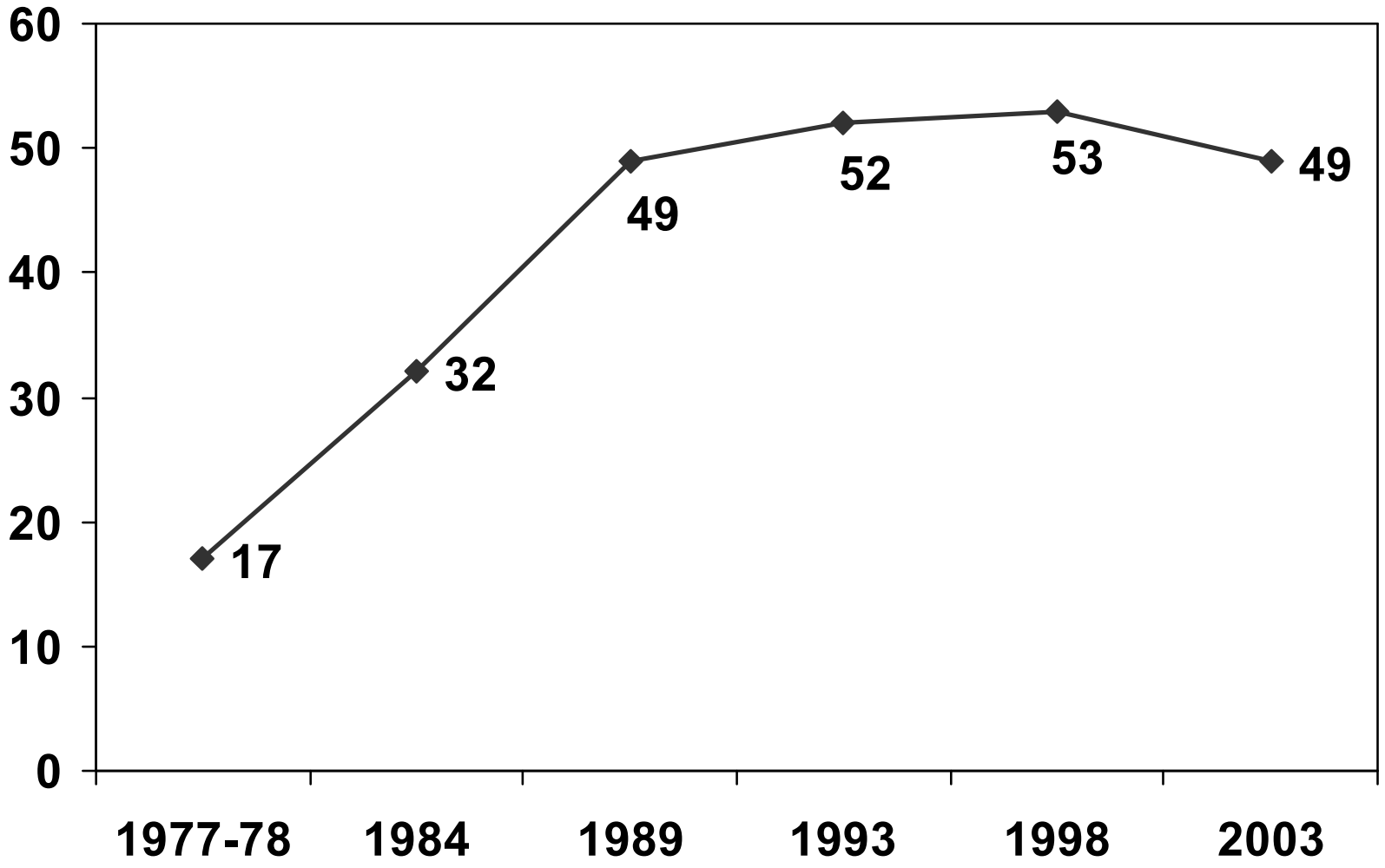


Table 4.2.1. Percent of currently married fecund women who want no more children by number of living children: Kenya 1977-78 to 2003.

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

Table 4.2.2. Trend in percent of currently married fecund women who want no more children by age: Kenya 1977-78, 1989, 1993, 1998 and 2003.

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

Figure 4.3.1. Trends in the percent of currently married women who want no more children (including those sterilized) by residence: Kenya 1989, 1993, 1998 and 2003.

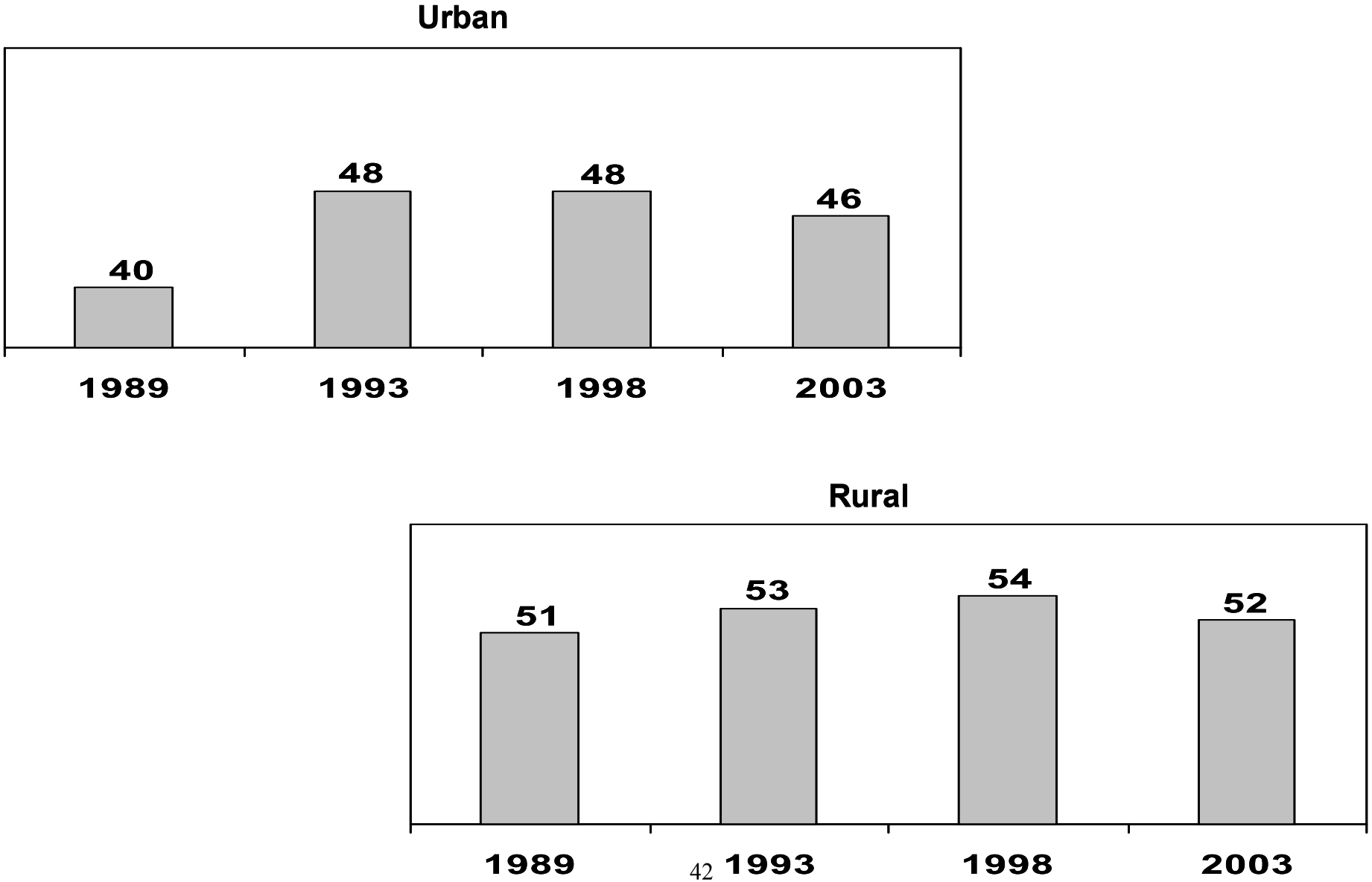


Figure 4.3.2. Trends in percent of currently married women who want no more children (including sterilized) by province: Kenya 1989, 1993, 1998 and 2003).

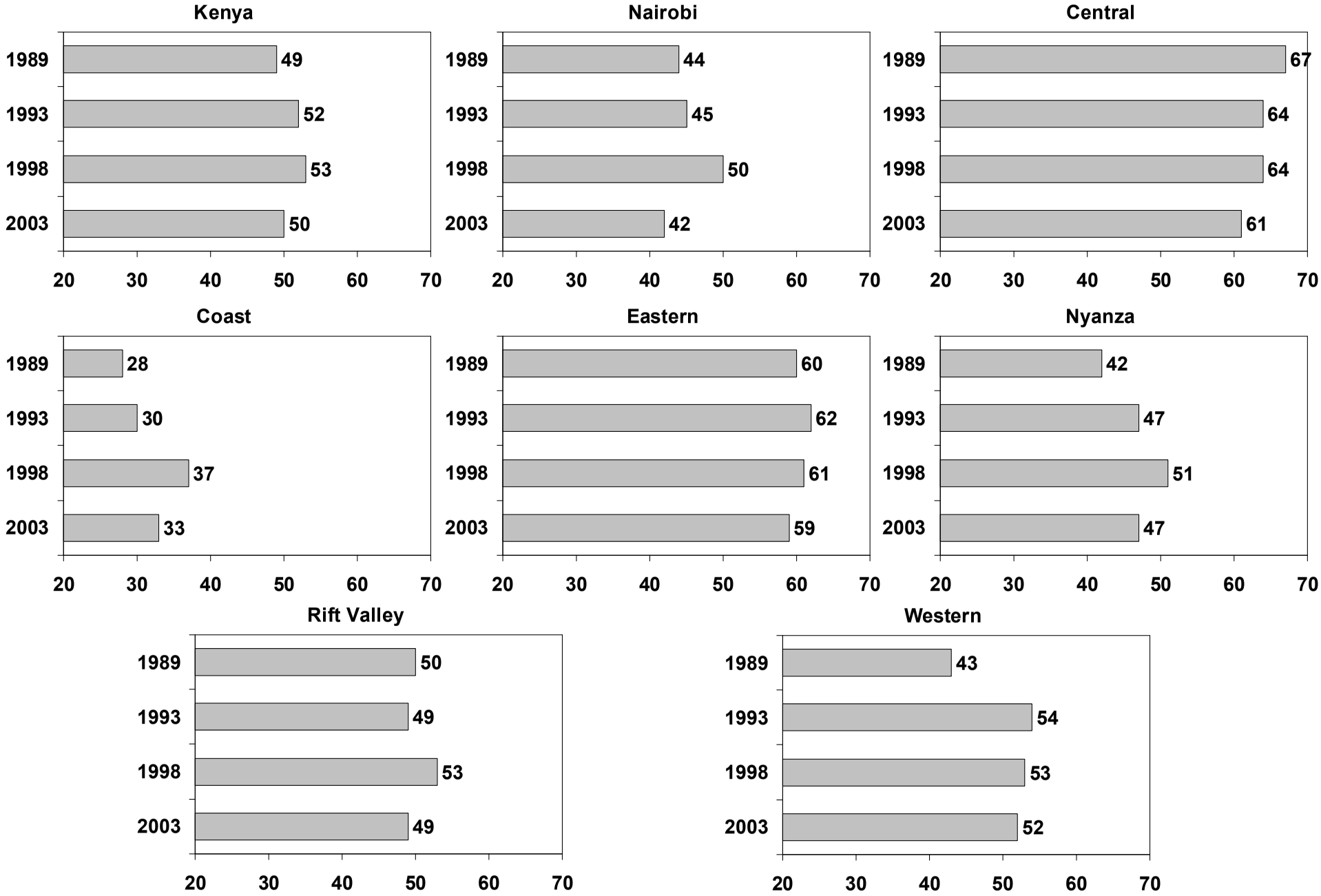


Figure 4.4.1. Trends in the percent of currently married women who want no more children (including those sterilized) by education: Kenya 1989, 1993, 1998 and 2003.

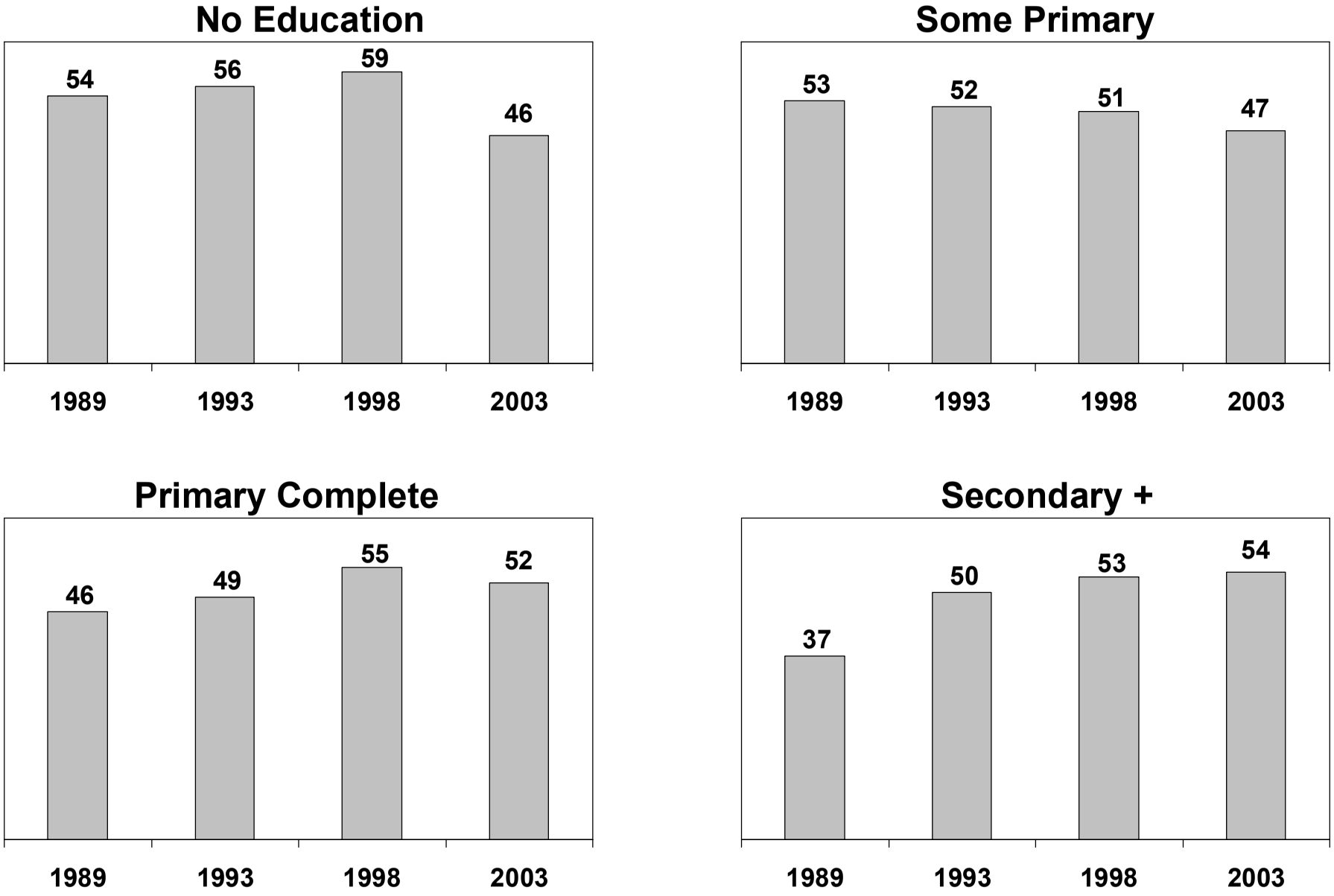


Table 4.4.1. Trends in the proportion of currently married women with 2 – 4 children who want no more children (including those sterilized), by education.

	1993	1998	2003
No Education	32	48	30
Primary Incomplete	42	41	38
Primary Complete	50	51	54
Secondary +	54	60	63
Total	45	51	50

Figure 4.4.2. Wanted, unwanted and total fertility rates by education: Kenya 1993, 1998 and 2003.

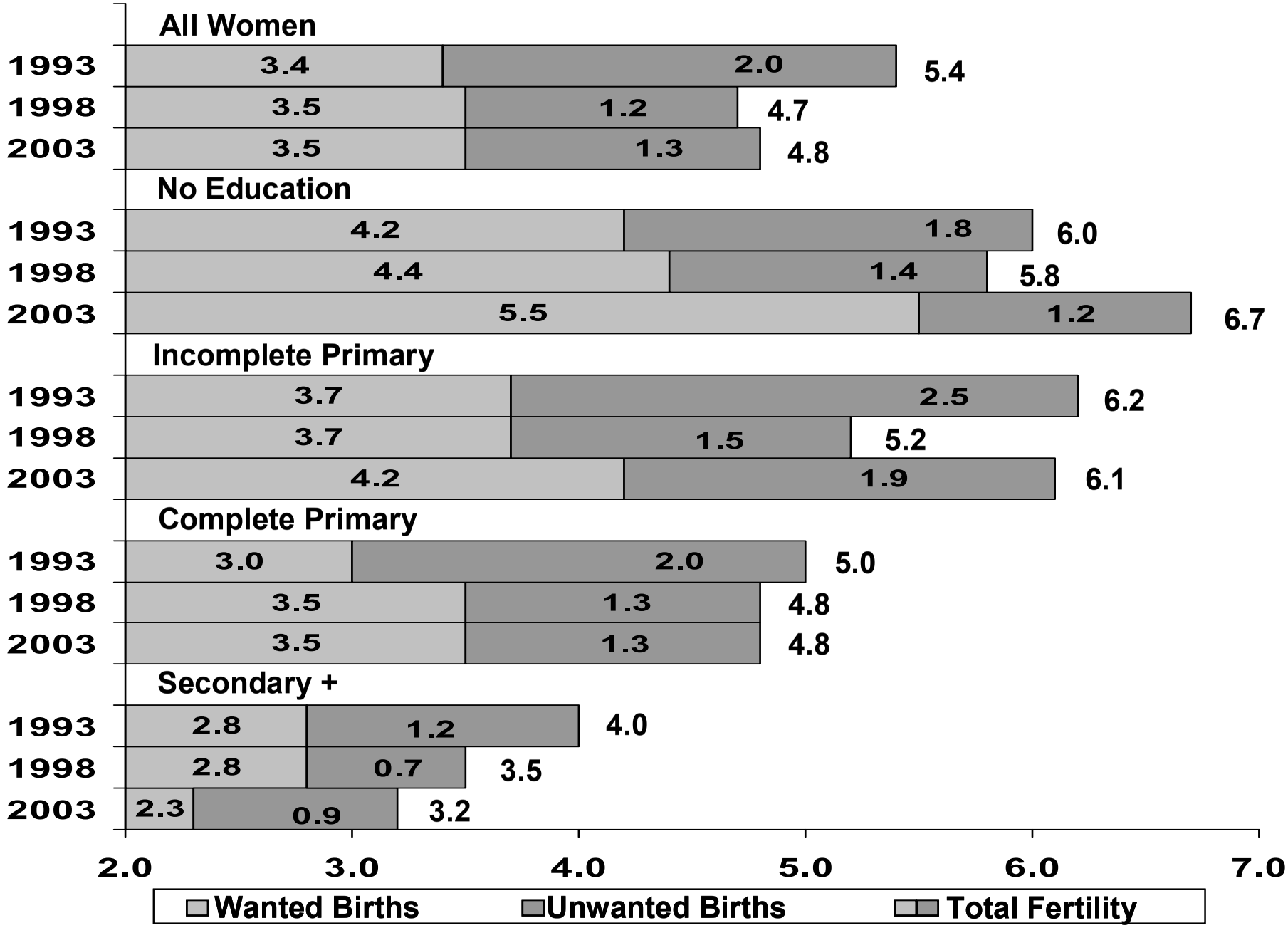


Table 4.5.1. Trends in planning status of births in the three years preceding the survey (including current pregnancies): Kenya 1993, 1998, 2003.

Survey	Wanted Then	Wanted Later	Wanted No More	Total*
1993	45	37	18	100
1998	51	37	11	100
2003	51	28	21	100

* Percent total includes small proportions of missing data

Figure 4.6.1. Trends in percent of currently married women who want no more children (or who are sterilized), by ethnicity.

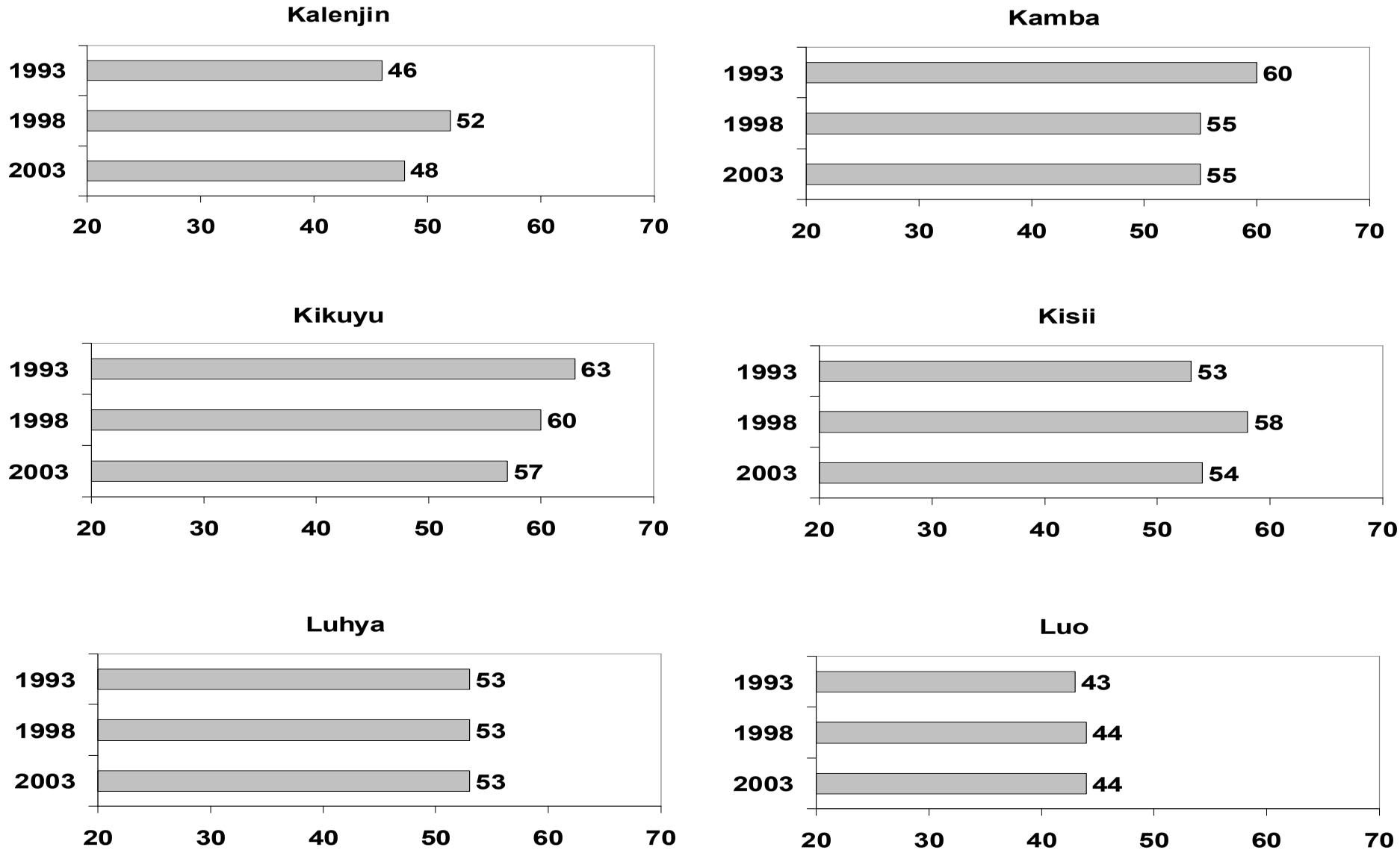


Figure 4.6.1 (cont'd). Trends in percent of currently married women who want no more children (or who are sterilized), by ethnicity.

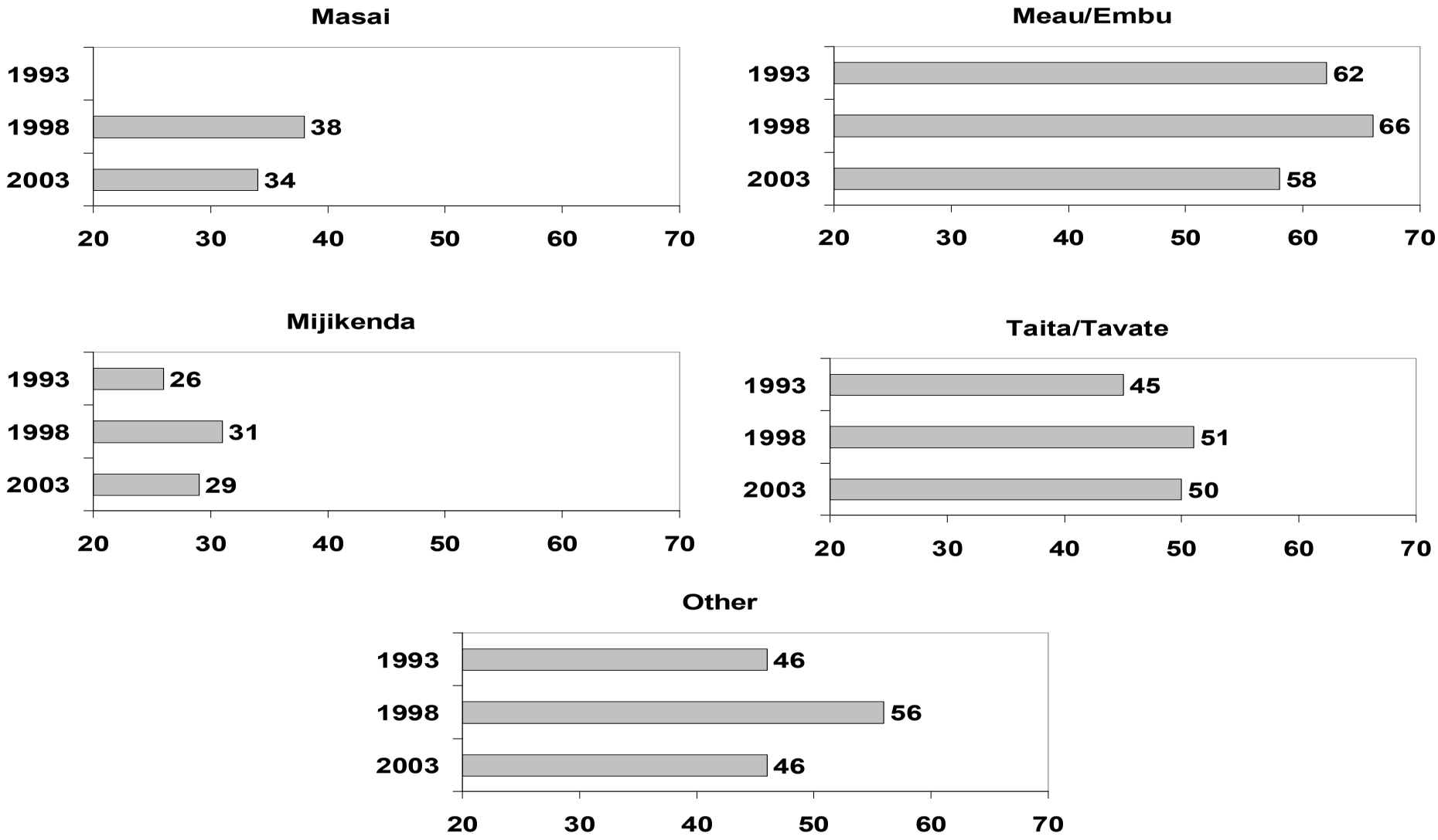


Figure 4.6.2. Trends in the proportion of married women who want no more children (including those sterilized), by religion: Kenya 1993, 1998 and 2003.

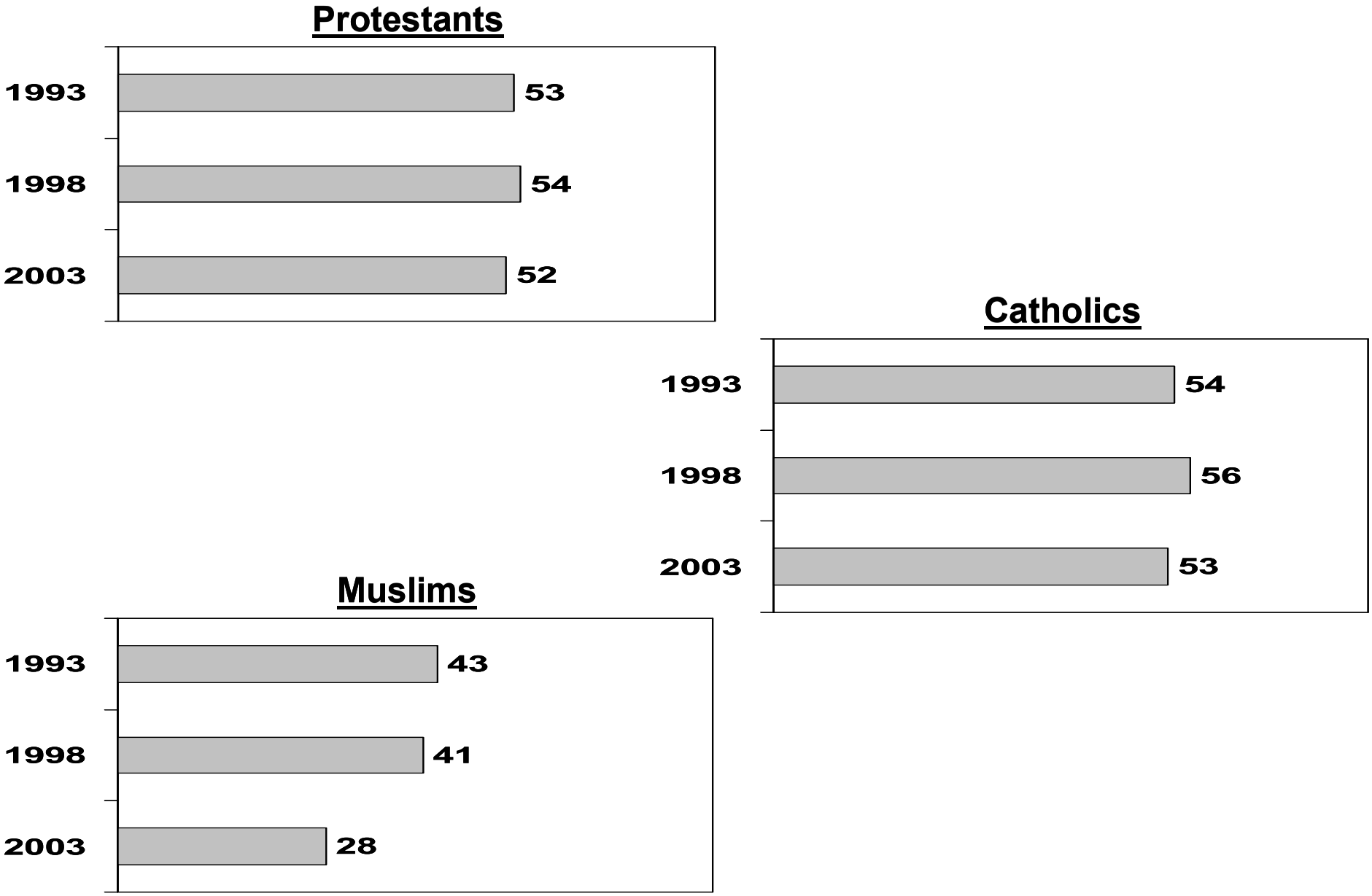


Figure 4.6.3. Wanted, unwanted and total fertility rates by wealth: Kenya 1998 and 2003.

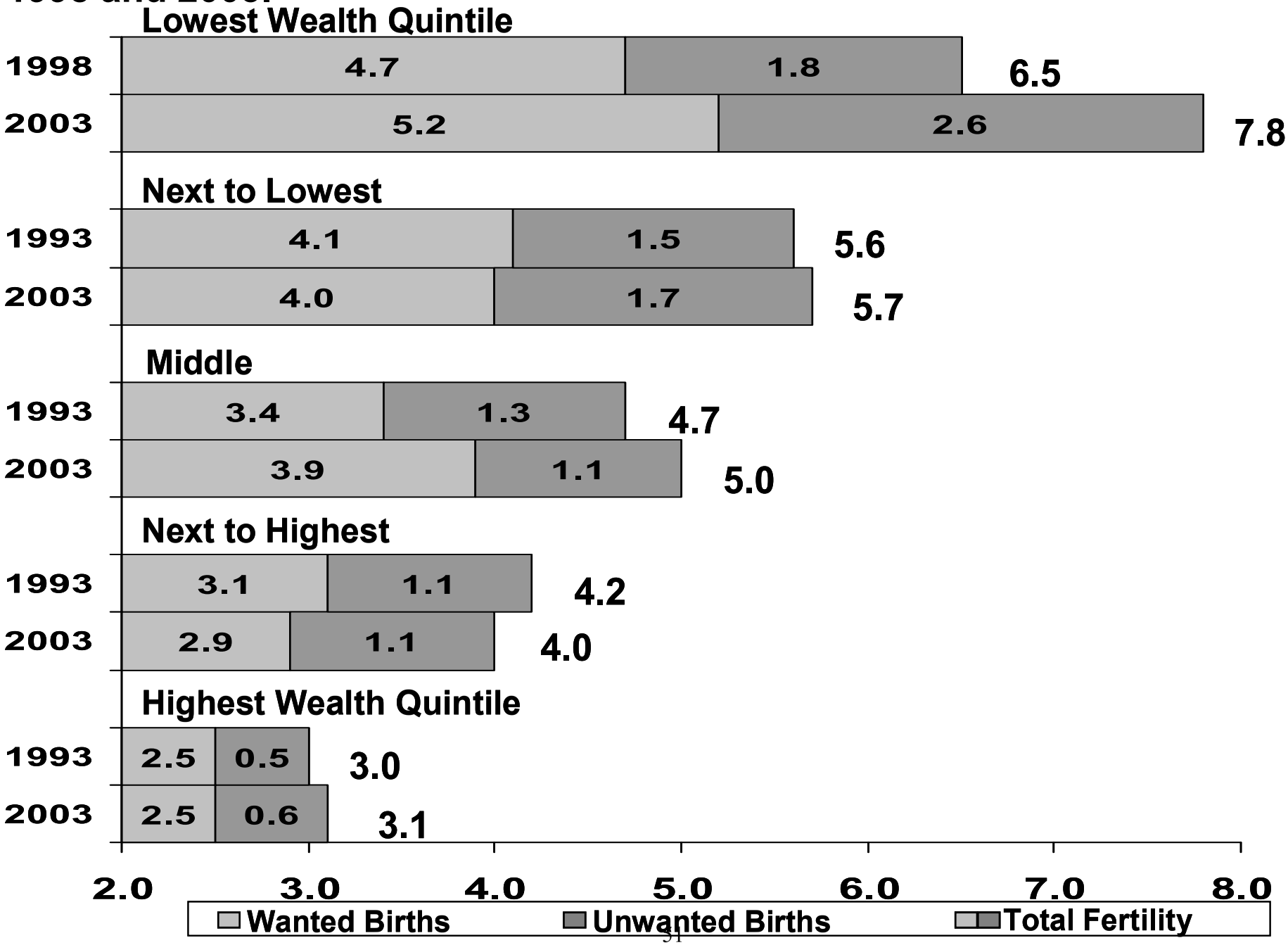


Table 4.7.1. Trends in the proportion of currently married men who want no more children: Kenya 1993, 1998, 2003.

	1993	1998	2003
All Married Men	44	46	40
Number of Living Children			
2	22	24	29
3	38	41	44
4	50	63	59
5	61	72	57
6+	66	69	66
Urban	41	48	37
Rural	45	45	42
No Education	36	36	27
Some Primary	49	42	35
Primary Complete	46	49	42
Secondary or more	40	46	45

Table 4.8.1. Percent 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 died from it: Kenya 2003.

	Women	Men
Perceived Chance	Percent Want No More Children	
None at all	46	40
Small	50	42
Moderate	56	35
Great	55	37
Knows Someone		
No	44	34
Yes	52	42

Table 4.9.1. Proportion of married women who want no more children by whether they experienced a child (under 5) death in the past five years, by number of living children: Kenya 2003.

	Number of Living Children					
	Total	1	2	3	4	>4
	Percent Want No More Children					
No Death	51	15	36	57	71	83
Child Died	45	16	22	32	65	86

Table 4.9.2. The proportion of men who want no more children by whether they ever had a child death (for currently married men with two, three or four living children): Kenya 2003, 1998.

Ever Had a Child Death	Percent want no more children	
	2003	1998
No	43	42
Yes	37	33

Table 4.10.1. Odds ratios of wanting no more children for currently married women in 2003 and in 1998.

Covariate	2003	1998
Age (in single years)	1.06	1.05
Number of living children	1.98	2.04
Rural residence	0.78	0.59
Province:		
Central	1.00	1.00
Nairobi	0.39	0.46
Coast	0.34	0.22
Eastern	NS	NS
Nyanza	0.57	0.45
Rift Valley	0.57	0.38
Western	0.67	0.41
Education		
None	1.00	1.00
Primary Incomplete	2.08	1.57
Primary Complete	2.74	1.73
Secondary Incomplete	2.53	1.96
Secondary Complete	2.95	1.97
Higher	2.93	2.29
Religion:		
Protestant	1.00	1.00
Catholic	NS	NS
Muslim	0.60	NS
Mass Media	1.14	1.13
Wealth (in Quintiles)	1.22	1.08
R squared	.317	.323
Number of women	4446	4745
Chi squared	1954	2114

NS – Not statistically significant at the .05 level