

# FERTILITY TRANSITION IN NIGERIA: TRENDS AND PROSPECT

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## A. INTRODUCTION

This paper has three major objectives. The first is to demonstrate that a sustained fertility transition has begun in Nigeria. The second is to identify some factors that might have contributed to the decline and the third objective is to argue in favor of further declines in fertility and propose a level of fertility by the time the fertility transition is completed. None of the objectives is easy to achieve considering the dearth of comparable nationally representative data.

Fertility behavior is conditioned by both biological and social factors. And as in other traditional African societies, several factors have contributed to sustain relatively high levels of fertility in Nigeria. These factors include high level of infant and child mortality, early and universal marriage, early child bearing as well as child bearing within much of the reproductive life span, low use of contraception and high social values placed on child bearing. In the face of perceived high infant and child mortality, the fear of extinction encouraged high procreation with the hope that some of the births would survive to carry on the lineage. The traditionally high values placed on marriage ensured not only its universality but also its occurrence early in life with the consequence that child bearing started early in life and in most cases continued until late in the reproductive span. The institution of polygyny which sometimes promotes competition for childbearing among co-wives also contributed to sustain high fertility. Use of modern contraception was traditionally unacceptable as it violated the natural process of procreation. The traditional long period of breast-feeding and postpartum abstinence guaranteed adequate spacing between children. Available evidence suggests that there have been changes in these sociocultural factors over time. Age at marriage appears to have increased, though minimally when viewed at the national level. Use of modern contraception has increased, and improved education (especially of women) appears to have gradually eroded some of the traditional values placed on child bearing.

In this paper, data from national and sub-national surveys are used to demonstrate trends in fertility and its determinants. The national surveys are the 1981/82 World Fertility Surveys (WFS) and the 1990 and 1999 National Demographic and Health Survey (NDHS). The sub-national surveys are those conducted by individual researchers in selected parts of the country. The quality of the data sets have been discussed elsewhere and hence shall not be discussed here<sup>1</sup>. However, we shall refer to some of the limitations as they relate to our analysis and conclusions.

The remaining part of this paper is divided into three sections. Immediately following the introduction, we present some empirical evidence to demonstrate that a sustained fertility decline has already begun in Nigeria. In the second section, we discuss some factors that might have accounted for the decline and examine how these factors relate to fertility in Nigeria. Once patterns of associations are established, future trends in fertility can then be predicted on the basis of future changes in these factors. In the last section, an assessment of the future course of fertility in Nigeria is undertaken. Our projections into the future are based on expected changes in the factors that have sustained fertility decline thus far.

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## B. FERTILITY TRENDS

Fertility has been relatively high in Nigeria for several years. The 1965/66 National Rural Demographic Sample Survey gave a crude birth rate of 50 per 1,000 persons and an average completed family size of 5.6 children (Federal Office of Statistics (FOS), Lagos 1968). Estimates of TFR for the years 1965, 1970, 1971-73 and 1975 are 6.6, 6.5, 7.3 and 7.0, respectively (table 1). These figures imply an increase between 1965 and 1975 or, at best, a stability of fertility at high levels. The rise in fertility in early to mid 1970s may be explained partly by the dramatic rise in revenue from oil export which leads to a sharp increase in food import as well as workers' salaries (Bankole and Bamisaye, 1985). The 1981/82 Nigeria Fertility survey (NFS) found a TFR for Nigeria of 5.94 in 1980-82 (National Population Bureau, Lagos/WFS, 1984) and the 1990 Nigeria Demographic and Health Survey put the TFR at 6.01 in the period 1988-90 (FOS, Lagos and IRD/Macro International, 1992). Further decline in TFR was indicated for 1992-1994 by a 1994 sentinel survey (5.4) and for 1995-1999 by the 1999 Demographic and Health Survey (5.2). The decline is not only evident at the national level but also among different sub-groups (table 2).

Although comparison of TFRs for 1970 and 1988-90 suggests a decline in fertility between the two dates, the TFRs for 1980-82 and 1988-90 suggest stagnation in fertility levels in the eighties. However, there are three reasons to argue that the TFR for 1980-82 reflects a gross underestimation of births in the period and hence could not be used as a valid base for determining fertility trends in the eighties. First, the sudden decline in TFR from 7 in 1975 to 6.34 in 1980-82 cannot be justified in a population where desired fertility in 1981/82 was higher than the achieved fertility in 1975<sup>2</sup>. Two, it is impossible to achieve about 15 per cent reduction in fertility in five years with only 2.6 per cent of women as ever-users of efficient contraception<sup>3</sup>. Three, there were neither strong population control activities nor socio-economic policies<sup>4</sup> in the late seventies that would have engendered such a drastic decline in fertility between 1975 and 1980. The TFR for 1981/82 appeared to be an underestimation, thus accounting for lack of observable change in fertility in the eighties. We argue here that an onset of a sustained fertility decline appeared to have begun after the mid-eighties when policy makers started to give population control issues some serious considerations which culminated in the formulation of a national population policy in 1988 (Federal Republic of Nigeria, 1988)<sup>5</sup>. This argument is being supported with an investigation of trends using data from the 1990 and 1999 NDHS.

Estimates of fertility obtained for 1983-86 and 1987-90 from the 1990 NDHS and for periods after 1990 from other surveys particularly the 1999 NDHS suggest that fertility has been declining since after the mid-eighties, at least among some sub-population groups. In the analysis of the quantum and tempo of fertility in Nigeria, Makinwa-Adebusoye and Feyisetan (op. cit) obtained TFRs of 5.8 and 6.9 for women aged 15-44 in 1987-90 and 1983-86, respectively. For women 15-49, the corresponding figures for 1987-90 and 1983-86 are 6.2 and 7.4 respectively<sup>6</sup>. These figures imply almost 17 per cent decline among women aged 15-49 and 16 per cent among women aged 15-44 during a four year period. We also recognize that the amount of decline within the four-year period is unrealistically large, reflecting probably an overestimation of births for 1983-86 and an underestimation for 1987-90. However, there are reasons to believe that the TFRs for the two periods did not differ significantly from their real values and that there was a real decline in fertility shortly before 1990. First, the TFRs are highly consistent with desired fertility in the two periods. The TFR of 7.42 estimated for 1983-86 is more consistent with the desired family size of 8.25 in 1981/82 than the 1980-82 TFR of 5.94 and the 1987-90 TFR of 6.02 is highly consistent with the desired family size of 5.82 in 1990. Two, the decline in desired family size between 1981/82 and 1990 support the argument in favor of a real decline in TFR; a decline in desired family size is usually an indication of a motivation to reduce child bearing propensities.<sup>7</sup> Three, the structural adjustment program, introduced in 1986, was associated with economic conditions that increase the cost of child rearing borne by the family. Thus, it is possible that part of the fall in the period-specific

fertility rate reflects an adjustment of reproductive behavior to sudden changes in the socioeconomic climate.

Comparing evidence from the 1990 and 1999 NDHS indicates that the declining trend in fertility continued in the 1990s (table 3). According to the 1990 NDHS, the TFR for women aged 15-49 in the 5-year period before the survey (1986-1990) is 6.3. The 1999 NDHS shows that the TFR for women of the same age group for the 5-year period prior to the survey (1995-1999) is 5.2. This implies a decline of 17.5 per cent between the two periods. The decline occurred, however, in varying degrees among sub-population groups. For example, 15.1 per cent and 18.2 per cent declines were recorded in urban and rural areas respectively. When examined by region, the decline is clearly evident only in the two southern regions (Southeast and Southwest). With respect to education, the decline was about 9 per cent for women with no education, 19.1 per cent for women with primary education and 10.9 per cent for women with secondary or higher education. The same factors that account for the decline in the late 1980s continued to operate in the 1990s and are most probably responsible for most of the decline in the 1990s. That most sub-population groups experienced some decline in fertility tends to suggest the existence of some underlying stimuli for adjustment in reproductive behavior to which people responded. As indicated above, because the onset of fertility decline coincided with the period of economic downturn in Nigeria (characterized by high unemployment rates, difficulties in meeting educational aspirations for own children as a result of an increase in the share of education costs that are borne by parents, devaluation of the currency which led to rising costs of essential goods, and partial withdrawal of subsidies on health and many social services), Makinwa-Adebusoye and Feyisetan (op. cit.) concluded that economic crises at the societal and personal levels must have contributed to the decision to postpone or stop child bearing. In his study of the Yoruba in Southwest Nigeria, Orubuloye (1998) also alluded to economic difficulties as the main factor underlying the decline in fertility. That the decline is more evident in the South than the North may be due to the fact that the pace of changes in the factors that elicit the decline or people's reactions to their impacts is more favorable to fertility decline in the former than in the latter.

In response to the stimuli, two things happened: The first is the postponement of the next birth, particularly by younger women and the second is the reduction in the proportion of women making the transition from one parity to the next (table 4)<sup>8</sup>. At the national level, fertility declined more rapidly among young women below age 20 and women aged 35 years and above. This pattern of decline by age supports the argument of a postponement of births by young women below age 20 and an increase in the proportion of women above 35 years who were stopping child bearing (or a reduction in the proportion of women transiting from one parity to the next within five years). That fertility declined among all age groups reinforces the assertion by Caldwell et. al. (1992) that the African fertility transition will be characterized by fertility declines at all ages, both inside and outside marriage. This is because young adult attempts to avoid pregnancy and marriage and efforts at birth spacing by older women will continue to be important driving force in the transition. The pace of fertility decline was almost equal in the urban than in the rural areas (table 3). Among the regions, the decline was most rapid in the south-west and lowest in the Northwest and Northeast. The reduction in fertility was positively associated with education. Of significance to this study is the observation that fertility is lower in the urban, among contraceptive users and more educated women at the two periods of time. The emergence of marked socioeconomic differentials in fertility is perceived as a catalyst (if not a precondition) for fertility decline. It must, however, be noted that the overall fertility decline reflects mostly the decline in the south. The emergence of marked socioeconomic differentials in fertility is perceived as a catalyst (if not a precondition) for fertility decline. It must, however, be noted that the overall fertility decline reflects mostly the decline in the south.

### C. FACTORS ASSOCIATED WITH FERTILITY DECLINE IN NIGERIA

In spite of the paucity of data, we have tried to demonstrate that an onset of a sustained fertility decline began, even if only among certain segments of the population, shortly before 1990. What factors

contributed to the decline in fertility and what changes do we expect in these factors over time? What are the possible consequences of these changes on fertility in Nigeria? These are issues being addressed in this section.

### *1. Fertility desires*

For declines in fertility to be sustained, there must be changes in fertility norms towards smaller family size. Fertility norms, usually reflected by the demand for children, are most often measured by the number of children desired under prevailing social and economic conditions. Although it is sometimes influenced by the number of living children, patterns of changes and differentials in desired fertility sometimes provide valuable insight into probable future course of fertility. Consistent with the theory of the demographic transition, a future decline in fertility could be anticipated when fertility desires decline and become much lower than actual fertility. Changes in desired fertility reflect changes that would have occurred in achieved fertility had desires translated into behavior. To make predictions about future course of fertility in Nigeria, there is the need to investigate patterns of change in fertility norms.

Table 5 shows the percentage of currently married women who wanted no more children together with the mean ideal number of children in 1981/82, 1990 and 1999. Among three or more parity women, the parity-specific percentage of women wanting no more children increased between 1981/82 and 1999. For instance, the percentage of women with four living children who wanted no more children increased from 5.4 in 1981/82 to 16.9 in 1990, (an increase of about 300 per cent) and to 22.6 in 1999 (an increase of over 400 per cent).

The trend of a decline in the demand for children, portrayed by the percentages wanting no more children in 1981/82 and 1990 was reinforced by data on mean ideal number of children (table 5), particularly if comparison was drawn between the 1981/82 and 1999 data. Not only was the overall mean ideal number of children lower in 1999 (6.7 in 1999 as against 8.36 in 1981/82), parity-specific mean ideal number of children was lower for all parities in 1990. With respect to the 1990 level, there is reason to believe that it is an artifact of data. Unlike in 1981/82 and 1999, overwhelming majority of women (61 per cent) in the 1990 NDHS gave non-numerical response to the question on ideal number of children. On the other hand, only 18 per cent of women in the 1999 NDHS gave non-numerical response to the question (NPC, 2000). Since the mean is calculated for women that gave numerical answer and since the desired family size of women who gave non-numerical responses is likely to exceed the average of the population (Bongaarts, 1992), the observed mean level in 1990 appeared an underestimation of the true value.

In the absence of the selection bias associated with the 1990 NDHS described above, it is very likely that the 1990 and 1999 data would have shown some decline in ideal number of children between the two periods. Two observations support the argument in favor of a continued decline in the demand for children between 1990 and 1999. The first is the consistency in the relationship between the percentage wanting no more children and the mean ideal number of children at the two points in time. The second is that wanted total fertility rates (WTFR) declined by one child or 17 per cent between the two periods - from 5.8 to 4.8 (table 6). The decline in WTFR is also evident for rural and urban residents and for all regions, with the exception of the Northeast.

Support for a decline in desired family size after 1990, particularly in the Southwest, is found in micro studies which show that the mean number was less than five between 1996 and 1997 (Orubuloye, op. cit.; Feyisetan, 1998). In Ado-Ekiti, Orubuloye found that the average number of children desired is 4.5 (2.4 boys and 2.1 girls). On what should be the ideal number of children per woman, Feyisetan found the average to be 4.3<sup>9</sup> for Ondo state and Orubuloye found the mean to be 4.6 for Ado-Ekiti. These figures are much lower than the mean number of children desired by women in the Southwest in 1990.

Declines in desired fertility are expected to generate declines in actual fertility (Sathar and Casterline, 1998), especially if associated with increased contraceptive use. Even if there is yet no considerable decline in fertility, the observed trend of a decline in desired family size<sup>10</sup> provides some ground to predict further declines in Nigeria's fertility in the future.

## 2. *Marriage*

The role of marriage in determining fertility levels in societies where most of child bearing is confined within marriage is well documented<sup>11</sup>. Changes in the proportion married as well as increases in age at marriage have been identified as one of the factors responsible for fertility decline in some North African countries (Fargues, 1989; National Research Council, 1982). In decomposing the factors responsible for differences in fertility among sub-population groups in Nigeria, Makinwa-Adebusoye and Feyisetan (op. cit), using Bongaarts framework (Bongaarts, 1978), found that marriage was the second most important factor. For the entire country, the fertility inhibiting effect of marriage is 25 per cent. Again, the national value mask the large differences among the regions (45 per cent in the Southwest; 41 per cent in the Southeast; 9 per cent in the Northwest and 8 per cent in the Northeast), among education groups (9 per cent among non-educated women; 29 per cent among women with secondary education; and 54 per cent among women with secondary or higher education) and between rural and urban women (21 per cent in the rural and 36 per cent in the urban)<sup>12</sup>. In spite of the increase in teenage pregnancy and fertility, majority of births still occur within marriage.

But then, what have been the changes in marriage patterns in Nigeria. First, the proportion of women married is declining. For all women, this proportion declined by 10.6 per cent (from 78.4 per cent to 70.1 per cent) between 1990 and 1999. Second, the prevalence of polygynous<sup>13</sup> unions is declining and living arrangements are changing. The proportion of women in polygynous unions declined by 5.4 per cent for all women between 1990 and 1999. But, this difference is much greater for certain sub-groups: 33.6 per cent for women in Southeast and 18.9 per cent for women in Northeast. Unlike in the past, a considerable percentage of men with two or more wives no more keep the wives under the same roof. This is particularly true for men in the urban centers who house their wives in different locations within the city or in different cities. This living arrangement could lead to reduced coital frequency and consequently reduced fertility. Thirdly, age at marriage tends to be on the increase: among women aged 25-49 the median age at marriage increased by 1 year or 7 per cent between 1990 and 1999. Again, the national average masks the large differences among regions and between the urban and rural settings. Age at marriage is higher in the urban areas and among women in the Southern regions. These patterns of differentials provide some grounds to expect further rise as the population becomes more urbanized<sup>14</sup> and more women attain higher education. The current economic condition in Nigeria, whose improvements may not immediately translate to improvements in the lives of a greater proportion of the population, has also been noted to favor increased age at marriage. The economic crises have made it more difficult (than it was in the seventies and eighties) for men to harness resources to meet marriage and childbearing obligations. Orubuloye (op cit.) noted that marriage is now generally delayed as many boys and girls postpone marriage in order to consolidate their careers and earning capacities. In addition, the strong desire for better education is aiding the postponement of marriage among many boys and girls.

## 3. *Contraceptive use*

The fertility inhibiting effect of contraception has been demonstrated by several studies (see Westoff and Bankole, 2001). Although somewhat small at present due to low prevalence and high use of less effective methods, in line with the experience of other countries (Westoff, 1990, Ross and Frankenberg, 1993, Cohen, 1998), the fertility inhibiting effect of contraception can be expected to increase as levels of contraceptive use increase<sup>15</sup>, especially if there is a shift to more effective methods.

Contraceptive use, particularly of modern methods, has increased in Nigeria since the early eighties. At the time of the 1981/82 WFS, 6.2 per cent of women exposed to the risk of child bearing were using contraception and of these only 0.7 per cent were using modern (efficient) methods. By 1990, 7.5 per cent of all women and 6 per cent of currently married women were using contraception. Of these 3.8 per cent of all women and 3.5 per cent of currently married women were using modern methods. By 1999, use of contraception has increased substantially: 15.7 per cent of all women were using any method and about 9 per cent were using modern methods. Among married women, use of contraception increased between 1990 and 1999 by 155 per cent, from 6 per cent to 15.3 per cent (table 7). Also, by 1999 about 9 per cent of married women were using modern methods. Contraceptive use has generally been higher in the south (especially southwest), in urban areas and among more educated women<sup>16</sup>. But an increase in contraceptive use has been experienced by most sub-groups between 1990 and 1999. For example, use of contraception increased by 233 per cent in the rural areas and by 76.6 per cent in urban areas. Similarly an increase of 55-167 per cent was recorded in the various regions (table 7).

Some developments in the provision of family planning services are expected to increase access to family planning services. First, the facility-based delivery of contraceptives is being complemented by the community based distribution program in order to reach more people. The community based distribution program is being implemented in many parts of Nigeria, including the North which has the greatest resistance to family planning services. Second, the participation of non-governmental organizations in the provision of family planning sensitization, education, counseling and delivery services has increased in recent years. In addition to meeting the already identified high unmet need for contraception in the country, these activities should be able to generate new demand for contraception. Several NGOs also offer reproductive health services to adolescents and these are expected to impact on adolescent pregnancies and fertility. Third, the integration of family planning and maternal and child health services under the primary health care system offers more opportunities to reach potential clients. Fourth, programs have been designed and are still being designed, particularly by non-governmental organizations, to involve men in family planning activities. Fairly high levels of male participation in family planning have been documented for the Southwest and Southeast (Feyisetan et. al., 1998). With increasing participation of men in family planning, a major barrier to contraceptive adoption would have been overcome and an increase in contraceptive use can be expected. Furthermore, the use of the mass media to promote family planning has been found to be effective in changing contraceptive behavior in Nigeria (Bankole et al., 1999). Thus, the continued use of the mass media for IEC with respect to family planning is likely to lead to further increase in contraceptive use in the country.

#### *4. Postpartum variables: Breastfeeding, postpartum amenorrhea and postpartum abstinence*

Breastfeeding is universal in Nigeria and women traditionally breastfeed their children and abstain from sex for fairly long period of time. Mothers usually abstain from sexual relations during breastfeeding.<sup>17</sup> Breastfeeding and the delay in the resumption of sex are known to lengthen the duration of amenorrhea. An investigation of factors responsible for differences in fertility among sub-population groups in Nigeria reveals that postpartum infecundability has the greatest inhibiting effect on total fertility rate (Makinwa-Adebusoye and Feyisetan, op. cit.). Unfortunately, unlike marriage and contraception, duration of postpartum insusceptibility is negatively correlated with education and is lower in the urban area. Thus, there is the assumption that the length of postpartum insusceptibility will decline in the face of modernization. So far, significant declines have not been observed and recent campaigns in favor of long period of breastfeeding to secure better child health may even reverse any declining trend<sup>18</sup>. Between 1990 and 1999, the mean duration of postpartum insusceptibility declined by 3 months and this difference does not seem to vary much between rural and urban areas or by region (table 7). Moreover, increasing use of contraception for limiting (and not just as a substitute for traditional methods of spacing) may render insignificant the fertility-enhancing effect of decreasing postpartum insusceptibility period.<sup>19</sup>

## 5. Abortion

The impact of abortion on fertility has also been documented. An increase in abortion rate has usually been accompanied by a decline in fertility especially in high to medium fertility populations. Data on abortion are very scanty in Nigeria because the procedure is illegal. Henshaw et. al. (1998) estimated the incidence of induced abortion in Nigeria in 1996. The results indicate that each year, Nigerian women obtain approximately 610,000 abortions, a rate of 25 abortions per 1,000 women aged 15-44. About 40 per cent of abortions are estimated to be performed by physicians in established health facilities, while the rest are performed by nonphysician providers. Although it is difficult to determine precisely its incidence, evidence from health facility based studies suggest an increase in the incidence of abortion over time in Nigeria. Unfortunately, because it is illegal except under certain conditions, a high percentage of abortion in Nigeria is performed by unqualified personnel who only encourage their clients to seek modern medical care when there are complications. We have no reason to believe that the incidence of abortion will decline in Nigeria in the near future, whether it is made legal or not. Rather, continued decline in family size will generate higher demand for abortion services unless family planning services are greatly improved to meet demand.

## 6. Other factors

What other factors are likely to shape the future course of fertility in Nigeria. Several socioeconomic factors have been identified to have indirect effect on fertility. However, two of them are briefly highlighted here: women's education and female employment. Studies have shown that the influence of education on fertility varies greatly between countries with different levels of schooling (Jejeebhoy, 1995; Ian Diamond et. al., 1999). However, in most cases, the relationship between women's education and fertility has been negative and several channels have been identified through which women's education influences fertility. In Nigeria, studies have consistently indicated lower fertility among women with secondary and higher levels of education, implying that significant increases in women's education at these levels will be accompanied by a decline in fertility. Female enrollment at all levels of education has increased over the years (FOS, 1997), and there is no reason to anticipate a reversal in the trend. Significant regional variations exist, however, in the increase.

The participation of women in the labor force has also increased over the years in Nigeria. However, decreasing employment prospects are reducing the impact of employment. Women employed in the formal sector have usually been noted to have fewer children<sup>20</sup> but unemployment is also becoming associated with lower fertility. Like their male counterparts, being unemployed denies women the access to resources with which to prepare for marriage and child rearing immediately after leaving school. Thus, they are forced to postpone marriage and child rearing in order to consolidate their earnings capacity. Because men's resources are becoming increasingly inadequate to meet household needs, increasing proportions of men now look for employed women as partners, thus reducing marriage chances of unemployed women.

Where do we go from here? An extensive discussion of recent trends in fertility and its determinants has been undertaken in order to guide our assessment of the future course of fertility in Nigeria. Thus far, our discussion has pointed to one conclusion: a sustained decline in fertility has started in Nigeria and a further decline is imminent. But certain pertinent questions remain unanswered yet: "At what rate is fertility going to decline, how far will it go before it stabilizes and how soon will it reach the stabilization point? To answer these questions, an assessment of two recent projections for Nigeria is undertaken.

#### D. FUTURE COURSE OF FERTILITY IN NIGERIA

When is a fertility transition completed? How long does it take to complete the transition? What determines the level at which fertility stabilizes at the end of the transition? Ordinarily, fertility transition would be perceived as completed when there is retardation in fertility decline or stabilization of fertility level after years of continuous decline. Although it is usually assumed that a replacement level of about 2.1 births per woman will prevail in the long run, demographic theories did not indicate what the level of fertility will be at the end of the transition<sup>21</sup>. Fertility levels reached replacement level of 2.1 births per woman in several developed countries by the time fertility transitions were completed. In fact in several of them, fertility levels are below replacement levels. On how long it takes to complete a fertility transition, the experience of the developed countries has shown that the duration is a function of the pace of fertility decline and the eventual level at which fertility stabilizes. While the pace of decline depends on the speed of change in the proximate and social factors discussed above, the eventual level of fertility is a function of societal and individual values for children in themselves determined by perceived relative costs and benefits of having children.

In determining the level at which we expect fertility in Nigeria to settle when the current transition is completed, we recognize that as in several African societies, fertility in Nigeria is rooted on cultural beliefs and practices. In addition, it is also influenced by mortality conditions. Several issues must be considered before an adequate assessment of future level can be done. The observation in Wolfgang (1996; p. 46) that it is difficult to predict what the eventual fertility level will be at the time fertility transition is completed in developing countries is pertinent to Nigeria. Not only is it difficult to predict the eventual level, it is also difficult to predict the speed of decline with high level of accuracy.

Projecting Nigeria's fertility into the future is not novel. Fertility projections have been carried out for Nigeria and revisions have been undertaken when necessary. No attempt is made here to provide new sets of fertility projections. Rather, we assess two recent fertility projections for Nigeria (table 8). The first one is the 1998 revision of the United Nations, and the second is the 1997 projections by the National Population Commission, Lagos, Nigeria. As usual, the United Nations projections assumed three fertility scenarios for Nigeria: high, medium and low. The three scenarios differ in levels of fertility at the beginning of projection periods and assumed pace of decline. From a TFR of 5.55 in 1995-2000, the United Nations high variant scenario projects that TFR will reach 2.6 by the year 2050, by which time a replacement level would not have been reached. The medium variant, usually assumed to approximate most closely the fertility experience of a country, predicts that fertility in Nigeria will reach a replacement level at a TFR of 2.20 by the year 2040. From an initial TFR of 5.00 in 1995-200, the low fertility variant projects that fertility will reach replacement level at a TFR of 2.28 around 2030 and that fertility will go below replacement level before transition is completed (United Nations, 1998).

For the projections by the National Population Commission, the fertility inputs were based on Gross Reproduction Rates (GRR) obtained by applying a sex ratio of 1.002 to the TFRs estimated from the 1991 post enumeration survey (NPC, 1997). Three fertility scenarios were also projected and projection started in the 1990-95 period. In the high variant, TFR, estimated to be 5.73 in 1990-95, was projected to reach 5.45 in 1995-2000 and a replacement level of 2.13 after 70 years (around the year 2060). The medium variant scenario predicts that TFR would be 5.39 in 1995-2000 and will reach a replacement level at 2.16 births per woman after 60 years (around the year 2050). With the low variant projection, fertility is expected to reach a replacement level at a TFR of 2.19 after 50 years (around the year 2040). Projections were also made for each state of Nigeria.

Besides the difference in the initial projection period, the two projections differ mainly in their assumed pace of decline. For all scenarios, the projections by the NPC assumed a slower pace of decline, thus explaining why their target periods for attaining replacement levels were farther from the beginning

of projection periods than for United Nations: the periods estimated by NPC for fertility to reach replacement levels were ten years behind the United Nations.

These projections provide plausible ranges of fertility levels in the future. On the basis of the medium variant projections, fertility in Nigeria will reach a replacement level by 2040-2050<sup>22</sup>. Support for continuing decline in fertility, as the two projections assumed, is strong. The three preconditions for fertility decline appear to have been met: couples now have knowledge of contraception; methods are becoming 'increasingly' available; and, the downturn in the economy with its associated increase in child rearing costs has facilitated the rationalization of smaller family sizes. Future improvements in the economy are not likely to reverse the downward trend in desired family size as couples and individuals would have come to appreciate more the benefits of small family sizes. The downward trend in the demand for children together with the changes in the proximate and social determinants of fertility discussed above will continue to exert downward pressure on fertility. The proportion of couples desiring four or fewer children will, as our data have shown for the recent past, continue to grow.

But can we assume that overall level of fertility in Nigeria will decline as rapidly as implied by the projections considering the sociocultural and political environment within which such declines are expected? Whereas the possibility of eventually reaching replacement level cannot be dismissed, it is, however, highly improbable that Nigeria will reach a replacement level by the target years implied by the two projections. It is more realistic to think of a TFR for the whole nation of between 2.6 and 3 by the year 2050 for reasons given below.

### *1. Uncertainties about child survival*

The theoretical linkages between infant and child mortality and fertility are well known. Increased child survival chances are expected to generate a decline in the propensity to "hoard" or "replace", two mechanisms by which families were perceived to have ensured the attainment of desired family size. Whereas the hoarding or insurance effect is conditioned by the general perception of mortality risks at the societal level, the replacement reflects the families' response to actual child mortality experience. The theoretical links have no doubt been difficult to support in empirical analysis; however, fertility declines which have accompanied reductions in infant and child mortality in several countries have lent credence to these hypotheses. In addition, the Working Group on Factors Affecting Contraceptive Use in Sub-Saharan Africa (1993) noted among other things that:

"Although positive correlations between child mortality and fertility do not prove a causal relationship, because of the possibility of a common cause, we think the uncertain survival of children in Africa remains one of the strong motivations for high fertility".

There is no doubt that several countries have achieved significant reductions in fertility levels without considerable improvements in child survival. In these countries, however, the two declined simultaneously. There is, however, no evidence of a country that reached a replacement level of about 2.1 births per woman with high levels of child mortality. All countries that reached replacement level (or below) brought child mortality risks under control and kept them at low levels. In these countries, families are convinced of high survival chances for their children, thus rendering the propensity to hoard meaningless.

Unfortunately, the situation in Nigeria is different. Several families in Nigeria still face high risks of infant and child death and recent data do not give much room to hope for considerable improvements in the future. Although projections by United Nations indicate continuing decline in infant and child mortality, information from other sources does not support such optimism. As can be inferred from table 9, the initial decline in childhood mortality which appeared to have started in the sixties has been stalled

at high levels. UNDP estimates show that under five mortality has remained above 190 per thousand births since the early nineties. The UNDP estimates confirm the general suspicion of an increase in childhood mortality in Nigeria. Whereas the decline between the sixties and the eighties might have generated a reduction in the amount of hoarding families perceived as necessary to achieve desired family size, lack of further declines may stall further reduction in the amount of hoarding and consequently in fertility. High childhood mortality risks create a fear of extinction which is balanced by having many births. Until families perceive high survival chances for their children, they would continue to have excess births, thus delaying the process of attaining replacement level.

It is not clear how much improvements could be expected in child survival in the next few years. Much depends on public health policies. With dwindling external sources of fund, the government has to increase the percentage of its expenditure on health.

## *2. HIV/AIDS epidemic*

The emergence of HIV/AIDS has added a new dimension to the equation. It is yet to be determined what impact the disease will have on fertility. Initial evidence from Uganda suggests that the infection may lead to lower fertility due to its impact on women of childbearing age (Ntozi et al, 2001). The argument is that death and sickness associated with HIV/AIDS among women may cause the birth rates to fall. It has also been suggested that the increasing adult and child mortality due to AIDS in some countries of sub-Saharan Africa could lead couples to be conscious of the need to limit childbearing. In a qualitative study among men and women in Zimbabwe “most respondents said that they would have fewer children as a result of the perceived increase in child mortality” (Grieser et al, 2001 p.225). Also, many of the respondents also said that they wanted to limit childbearing due to concern about their own mortality and its effect on the children. On the other hand, however, the argument can be made that fear of dying from AIDS or losing a child to the disease may increase fertility, at least on the short run. Therefore, young people who perceive that they may contract HIV or die of AIDS may decide to marry early and have children as soon as possible. Secondly, couples who fear that they may lose some of their children due to AIDS may decide to have more children as an insurance strategy in case some of them do die. According to the study in Zimbabwe mentioned above, this possibility was also expressed by the respondents. It also has been found in Zimbabwe and Uganda that some individuals may decide to have children to determine their HIV status (Ankrah, 1991). Although still relatively low compare to the situation in some sub-Saharan African countries, the prevalence of HIV in Nigeria seems to be on the increase. A recently review of estimates of the prevalence of HIV in Nigeria (Panchaud et al, (2000) indicated that the national prevalence increased from 1.4 per cent in 1991-92 to 3.8 per cent in 1993-94, 4.5 per cent in 1995-96 and 5.4 per cent in 1999. Although not readily available, both the number of AIDS deaths and the number of AIDS orphans must have been rising steadily since early 1990 and are expected to continue to do so, at least in a foreseeable future. Although more remote than the other alternative, the fact that fertility and the expectation of having at least a surviving child are still high in the country may cause a stall or slow the process of the decline.

## *3. Inadequate government support for family program*

That the magnitude of future decline in fertility depends on increases in contraceptive prevalence is not in doubt<sup>23</sup>. In almost all the countries that have experienced significant reduction in fertility levels (or have reached replacement levels), government has demonstrated strong support for fertility control programs. Unfortunately, the same cannot be said of Nigeria now. Family planning delivery services in Nigeria have been heavily donor-dependent. Government participation has been limited to the provision of delivery points and technical staff (Feyisetan, 1998). The situation is compounded by the fact that non-governmental agencies involved in family planning service delivery also depend heavily on external

funding with the result that their areas of operation may be influenced to some extent by the interests of their donor agencies.

A national program cannot be sustained for long on external support. Unless drastic measures are adopted to source funds internally, particularly in the face of dwindling external support, it may be difficult to sustain the present momentum in family planning service delivery. With a downturn in the economy, it is doubtful if the government will make adequate resources available to maintain the current tempo of activities. Unfortunately, increased participation of the private sector is also doubtful since the delivery of family planning services and commodities may not generate quick returns for investment, unless it is commercialized. And as Orubuloye (1998) noted, the use of family planning may be restricted in the future not by lack of acceptance but rather by inability to afford the cost of services. Thus, it is counter-productive to increase the cost of commodities significantly at this stage. To maintain current level of use, not to talk of increasing the level, improved quality services must be made available at affordable cost. With the participation of the private sector being doubtful and the withdrawal (or inadequacy) of external funding inevitable, the pace of increase in contraceptive use may decline and its fertility-inhibiting effect will become smaller than has been anticipated in the current projections. The lack of concrete and targeted support by the government for family planning may be a major reason why the national population policy released in 1988 failed to meet most of its targets. For example, the policy expected to “extend the coverage of family planning service to 50 per cent of women of child bearing age by 1995 and 80 per cent by year 2000” (Federal Republic of Nigeria, 1988, p.15). There is no doubt that accelerated increase in contraceptive use can speed up the pace of the decline in fertility. As implied from tables 5 and 6 there is latent demand for contraception and this demand is increasing. However, as table 6 also shows, the widening gap between the TFR and WFR also suggests that women may be increasingly finding it difficult to achieve their desire for fewer children. This should be a motivation for the government to play more active roles in supporting and financing family planning.

#### *4. Regional disparities in fertility decline*

The current decline in fertility observed at the national level reflects mostly the decline in the south, particularly the southwest. There has been little change in the North. The north is still characterized by high numbers of women transiting to higher parities (Makinwa-Adebusoye and Feyisetan, op. cit.). In order to reach a replacement level by the target years, the NPC projections assumed higher pace of decline in the North. Support for this assumption is weak as the conditions for rapid fertility declines are currently absent in that region: education of the women, contraceptive use and the status of women (particularly with respect to child bearing decisions) are generally low.

With more than half of women of child bearing ages residing in the north, further declines in the south (particularly in the southwest where less than one-quarters of the women reside) without accelerated declines in the north will have little impact on the overall level over time. Overall level of fertility will show marked reduction only when fertility declines significantly among a majority of the population. Programs must be designed to create an environment conducive to fertility decline, especially in the North. Education of the girl child must be intensified and programs must be designed to encourage increased age at marriage and contraceptive use. The present pattern of regional disparity in fertility decline cannot be sustained for long for reasons that are discussed below.

#### *5. Fear of domination by one ethnic group/the political arrangement*

Unlike the experience of several developed countries, Nigeria is composed of major ethnic groups that have struggled against one another for several years to control power at the center. With populations that have strong affiliation to their ethnic groups and with a return to party politics, numerical strength

thus plays a crucial role in the determination of which group controls power at the center. As earlier indicated, the decline in fertility, observed at the national level, results mainly from the South, especially the Southwest. Very soon, politicians are likely to be conscious of the impact of the regional differences in fertility on the populations of their regions as well as the implications for their ability to have access to power at the center. Unless reduction in fertility becomes accelerated in other regions of the country and unless there is political re-orientation or restructuring that engenders national as against sectional thinking, politicians, especially from the south, may formulate policies that reduce child-rearing cost in order to stall further declines in fertility.

The possible impact of politics on the pace of decline is compounded by certain economic measures. Currently, population factor accounts for a significant component of the formula for revenue allocation to the states and by implication to the regions. The amount of national resources accruing to a region through the states and local governments depends partially on its population. As a major determinant of population growth, further declines in fertility may be stalled by regional government policies in order to ensure that the populations of their regions compare favorable with those of others.

#### E. CONCLUSION

Asserting that an onset of a sustained fertility transition has begun in a country like Nigeria where comparable multiple national surveys are lacking is likely to generate a lot of debate. In addition, such an assertion is likely to be dismissed by several researchers on the ground that the decline in overall fertility level reflects mainly the experience of just one section of the country. However, we argue that, as in other societies that have gone through fertility transition, the situation in Nigeria is not unique. Fertility transition has always begun among some segments of the population from where it spread to others. Thus, women in the south, particularly in the southwest can be regarded as demographic innovators. It is hoped that the current transition which has begun, particularly in the southwest, will spread to other parts of the country to accelerate the speed of decline.

We have demonstrated in this paper that desired fertility has declined over time. In the southwest, where there are comparable multiple surveys, a consistent decline in desired family size has been observed. The decline in desired family size (which appeared to be a response to the downturn in the economy in the late eighties) was an important underlying force for the current fertility transition. Other factors which were associated with the decline in fertility include increased use of contraception, changes in nuptiality patterns, particularly in the proportion marrying before age 20, and increased education of women. Further declines in desired family size coupled with increased use of contraception for limiting, rather than as a substitute for traditional birth spacing methods, increases in age at marriage and education of women are expected to generate further declines in fertility.

Further declines in fertility are not in doubt and the possibility of fertility in Nigeria eventually reaching a replacement level can also not be dismissed. However, the speed of decline implied by the projections appears too rapid and hence unrealistic in the face of the socio-economic and political environment in which further fertility changes are expected. We have identified five issues which may slow down the pace of decline or even stall the decline before replacement level is reached. Those issues have to be addressed urgently if significant declines are expected in the future. It does not appear feasible to reach replacement level in the next forty-eight years under the existing socio-economic and political environment.

TABLE 1. ESTIMATES OF FERTILITY OF NIGERIA, 1965-1999

<i>Period covered</i>	<i>TFR<sup>a</sup></i>	<i>Data source and methodology</i>	<i>Source</i>
1965-66	CBR=50/1000 CFS <sup>b</sup> =5.6	National Rural Demographic Survey	Federal Office of Statistics, Lagos, Nigeria, 1968
1965 <sup>c</sup>	6.60	World Fertility Survey, 1981-82	Cochrane and Farid, 1989
1970	6.50	World Fertility Survey, 1981-82	Cochrane and Farid, 1989
1971-73	7.30	National Fertility Survey, 1981-82	U.S. Department of Commerce, 1979
1975	7.00	World Fertility Survey, 1981-82	Cochrane and Farid, 1989
1978-82	6.43	World Fertility Survey, 1981-82	National Population Bureau, Lagos, Nigeria, and WFS, 1984
1983-86	7.40	Nigeria Demographic and Health Survey, 1990	Makinwa-Adebusoye and Feyisetan, 1994
1987-90	6.20	Nigeria Demographic and Health Survey, 1990	Makinwa-Adebusoye and Feyisetan, 1994
1986-90	6.30	Nigeria Demographic and Health Survey, 1990	National Population Commission, Abuja, 2000
1992-94	5.40	Sentinel Survey	National Population Commission, Nigeria, 1994
1995-99	5.20	Nigeria Demographic and Health Survey, 1999	National Population Commission, Abuja, Nigeria, 2000

<sup>a</sup> = unless otherwise specified

<sup>b</sup> = Completed Family Size

<sup>c</sup> = Estimates by Cochrane were obtained from Foote, Hill, and Martin (eds), 1993. Demographic Change in Sub-Saharan Africa.

TABLE 2. TOTAL FERTILITY RATES FOR WOMEN 15-49 IN THE FIVE YEARS PRECEDING THE 1981/82 NIGERIA FERTILITY SURVEY (NFS) AND THE 1990 AND 1999 NIGERIA DEMOGRAPHIC AND HEALTH SURVEY (NDHS) BY BACKGROUND CHARACTERISTICS

<i>Background characteristics</i>	<i>NFS</i>	<i>NDHS 1990</i>	<i>NDHS 1999</i>
Place of residence			
Urban	6.2	5.3	4.5
Rural	6.4	6.6	5.4
Region			
Southeast	6.0	6.8	4.6
Southwest	6.6	6.5	4.5
Northeast	6.4	6.0	6.8
Northwest	6.8	5.9	6.5
Education			
No education		6.7	6.1
Primary		6.8	5.5
Secondary & higher		4.6	4.1
Total	6.3	6.3	5.2

TABLE 3. AGE-SPECIFIC FERTILITY RATES (PER 1,000 WOMEN) AND TOTAL FERTILITY RATES FOR THE FIVE YEAR PERIOD BEFORE THE 1990 AND 1999 NDHS

<i>Background characteristic</i>		<i>Age of woman</i>							<i>TFR</i>	<i>TFR</i>
		<i>15-19</i>	<i>20-24</i>	<i>25-29</i>	<i>30-34</i>	<i>35-39</i>	<i>40-44</i>	<i>45-49</i>	<i>15-44</i>	<i>15-49</i>
<b>Place of residence</b>										
Urban	1999	75	193	231	211	114	53	21	4.4	4.5
	1990	90	216	278	225	144	66	41	5.1	5.3
	Percentage change	-16.7	-10.6	-16.9	-6.2	-20.8	-19.7	-48.8	-13.7	-15.1
Rural	1999	126	233	243	233	150	78	25	5.3	5.4
	1990	167	285	280	235	174	103	74	6.2	6.6
	Percentage change	-24.6	-18.2	-13.2	-0.9	-13.8	-24.3	-66.2	-14.5	-18.2
<b>Region</b>										
Southeast	1999	50	165	233	250	145	64	22	4.5	4.6
	1990	106	268	302	230	174	78	48	5.8	6.0
	Percentage change	-52.8	-38.4	-22.8	8.7	-16.7	-17.9	-54.2	-22.4	-23.3
Southwest	1999	57	198	241	204	114	57	27	4.4	4.5
	1990	69	223	293	238	189	82	82	5.5	5.9
	Percentage change	-17.4	-11.2	-17.7	-14.3	-39.7	-30.5	-67.1	-20.0	-23.7
Northeast	1999	204	282	277	272	182	117	27	6.7	6.8
	1990	202	299	277	242	156	120	61	6.5	6.8
	Percentage change	1.0	-5.7	0.0	12.4	16.7	-2.5	-55.7	3.1	0.0
Northwest	1999	206	296	244	258	150	90	46	6.2	6.5
	1990	216	269	243	219	145	116	86	6.0	6.5
	Percentage change	-4.6	10.0	0.4	17.8	3.4	-22.4	-46.5	3.3	0.0
<b>Education</b>										
None	1999	222	292	251	222	143	74	23	6.0	6.1
	1990	213	283	270	225	172	102	68	6.3	6.7
	Percentage change	4.2	3.2	-7.0	-1.3	-16.9	-27.5	-66.2	-4.8	-9.0
Primary	1999	115	250	265	242	148	69	20	5.4	5.5
	1990	142	310	325	264	164	82	68	6.4	6.8
	Percentage change	-19.0	-19.4	-18.5	-8.3	-9.8	-15.9	-70.6	-15.6	-19.1
Secondary & higher	1999	37	146	209	220	112	54	38	3.9	4.1
	1990	65	187	250	204	104	27	79	4.2	4.6
	Percentage change	-43.1	-21.9	-16.4	7.8	7.7	100.0	-51.9	-7.1	-10.9
<b>Contraceptive use</b>										
Never used	1999	114	232	242	232	139	74	24	5.2	5.3
	1990	152	281	278	233	170	98	71	6.1	6.4
	Percentage change	-25.4	-17.4	-13.1	-0.6	-18.2	-25.2	-66.9	-14.8	-17.2
Ever used	1999	138	248	275	195	233	29	**	5.6	5.6
	1990	146	189	308	196	184	89	**	5.6	5.6
	Percentage change	-6.0	31.1	-10.8	-0.5	27.0	-67.9	**	0.0	0.0
Total	1999	111	220	239	226	138	71	24	5.0	5.1
	1990	145	267	279	232	167	96	68	5.9	6.3
	Percentage change	-23.4	-17.6	-14.3	-2.6	-17.4	-26.0	-64.7	-15.3	-19.0

TABLE 4. MEDIAN DURATION OF BIRTH INTERVALS BY AGE AT BIRTH AND PERIOD BEFORE SURVEY OF BIRTH OF THE PRECEDING CHILD, NIGERIA, 1990<sup>a</sup>

Age in years at birth of preceding child	Period before survey of birth of preceding child	Parity transition				
		1-2	2-3	3-4	4-5	5-6
Below 15 years	0-3 years	31.82	**	**	**	**
	4-7 years	30.98	**	**	**	**
	8 years and above	28.10	**	**	**	**
15-19	0-3 years	31.42	32.80	31.29	**	**
	4-7 years	29.98	28.88	31.73	29.96	**
	8 years and above	27.02	26.87	26.02	26.04	**
20-24	0-3 years	29.18	31.57	32.03	32.44	29.73
	4-7 years	28.77	29.17	27.95	30.25	31.03
	8 years and above	27.44	27.46	26.91	27.29	25.86
25-29	0-3 years	34.60	42.13	33.83	35.87	32.92
	4-7 years	39.96	32.17	29.76	31.37	30.73
	8 years and above	28.86	28.33	28.07	28.78	27.39
30-34	0-3 years	**	32.98	31.83	35.26	36.62
	4-7 years	**	48.64	35.09	34.52	36.47
	8 years and above	**	26.62	29.85	28.72	30.18
35 years and above	0-3 years	**	**	45.00	39.75	42.63
	4-7 years	**	**	26.71	32.14	37.41
	8 years and above	**	**	32.15	25.25	34.48

Source: Makinwa-Adebusoye and Feyisetan.

<sup>a</sup> = Median durations were obtained by fitting survival models to the NDHS data.

\*\* = Indicates cells with too few cases.

TABLE 5. PERCENTAGE OF CURRENTLY MARRIED WOMEN WHO WANT NO MORE CHILDREN AND MEAN IDEAL NUMBER OF CHILDREN BY NUMBER OF LIVING CHILDREN

Number of living children	Percentage who want no more			Mean ideal number		
	1981-82 WFS	1990 NDHS	1999 NDHS	1981-82 WFS	1990 NDHS	1999 NDHS
0	3.6	1.4	2.2	7.7	5.5	6.6
1	2.5	3.3	1.0	7.9	5.6	6.2
2	2.2	5.1	5.1	7.6	5.7	6.2
3	4.4	8.8	11.0	8.1	6.1	6.2
4	5.4	16.9	22.6	8.3	6.0	6.5
5	6.7	24.0	32.5	9.0	7.1	7.1
6 <sup>a</sup>	6.7	44.3	53.0	9.5	7.2	7.8
7	8.8			9.9		
8	23.0			10.6		
9+	24.4			12.6		
All	5.0	15.4	19.6	8.4	6.2	6.7

Sources: 1981-82 data obtained from NPB/WFS, 1984, The Nigeria Fertility Survey, 1981-82: Principal Report, Volume 1, Methodology and Findings, tables 6.3 and 6.8; 1990 data obtained from FOS/IRD/Macro, 1992, Nigeria Demographic and Health Survey, 1990, tables 6.3 and 6.5; 1999 data obtained from National Population Commission, 2000, Nigeria Demographic and Health Survey, 1999, tables 6.4 and 6.6

<sup>a</sup> Data for 1990 and 1999 NDHS is for 6 or more children.

TABLE 6. THE DIFFERENCE BETWEEN TOTAL FERTILITY RATES AND WANTED TOTAL FERTILITY RATES IN THE 1990 AND 1999 NDHS

Background characteristic	1990 NDHS				1999 NDHS			
	TFR	Wanted TFR	Absolute change	Percentage change	TFR	Wanted TFR	Absolute change	Percentage change
Residence								
Urban	5.0	4.8	-0.2	-4.0	4.5	4.2	-0.3	-6.7
Rural	6.3	6.1	-0.2	-3.2	5.4	5.1	-0.3	-5.6
Region								
Southeast	5.6	5.2	-0.4	-7.1	4.6	4.2	-0.4	-8.7
Southwest	5.5	5.2	-0.3	-5.5	4.5	4.2	-0.3	-6.7
Northeast	6.5	6.2	-0.3	-4.6	6.8	6.4	-0.4	-5.9
Northwest	6.6	6.6	0.0	0.0	6.5	6.0	-0.5	-7.7
Total	6.0	5.8	-0.2	-3.3	5.2	4.8	-0.4	-7.7

TABLE 7. PROXIMATE DETERMINATES OF FERTILITY AND THEIR INDICES, NIGERIA 1990 AND 1999

<i>Background characteristic</i>	<i>Year</i>	<i>Place of residence</i>		<i>Region of residence</i>				<i>Total</i>
		<i>Urban</i>	<i>Rural</i>	<i>Southeast</i>	<i>Southwest</i>	<i>Northeast</i>	<i>Northwest</i>	
Percentage married	1999	55.4	60.9	41.2	55.7	79.3	73.3	70.1
	1990	67.5	82.0	65.0	67.2	92.6	92.5	78.4
	Percentage change	-17.9	-25.7	-36.6	-17.1	-14.4	-20.8	-10.6
Percentage polygynous	1999	30.9	37.7	20.2	34.6	40.3	41.0	38.7
	1990	33.6	42.9	30.4	38.4	49.7	43.6	40.9
	Percentage change	-8.0	-12.1	-33.6	-9.9	-18.9	-6.0	-5.4
Median age at first marriage <sup>a</sup>	1999	19.4	17.3	20.2	20.2	14.7	15.1	18.3
	1990	19.0	16.3	18.3	19.7	15.4	15.2	17.1
	Percentage change	2.1	6.1	10.4	2.5	-4.5	-0.7	7.0
Percentage using contraception	1999	23.4	12.0	23.5	26.2	3.2	3.1	15.3
	1990	14.8	3.6	8.8	15.0	1.2	2.0	6.0
	Percentage change	58.1	233.3	167.0	74.7	166.7	55.0	155.0
Average duration of postpartum insusceptibility	1999	12.4	16.7	12.9	13.8	17.2	16.1	15.5
	1990	15.1	19.9	15.9	17.0	19.9	21.2	19.0
	Percentage change	-17.9	-16.1	-18.9	-18.8	-13.6	-24.1	-18.4
Index of postpartum amenorrhea (C <sub>i</sub> ) <sup>b</sup>	1990	0.52	0.48	0.52	0.5	0.47	0.48	0.49
Index of contraception (C <sub>c</sub> ) <sup>b</sup>	1990	0.86	0.97	0.92	0.86	0.99	0.98	0.95
Index of marriage (C <sub>m</sub> ) <sup>b</sup>	1990	0.64	0.79		0.55	0.91	0.92	0.75

<sup>a</sup> Calculated for women aged 25-49.

<sup>b</sup> Obtained from Makinwa-Adebusoye and Feyisetan (op cit.).

TABLE 8. PROJECTIONS OF NIGERIA'S FERTILITY

Period	United Nations, 1998			National Population Commission, 1997		
	High	Medium	Low	High	Medium	Low
1990-1995				5.73	5.71	5.68
1995-2000	5.55	5.15	5.00	5.45	5.39	5.29
2000-2005	5.16	4.74	4.55	5.18	5.07	4.91
2005-2010	4.76	4.34	4.09	4.91	4.74	4.52
2010-2015	4.37	3.93	3.64	4.63	4.42	4.13
2015-2020	3.98	3.52	3.19	4.35	4.09	3.74
2020-2025	3.58	3.12	2.73 (1.15)	4.07	3.77	3.35
2025-2030	3.19	2.71 (1.18)	2.28 (0.99)	3.8	3.45	2.97
2030-2035				3.52	3.13	2.54
2035-2040	2.70	2.20 (0.99)	1.71 (0.77)	3.24	2.8	2.19
2040-2045				2.97	2.48	
2045-2050	2.60 (1.20)	2.10 (0.97)	1.60 (0.74)	2.96	2.16	
2050-2055				2.41		
2055-2060				2.13		

TABLE 9. MEASURES OF MORTALITY IN NIGERIA

Period covered	CDR	IMR	CMR	Under-five mortality rate	Source
1965-66	26.9	178			FOS, Lagos, Nation Rural Demographic Sample Survey, 1965-66
1965-69		109.7	202.2		NPB, Lagos, Nigeria Fertility Survey, 1981-82
1970-74		96.6	178.7		NPB, Lagos, Nigeria Fertility Survey, 1981-82
1975-79		84.8	144.5		NPB, Lagos, Nigeria Fertility Survey, 1981-82
1986-90		87.2	115.2	192.4	FOS, Lagos and IRD/Macro International Nigeria Demographic and Health Survey, 1990
1990-95		86		147	UN, World Population Prospects, 1998
1994		82		191 <sup>a</sup>	UNDP, Human Development Report, 1997
1996		114		191	UNDP, Human Development Report, 1998
1995-99		75.2	70.3	140.2	National Population Commission, Lagos, Nigeria Demographic and Health Survey, 1999

<sup>a</sup> From 1995.

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## NOTES

<sup>1</sup> See Dudley Kirk and Bernard Pillet (1998) for recent discussions of the limitations of the WFS and the 1990 NDHS data and National Population Commission (2000) Nigeria Demographic and Health Survey, National Population, Abuja Nigeria for discussion of the quality of the 1999 NDHS. Some of these limitations were noted earlier by Makinwa-Adebusoye and Feyisetan (1994) and some steps were taken to minimize their impact on the analysis of changes in fertility.

<sup>2</sup> It appears illogical for fertility to decline so much when desired family size has not been achieved. There was no motivation for the decline.

<sup>3</sup> Only 0.7 per cent of women exposed to childbearing were using efficient methods at the time of the 1981/82 survey.

<sup>4</sup> If anything, the free universal primary education embarked upon at this time and the increasing national prosperity brought about by the rising revenue from oil export favored procreation.

<sup>5</sup> The policy aims to achieve the following targets, among others; reduce the proportion of women who get married before the age of 18 years by 50 per cent by 1995 and by 80 per cent by the year 2000; extend the coverage of family planning service to 50 per cent of women of childbearing age by 1995 and 80 per cent by year 2000; and reduce the TFR from 6 to 4 children per woman by year 2000. Unfortunately, there were no measures to ensure the attainment of certain policy goals that have direct bearing on fertility or related factors, for example age at marriage and the number of children per woman.

<sup>6</sup> A four-year reference period was adopted to minimize the impact of errors arising from shifting of birth dates, especially from 1985 to 1984. The four year period adopted also minimizes the error of heaping on years ending with even digits by having equal number of years ending with even and odd digits. Reported and estimated births showed little difference for each four year-period adopted. The estimated births are three-year moving averages of reported births (see Makinwa -Adebusoye and Feyisetan, op. cit.).

<sup>7</sup> Although the desired family size in 1990 may have been understated due to selection bias in the 1990 data, the difference in the desired family size between the two periods is too large to be totally accounted for by this factor.

<sup>8</sup> Postponement of the next birth was deduced from a trend of an increase in median duration of birth intervals in the periods before the 1990 survey. Makinwa-Adebusoye and Feyisetan (op. cit.) noted that in the 16-20 and 11-15 years preceding the 1990 survey, the probability of moving from one birth order to another was high and the curves of the probabilities were fairly flat, reflecting a lack of deliberate fertility control. However, in the five years immediately preceding the survey, there was a reduction in the proportion of women making the transition from one parity to the next, especially after the fifth birth. The reduction in the proportion transiting from one birth to the next was higher in the urban, in the South, among more educated people and among contraceptive users.

<sup>9</sup> The mean ideal number stated by the husbands is 4.1.

<sup>10</sup> The observed trend of a decline in fertility is not likely to be reversed unless child mortality increases. Economic downturn in Nigeria has brought about the rationalization for smaller family size.

<sup>11</sup> It has been observed that considerable percentages of childbearing take place outside the legal confines of marriage in African societies (Lesetedi et. al., 1989) and that it is difficult sometimes to define when a marriage has actually been consummated (Feyisetan and Pebley, 1989; Meekers, 1992).

<sup>12</sup> The effect is higher among sub-population groups with higher age at marriage.

<sup>13</sup> As noted earlier, polygyny sometimes facilitates high fertility through competition for child bearing among co-wives. The competition tends to be greater where the proportion of husband's assets to be inherited by a spouse and her children depends on the number of children, especially of male children (Feyisetan and Togunde, 1988).

<sup>14</sup> The urban population of Nigeria has grown over the years and will continue to grow as a result of over-concentration of industrial establishments and social facilities in urban centers. The 1963 census of Nigeria indicated that 19 per cent of the population lived in urban areas and the 1990 NDHS gave the figure as 24.9 per cent, while the 1999 NDHS puts it at 31 per cent. Women in urban centers are generally more educated than their rural counterparts because the type of jobs available to them demands higher skills. Because they stay longer in school, they tend to marry later.

<sup>15</sup> This will be true if contraception was used for limiting and not merely as a substitute for other traditional means through which adequate birth intervals have been achieved.

<sup>16</sup> The patterns of differentials among sub-population groups show that contraceptive use in Nigeria is inversely related to desired family size. This finding has the implication that sustained decline in desired fertility will generate increased use of contraception, especially of the more efficient methods. Thus, the demand for contraception is becoming a function more of the demand for children (limiting) than for spacing.

<sup>17</sup> See Feyisetan (1990) for more discussion on traditional beliefs about lactation and postpartum abstinence among the Yoruba of Nigeria.

<sup>18</sup> A return to the practice of long duration of breastfeeding may be inevitable as many mothers do not have the resources to purchase breast-milk substitutes.

<sup>19</sup> According to the two rounds of the NDHS, the proportion of currently married women who are using contraception for limiting increased from 2.7 per cent in 1990 to 4.6 per cent in 1999.

<sup>20</sup> This is usually explained in terms of the incompatibility between their work and child rearing.

<sup>21</sup> Since the number of births needed to attain replacement level also depends on the schedule of mortality, it appears more appropriate to think of replacement level as 2.1 surviving children per woman.

<sup>22</sup> We identify more with the medium variant projection of the National Population Commission as it appears most realistic, particularly because of its slower pace of decline. However, it is unrealistic to assume that fertility will decline by a constant proportion of a birth per projection period at every level of fertility. Considering the cultural value attached to procreation, it may be more difficult to experience further declines when TFR reaches 3 than it is now, except programs are put in place to make personal freedom and satisfaction more important than group survival. Besides, the level of socio-economic disparity between the regions does not support the assumption that fertility will reach replacement level at the same time in all the regions.

<sup>23</sup> Again, it must be emphasized that the present pattern of using contraception as a substitute for traditional spacing methods in African countries (Bledsoe et. al., 1998) must change. Contraception must be used more for limiting than for spacing.