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**Ethnicity, Gender and
Fertility Preferences
in Nigeria**

**A collection of working papers and reports
prepared by
the Population and Development Program
at Cornell University**

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Family Health International**

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Family Health International is a non-profit research and technical assistance organization dedicated to contraceptive development, family planning, reproductive health and AIDS prevention around the world.

Begun in 1993, the Women's Studies Project aims to support social and behavioral science research on the immediate and long-term consequences for women of family planning programs and methods; and to help improve policies and programs through increased knowledge of the needs and perspectives of women.

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Executive Summary

Research on the relationship of fertility and gender roles in Nigeria was supported by the Women's Studies Project (WSP) at Family Health International. Secondary analyses of data were done by Mary M. Kritz of Cornell University, as well as other co-authors, Paulina Makinwa-Adebusoye, Douglas T. Gurak, Bolaji M. Fapohunda and Fanglan Du.

Several aspects of women's lives were examined:

- * Women's control of resources and demand for children. Analysis was conducted using data from a 1991 survey of approximately 2,500 women of reproductive age in the Hausa and Yoruba ethnic groups. Researchers found that women in the Yoruba society have a higher socioeconomic status and lower demand for children. However, in both societies, women who work and control their own income are more likely to say they want no more children. (Paper 1)
- * Ethnicity, gender and fertility preferences. This paper examines the determinants of fertility preference in five ethnic groups -- the Hausa, Ijaw, Ibo, Kanuri, and Yoruba. Researchers explored the effects of women's education and socioeconomic factors, such as ability to choose a mate and work before marriage, on fertility preference. Findings indicated that demand for children was highest in groups that had the most restrictive gender roles, the Hausa and Kanuri. Wives in groups with more autonomy -- the Ijaw, Ibo and Yoruba -- were more likely to say they wanted no more children. (Paper 2)
- * Sex preference and ethnicity. Researchers explored the differences among three ethnic groups -- the Hausa, Ibo and Yoruba -- in their preference for male or female children and the impact these preferences had on birth spacing. Researchers found that the birth of a son can lengthen the time a woman wishes to wait before another pregnancy, but that effect does not vary by ethnic group. Researchers also found that women who have no sons or few sons experience shorter birth intervals. This pattern occurs in all three societies and is not conditioned by women's socioeconomic status. (Paper 3)
- * Spousal agreement on family planning. Husbands and wives in the Ibo, Ijaw and Yoruba groups were more receptive to the concept of family planning than couples in Kanuri and Hausa groups. A husband's secondary education had a positive impact on a couple's use of family planning -- stronger than the wife's education. However, a wife's ethnic group membership was the strongest indicator of family planning use. Spouses in the Kanuri and Hausa groups, which have a strong patriarchal structure, were less likely to agree they are using or will use family planning. Spouses in the Ibo group, which had the highest educational levels, were more likely to agree on family planning use. Couples

in which the wife worked before marriage were more likely to agree on family planning, as were couples who lived with a mother-in-law. The wife's control over work and earnings did not affect partners' agreement on family planning use. (Paper 4)

Findings from the first analysis (women's control of resources and demand for children in the Hausa and Yoruba groups) were published in a book entitled *Women's Position and Demographic Change in Sub-Saharan Africa*, edited by Paulina Makinwa-Adebusoye and An-Magritt Jensen. Findings from the second analysis (ethnicity, gender and fertility preference) have been submitted to a journal for publication. Cornell has published details of the studies on fertility preference and ethnicity, and sex preference and ethnicity, in its Population and Development Program working paper series. Copies of individual Cornell working papers are available for U.S.\$3.50 each. For a listing of these working papers and others, contact Ms. Josie Velez, Population and Development Program, Warren Hall, Ithaca, NY 14845-7801 USA. Telephone: 1-607-255-1400. Email: JV13@CORNELL.EDU

Texts of all papers are contained in this report, as well as a review of Nigerian literature on reproductive decision-making (Paper 5). This final report was originally requested by the U.S. Agency for International Development (USAID) in Lagos, Nigeria. The report reviews research in three time periods: prior to 1975, 1975-1984, and 1985 to the present.

The Women's Studies Project at Family Health International is a five-year research effort on the impact of family planning on numerous aspects of women's lives. It is funded by the USAID, Office of Population, through a Cooperative Agreement (USAID/CCP-3060-A-00-3021-00).

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Paper 1

**Women's Control Over Resources and Demand for Children:
the Hausa and Yoruba Cases**

by

Mary M. Kritz

Paulina Makinwa-Adebusoye

**From: Women's Position and Demographic Change in Sub-Saharan Africa.
Eds: Paulina Makinwa and An-Magritt Jensen. Liege, Belgium: IUSSP, 1995.**

Women's Control over Resources and Demand for Children: The Hausa and Yoruba Cases

by

Mary M. Kritz and Paulina Makinwa-Adebusoye¹

What role do women's class and gender statuses play in sustaining high fertility in sub-Saharan Africa? While speculation abounds that women's roles and position in African societies may shape fertility and other demographic processes, there is less agreement on the relative importance, nature or direction of those relationships (Oppong 1988; van de Walle and Meekers 1992; van de Walle and van de Walle 1988; Kritz, Gurak and Fapohunda 1992). Moreover, the dimensions of women's position in society that potentially shape demographic processes and the mechanisms whereby they do so remain to be empirically identified.

Existing research on fertility determinants in Africa has focused on women's socio-economic rather than their gender statuses and a number of interesting findings are emerging from that work that suggest the importance of looking more broadly at the forces that shape and sustain high fertility in the African region. Some research shows, for instance, that while education, one dimension of women's socio-economic position, has effects comparable to those observed in other regions, the levels at which it does so are

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higher than in Latin America or Asia. In other words, it takes more education in Africa to result in increased age at marriage (Cochrane and Farid 1990), increased contraceptive use (Njogu 1991), or lower fertility (Ainsworth and Nyamete 1992). The effects of education on reproduction, however, vary widely both within and across countries (Acsadi and Johnson-Acsadi 1990; Cochrane and Farid 1990). In addition, studies of the effects of women's labour force participation on fertility tend to show no relationship or even a positive relationship (DeLancey 1990). Opong (1988) has identified the lack of incompatibility between maternal and occupational roles as well as the need for old age security as factors encouraging educated, employed women in Ghana to continue bearing relatively large numbers of children.

Caldwell and Caldwell (1987 1990) argue that the reason why social class factors such as education and labour force participation operate differently in Africa is rooted in African culture. According to their argument, gains in African women's socioeconomic statuses will not necessarily lead to lower fertility because there are numerous 'props' or cultural mechanisms that have evolved within African kinship systems in response to the contextual conditions (e.g. low population density, abundant land, peasant agriculture, etc.) found in most of the region that sustain high fertility. While those conditions are changing, pronatalism continues to be reinforced today by a traditional belief system that associates high fertility with divine approval of the gods and deceased ancestors, with social esteem for patriarchs, and with economic gain to husbands' lineages. Other props include reproductive factors such as early marriage of daughters, bridewealth, widow remarriage, and polygyny as well as productive factors such as communal landholdings, spousal division of labour, and patrilineal inheritance. The Caldwells recognize the subordinate and disadvantaged position of women in the African kinship system and see little in that traditional system that would

encourage fertility reduction. Indeed, Caldwell's wealth-flow thesis holds that fertility change will come slowly to the region, probably after the importation and adoption of Western ideas that encourage increased emotional bonding between husbands and wives and between parents and children (Caldwell 1982:Ch.5).

Is this pessimistic picture warranted or are there potential sources of change within African social structures that may interact with modernization forces to produce variations in the scenario outlined above or at least that might lead to alternative paths of fertility decline? This paper explores that possibility by examining how women's position varies in two African societies and evaluating whether women's position shapes and constrains fertility in those societies. In particular, we examine the hypothesis that the demand for children is lower in societies that allow women to participate in economic activities and control their earnings. We assume that demand for children has to change before fertility declines are likely to occur and thus believe it is instructive to identify the innovators or women who want fewer children in a high fertility context. We also assume that African societies vary considerably in the roles and statuses that women hold and hypothesize that societies that give women greater access to opportunities outside the household and control over economic and other resources will proceed more rapidly through their fertility transitions. We begin with a discussion of the dimension of gender structure -- women's economic activity and earnings control -- deemed of particular importance for demand for children. The paper then examines how gender structure, particularly the organization of the family and women's work, differs in two Nigerian ethnic groups, the Hausa and Yoruba in Kano and Ondo states, respectively. Finally, we use survey data gathered in 1991 to measure the effects of women's work and earnings control on the demand for children in those two ethnic groups.

Women in Productive and Reproductive Processes in Africa¹

The image of African women that emerges from the work of the Caldwells' and others (Frank and McNicoll 1987) is one of women subjected to strong patriarchal control by husbands and husbands' lineages. Patriarchal control extends both to productive and reproductive dimensions and men are seen as reaping considerable social and economic benefits from large numbers of wives and children. Social status of men and their lineages, for example, is enhanced if they accumulate large numbers of wives and economic security is advanced by the labour provided by wives and children. Moreover, the costs that are associated with increasing household size are borne largely by women, which gives men little incentive to favor fertility reduction. In this type of context, women are highly dependent on men and economically insecure, which encourages them to share their husbands' pronatalist goals. Children, for example, can assist women with daily work activities as well as support them during old age. Thus while men are seen as the principal decision-makers on reproductive matters, women, insofar as they participate in those decisions, share their husbands' desires for large numbers of children. Lacking from this image is any recognition that African societies may vary in the extent to which men and their lineages control women's production and reproduction and, thus, might also differ in how the costs and benefits of children are perceived.

Another image of African women emerges from research that looks at the role of African women in agricultural development. Since Boserup (1970) presented her thesis that farming systems in contexts of low population density are characterized by low technological inputs and high reliance on female labour, the importance of women's work in African farming has been recognized (Makinwa-Adebusoye and Olawoye 1992). In many parts of

Africa, women do most of the farming, although those roles are being altered as commercialization spreads, as Staudt (1987:40) notes:

'Heavy economic obligations create a strong incentive among women to protect and secure their own property and income interests. Reinforcing those obligations and the stakes they incur are polygyny and, in some areas, high rates of marital separation and divorce....Moreover, married women retain continuing obligations to their own kin....Finally, reciprocal relationships with women in female solidarity organizations also mean that women need to control resources of their own. Women engage in female work parties to earn cash or in rotating credit societies to mobilize larger capital sums than what they can ordinarily save on their own....Such experiences impress upon women their need to retain economic self-sufficiency. These experiences have little to do with individualism, but everything to do with economic necessity.'

Staudt's analysis identifies the potential for conflict between husbands and wives in economic interests and suggests that women seek to expand their work activity and control over economic resources in order to reduce the economic vulnerability they experience in strong patriarchal systems. While her work makes no mention of whether and how women utilize reproduction to reduce their economic insecurity, it suggests that women not only have reproductive options, a point stressed by demographers, but also productive options that can allow them to reduce their dependency on men. By suggesting that economic pressures on women are increasing as daily life becomes more commercialized in Africa, Staudt's work opens up the issue of how socio-economic changes in a society or country as a whole may lead to changes in women's productive and reproductive lives. To the extent that those changes make women more sensitive to the costs of children, their demand for children may be reduced. As such, it is important to look at how women's access to work

and resource control varies in traditional African societies, how those patterns are changing, and whether those changes have implications for the demand for children.

The argument that husbands and wives have separate economic and other interests suggests that African families should not be approached as ones in which reproductive decisions are made only by husbands or as joint decision-making units in which husbands and wives act altruistically to enhance the overall welfare of the household. As such, we follow the approach of Fapohunda and Todaro (1988:573) and view 'conjugal pairs...as parties to a contract rather than as a single entity'. That approach is consistent with the idea that husbands and wives may perceive costs and benefits of childbearing and childrearing differently and that wives may act to reduce their economic insecurity through their productive work as well as through reproduction. It is also consistent with the maintenance of separate budgets by husbands and wives, with the prevalence of separate 'hearholds' formed by wives and children within husbands' compounds (Makinwa-Adebusoye 1991), and with payments and other resource exchanges between spouses. Staudt (1987) identifies studies in a number of African countries that document a wide range of work and other services for which husbands often pay their wives, including labour, crops, food, interest on loans, water, etc.. While the specific items exchanged by spouses vary across societies, such arrangements are common throughout the region. Most of the examples cited by Staudt are ones in which payments flowed from husbands to wives but reverse transactions also occur. For example, wives in Senegal often purchase fuelwood from their husbands.

Although African wives may have separate economic interests from those of their husbands and take certain decisions on their own that might reduce their economic risks, what implications does this have for fertility preferences? Is it necessarily in women's

interest to have fewer children and, if so, under what conditions (Mason and Taj 1987)? Cain (1988) has identified a number of reasons why women's economic insecurity increases demand for fertility, largely based on reasoning that surviving children, particularly sons, are needed to provide old age assistance. Decreasing women's dependency on men by increasing their control over economic resource should thus decrease demand for children. Blumberg (1991:101) also argues that increasing women's economic power increases 'the likelihood that her *fertility* pattern will reflect her own perceived utilities and preferences'. Her focus is on the relative economic power of husbands and wives, in general, and on the extent to which women's participation in market work and control of earnings, in particular, shape both demand for children and fertility. She discusses studies from Puerto Rico (Weller 1968), Mexico (Roldan 1988), and Guatemala (Blumberg 1989) that offer empirical support for her hypothesis.

Some research is beginning to emerge which suggests that women's economic roles may indeed affect demand for children and the proximate determinants of fertility in the African region. Lesthaeghe and Surkyn (1988) look at 170 ethnic groups and cluster them according to how they differ on the productive value of women, lineage organization, Islamic and/or Christian penetration, and female literacy. They find that societies in which women's productive value is high are also likely to have high rates of polygyny, long postpartum abstinence, and large spousal age differences. Although, the latter are the traditional social organizational factors often identified as propping up high fertility in the region, it is also possible that in a context of rapid social change that those societies may be more receptive to change because of the high productive value of women. That issue, unfortunately was not unravelled in the study since to do so would require both group and individual-level data that could be examined in a dynamic framework.

Recent research by Kritz, Gurak and Fapohunda (1992) of rural women among the Yoruba, a Nigerian society characterized by high participation of women in trading and other activities and one in which spouses maintain separate budgets, found that wives who had increased control of economic resources (land) and contributed money toward household expenses have a lower demand for children. Their work suggests that both class and gender stratification vary within relatively homogenous African groups and that those inequalities are related to changing demand for children. In this analysis, we look at how demand for children in two Nigerian ethnic groups - the Hausa and Yoruba - differs in accordance with gender institutions in the two groups and by women's access to work and income control.

Social and Gender Organization in Hausa and Yoruba Societies

Women's family and work activities are organized very differently by the Hausa and Yoruba. While both societies score relatively high in their overall degree of patriarchy or the extent to which men control women's lives,² they differ in several other ways that have important implications for women's roles within the family and women's access to public roles such as market work. The roots of differentials in the social organization of gender in these two groups may stem from historic factors such as variations in production modes (long-distance trading and pastoralism by the Hausa in the semi-arid Sahel versus cultivation and settled villages by the Yoruba in the southern tropical rainforests) or to the deeper cultural penetration of Islam into Hausa society. Whatever the origins, a sharp division of labour by gender evolved in both groups but the economic roles assigned to women differed. In Yoruba society, women traditionally have had responsibility for trading and some farming activities while men took responsibility for governance and community security. In Hausa

society, men had responsibility for trading and animal herding, in addition to educating young men into the ways of Islam. Hausa women may have helped with farming but their activities were largely restricted to their husband's compounds. As Islam increased its hold on Hausa society in the 1800s, the formal practice of seclusion became the ideal mode for adult women and may even have increased in the independence era (Schroeder 1987). Although about half of the Yoruba are Muslims, the institution of female seclusion is not widespread in that group.

Many of the social organizational features of family life in Hausa and Yoruba society fit Goody's (1976) description of the domestic domain. Goody drew attention to the distinctiveness of inheritance, identifying how the homogeneous inheritance system (transmission of property through the male line) that prevails in most of Africa, including among the Yoruba, increases the autonomy of women compared to the diverging devolution of inheritance system (transmission to both sons and daughters) found in Asia, and which is also found among some Sahelian groups, such as the Hausa (Christelow 1991:137; Lesthaeghe and Surkyn 1988). In diverging devolution societies, parents exert considerable control over their daughters' marriages and usually marry them off early, often to cross-cousins (Maduci et.al. 1968). Those practices both assure the sexual purity of daughters and reduce the splintering of lineage property that might otherwise result from out-marriage of daughters to non-lineage members. Cross-cousin marriage and early age at marriage are common among the Hausa but not among the Yoruba. Indeed, a Yoruba man may not marry any woman from his own lineage nor any of the lineages of his grandparents or great grandparents.

Women in African homogeneous systems tend not to inherit land or other property from their parents, but their productive and reproductive labour is valued, a fact that is

recognized by bridewealth payments from the groom's to the bride's lineage and by grants of land by the groom's lineage to a new bride to allow her to become economically independent. Although bridewealth payments are modest today among the Yoruba, normative expectations remain strong that women should be economically independent and provide for themselves and their children. Bridewealth and dowry are both practiced among the Hausa, but do not appear to be linked to women's production or reproduction. For instance, dowry among the Hausa takes a form similar to that of the 'trousseau' custom in Western Europe in that brides collect items as they grow up, such as porcelain cooking utensils, that are transferred to their husbands' compound. However, a Hausa woman's dowry is considered to be her property, rather than a property transfer to the groom's family, and, thus, she can take it with her if divorce occurs (Dunbar 1991). Moreover, Hausa husbands are expected to provide for their wives' basic needs.

The institution of polygyny also varies across the two societies. While Goody (1976) considered polygyny to be an attribute of homogeneous inheritance systems, it is also a common practice among Sahelian societies that practice diverging devolution. Religious influences underlie variations in the practice of polygyny. For instance in Hausa society and among Yoruba Muslims, Islamic custom dictates that men may have only four wives at a time. While Christianity prohibits polygyny altogether, that dictate is widely ignored by Yoruba men who are Christian. The restriction placed by Islam on number of wives may make women more vulnerable to divorce among the Hausa, since a Muslim man can divorce his wife by stating publicly three times that he has done so. This practice, however, is more common among the Hausa than among the Yoruba, who practice a less restrictive form of Islam. Barrenness is considered a sufficient cause for divorce among the Yoruba but men are not necessarily pressured to divorce a woman for this reason alone since additional

wives can be acquired to bear children, thereby allowing men to continue to benefit from the productive labour of the barren wife. Supporting the idea that bridewealth payments can be viewed as an informal contract between two lineages, as well as between husband and wife, is the fact that Yoruba lineages traditionally passed along marital rights to a younger brother or other male relative upon the death of a husband. That practice is no longer common today.

Wives are subordinate to their husbands in both societies and expected to show deference (Callaway 1987). Among the Hausa, husband-wife relations are governed by a mixture of Hausa customs and Islamic law (*sharia*) and tend to be very formal. A wife is considered well behaved if she constantly demonstrates her husband's superiority and shows deference to him by talking quietly, kneeling, and addressing him as mallam. To maintain peace among several wives, a husband is expected to display identical behaviour to all of them. An emotional gap tends to develop between Hausa wives and their husbands that is not bridged by children since custom dictates that parents, especially fathers, remain aloof and distant from their children including the lifelong avoidance of their first born. Emotional distance also characterizes Yoruba husband-wife relations (Sudarkasa 1973). A new Yoruba wife is junior to all persons in her husbands' extended family who were born before the date of her marriage and she is expected to show respect to her new relatives by never addressing them by their names but as 'husband' or by a nickname. Her new lineage, in turn, can address her by her name or as 'wife', or, after the birth of her first child, as 'the mother of.' Furthermore, like her Hausa counterpart, a Yoruba wife is obliged to be highly deferential to her husband. Tradition dictates that Yoruba husbands and wives do not eat together and that a wife should serve her husband his food on bent knees.

The widespread practice of seclusion in Hausa society constrains the socio-economic roles of women and has prevented most of them from obtaining formal education or market employment, at least until recently (Schroeder 1987; Robson, this volume). While Hausa rural wives help their husbands with farming and some urban wives work out of economic necessity, seclusion continues to be the normative ideal among the Hausa and to be widely practiced by all social strata. Restrictions on women's physical mobility mean that many tasks performed by women in other parts of Africa are performed by men in Hausa society. For instance, Hausa husbands are obliged to provide food, water, firewood, housekeeping money and shelter for the family as well as gifts of perfume and clothes to wives, especially during festivals. Moreover, activities outside the family compound, including buying and selling in the market, are considered to be male activities (Coles and Mack 1991). Women's primary obligations are to bear and rear children, prepare food, and carry out other domestic chores. Many scholars stop there in their analyses, concluding that Hausa women have no access to income-earning activities. However, Pittin (1987:26), based on her study of Hausa women in Northern Nigeria, cautions against equating seclusion with economic inactivity and argues 'that the vast majority are economically active, and display an economic independence seemingly at odds with their spatial confinement.' Income-generating activities often undertaken by Hausa women include: preparing cooked foods or snacks that can be sold by children; keeping of a few small livestock such as sheep, goats and poultry that may be sold to their husbands or other relatives; and renting out land that they have inherited (Hill 1972; Schildkrout 1983; Jackson 1985; Olayiwole 1989).

Yoruba women, in contrast, have more economic independence and autonomy to move spatially about within and between villages. They are expected to work independently of their husbands and to finance their own and their children's sustenance. They have done

this traditionally by working as traders and, indeed, market activity was considered women's exclusive domain. Yoruba society and women themselves regard market work as an integral part of their roles as wives and mothers. In the separate Yoruba heartholds, the normative structure gives women partial responsibility for their own and their children's clothing, ceremonial expenses and, sometimes, children's school fees and medical expenses. Moreover, they have numerous other social obligations to friends and members of their extended families that require economic resources. In addition, women often make contributions that assist their husbands with the purchase of farm inputs (Awe 1975; Sudarkasa 1973).

In both societies, women are entitled to keep their earnings from income-generating activity. Although Hausa women are less likely than Yoruba women to engage directly in trade or other work activities, as previously noted, they are allowed to keep any money they do earn or receive as gifts and they have less obligation than Yoruba women to use those earnings for basic household maintenance (Pittin 1987:26). Hausa women may use their earnings for gift-exchanges in order to reinforce kinship and friendship bonds (Pittin 1987) or save their earnings in the event of a divorce. As previously noted, a Hausa woman can take her dowry with her if she is divorced.

What implications might these differentials in the organization of family and work have for demand for children and reproduction in Hausa and Yoruba societies? Since natural fertility prevailed in both societies until recently, one can probably assume that gender institutions had little effect on reproduction in the pre-transition context. In the past, some social practices such as early age at marriage and high divorce rates may have increased sterility among the Hausa and thus lowered their overall fertility. Today, the key issue would seem to be how adaptive a society's gender institutions are to changing socio-

economic conditions. In Nigeria, for example, major social and economic changes have occurred in the past 30-40 years and further change is likely. Urbanization is proceeding rapidly, education levels of both boys and girls are rising, although inequalities still exist, and even remote rural villages are being incorporated into the growing market economy. Evidence suggests, however, that Hausa and Yoruba societies are responding differently to these forces, based on indicators from demographic surveys. As late as 1980 in the Hausa State of Kano, for example, only 14 per cent of girls of secondary school age (ages 12-17) were in school and one per cent were in higher education (ages 18-23), compared to 46 per cent and 14 per cent, respectively, of the boys. In the Yoruba state of Ondo, in contrast, attendance levels were roughly equal for boys and girls, with 42 per cent of boys and 40 per cent of girls in secondary school and 10 per cent and 8 per cent, respectively, in higher education (NDSS 1980).

While Yoruba women's increasing access to formal education is encouraging and may be associated with further transformation of Yoruba society, education in many parts of Africa does not show the expected negative relation to fertility, as previously noted. Other differences between the two societies, such as women's access to work and earnings control, suggest that Yoruba women have more economic independence than Hausa women. In addition to greater access to market-based work, Yoruba women also have more economic responsibilities than Hausa women and thus may be more economically motivated to lower their fertility. The nature of Hausa women's work, in contrast, suggests that it would be in their economic interest to continue bearing large numbers of children. While all Nigerians are increasingly dependent on a market economy, deteriorating economic conditions (minimal or negative economic growth, high inflation, currency devaluation) are making it more difficult to satisfy basic food needs and meet expanding desires for education and

health care. Since Yoruba women have primary or major obligations to contribute toward those costs, they should be more sensitive to changing economic conditions than Hausa women. Thus while the costs of children are rising throughout Nigeria, we expect Yoruba women to be more sensitive than Hausa women to those costs and thus have lower demand for children.

Economic incentives differ for Hausa women and their potential effects on demand for children are more uncertain. For instance, the restrictions imposed by seclusion on women's public roles would seem to create incentives for them to continue bearing large numbers of children. As noted above, many secluded Hausa women do participate in income-generating activities but use their children as sales agents, given the restrictions imposed on their own physical mobility. That Hausa women would be interested in earning money is supported both by their increased vulnerability to divorce and by their right to retain their earnings. On the other hand, the fact that Hausa men, rather than wives, are obligated to cover household sustenance could reduce women's need for children.

Study Design and Variable Measurement

Our data are drawn from a 1991 survey of married women aged 14-40 in six ethnic groups in Nigeria: Tiv, Kanuri, Igbo, Hausa, Ijaw and Yoruba. These six groups include the three largest ethnic groups in Nigeria (Igbo, Hausa, and Yoruba) and represent about 60 per cent of the Nigerian population. A two-stage, stratified, cluster sampling technique was adopted. In the first stage, stratification was based on ethnicity, identifying states where each of the six ethnic groups predominates, namely: Benue, Borno, Imo, Kano, Rivers, and Ondo, respectively. In the second stage, within each state, households were selected from four Local Government Areas (LGA) and a quarter of the interviews conducted in each

area. The capital city was selected in each state and is the most highly urbanized site. In addition, an intermediate type town in rural/urban terms and two rural areas were selected in each state.³ From each of the four LGA, two census supervisory areas (SAs) were selected. Each SA consists of 4-6 enumerations areas (EAs) and all EAs in the selected SAs are included in the sample. At the outset of the fieldwork in each EA, a count of houses and buildings was undertaken to determine a suitable sampling interval (usually ranged from 1 in 4 to 1 in 6). No more than two households per building were included in the survey and only one eligible wife was interviewed in each family. About 60 per cent of the husbands were also interviewed. This paper, however, utilizes data from the wife questionnaires for the Hausa and Yoruba surveys. Sample sizes are 1279 and 1229, respectively.

The data contain information on several dimensions of gender inequality, including occupational and maternal roles, possession of and control of financial and other resources, spousal agreement on reproductive matters, husband-wife communication and companionship, spousal decision-making power, and normative compliance with ascribed roles. To ascertain husband and wife's relative power in the household, questions were asked on wife's access to economic resources either through employment or gifts from husband and relatives, wife's ability to control her earnings, who had final say in deciding various issues for the household, including what to purchase, and perceptions of authority structures.

Resource Control and Demand for Children: The Hausa and Yoruba Cases

We hypothesize that women's work and control of earnings reduces demand for children. To do so, we evaluate whether earnings control has similar effects on demand net

of other demographic and education characteristics of Hausa and Yoruba wives. The concept of demand for children is an elusive one in sub-Saharan Africa where most surveys show that high proportions respond to questions on desire for future births by stating 'God's will' (van de Walle 1992; Bongaarts 1990). Moreover, many African women are hesitant to give a numeric response to the question 'how many (more) children do you want' although recent research shows that growing numbers of women are giving definitive answers to questions on ideal and desired number of children (Acsadi and Johnson-Acsadi 1990).

Demand for children is modelled in three ways. First, we use logistic regression to look at the determinants of demand for NO more children, a dummy variable coded 1 if respondents answered yes to: 'do you want to give birth to (more) children' (Table 3). Only 16.6 per cent of Yoruba women and 5.6 per cent of Hausa women answered no to that question (Table 1). Those proportions fall within the range (3-33 per cent) observed by Acsadi and Johnson-Acsadi (1990) for other African countries. Second, in Table 4 we use multinomial regression to examine the determinants of responding yes or god's will to that same question, using the 'NO more' group as the referent. Third, we use Ordinary Least Squares (OLS) to look at the determinants of number of additional children specified by women giving a numeric response to the question: 'How many (more) children would you like to have' (Table 5). That variable includes those who said NO more and those who want additional children. Finally, in Table 6, we assess the robustness of our findings by substituting other indicators of women's work and earnings control into the models estimated in Tables 3 and 5.

The same control and independent variables are used in each of the models to enhance comparability. In the discussion that follows, we specify measurement and expected relationships of the control and independent variables to demand for NO more children.

The effects of the covariates on the other sets of models - demand for more children and number of additional children desired - are expected to be in the reverse direction from those for NO more. Several demographic control variables are included in the models. Wife's age and number of children ever born are expected to be positively associated with reduced demand for children and polygyny status with increased demand. If wife's age was missing, we used the wife's age given by the husband, if the latter was interviewed, or calculated it based on respondent's information on age at marriage and marriage duration (11% of the wives initially had missing data on age). We control for number of children ever born because it is unlikely in a high fertility context that women will say that they want NO more children unless they already have several of them. However, since Hausa women experience greater child loss than Yoruba women (see Table 1), 'number of live children' is used in the demand models to enhance comparability. Acsadi and Johnson-Acsadi (1990) find number of living children to be a strong predictor of demand for NO more children in Africa. Polygyny is measured as a dummy variable.

Dummy variables for urban residence and education are included in the models as controls for human capital and exposure to modern ideas. Acsadi and Johnson-Acsadi (1990) found a positive relation between urban residence and demand for NO more children in four of the six African countries they examined but an inconsistent relation between education and demand. Urban residence is expected to be positively associated with demand for NO more children because, among other factors, women who live in urban areas are more likely to be exposed to other women with modern 'ideas' about reproductive behaviour and family size. Access to social services, including education and family planning, is also disproportionately located in large urban areas in most of Africa (World

Bank 1989). We define urban residence conservatively as residence in the state capital, i.e. Akure in Ondo state and Kano in Kano state.

Because of the inconsistent and often non-linear relationship of education to demand for children and to fertility, observed by Acsadi and Johnson-Acsadi (1990) and others (Cochrane and Farid 1990; Ainsworth and Nyamete 1992), we include education in our models as a categorical variable, using never attended formal school (includes women who have Koranic education) as the referent category and comparing how those women differ from two other groups: those who attended or completed primary; and those who attended or completed some secondary or higher level of education. The two ethnic groups differ considerably in their education make-up. For instance, the vast majority of Hausa women have no formal education (85.7%), although some would have received Koranic schooling which consists largely of memorization of the Koran. Only 32.7 per cent of Yoruba women, in contrast, have no education and 37.2 per cent have some secondary education or higher.

Although religion differs in the two groups, it is not included in our models because of the lack of religious variation among the Hausa (98.6 per cent of the Hausa women in our sample are Muslims; see Table 1). We did examine the effects of religious status on demand for children among the Yoruba (20.7 per cent of our sample is Muslim)⁴ but found no significant difference.

To test the hypothesis of interest -- that work and earnings control will increase demand for NO more children -- we look at several indicators of women's economic activity and resource control (see Table 1). As previously noted, market work and earnings control are expected to increase wife's economic power within the household and give wives a greater say in reproductive decisions. In our models, work and earnings control is a dummy variable that equals '1' if the wife was working at the time of the survey and responded

affirmatively to the question 'do you usually decide how your earnings are used?' Other measures of wife's control over economic resources were also examined but are not included in the demand models because they are highly correlated with each other.

The descriptive means for the control variables and socio-economic indicators are presented in Table 1 and vary along the lines expected based on the ethnographic review. Compared to Hausa women, the Yoruba marry later, are less likely to be Muslim, have higher education levels, and higher rates of labour force participation. In addition, Yoruba women are more likely to work and control their earnings. They are also more likely to have used some form of contraception (modern or traditional methods) and to be in polygamous unions. Ordinarily more Hausa women would be in polygamous unions, which suggests either some sampling problems or changing dynamics within the groups. Regarding demand for children, Yoruba wives are more likely than Hausa wives to say that they want NO more children and less likely to say god's will.

The bivariate relationships between demand for NO more children, the control variables, and socio-economic indicators are reported in Table 2 and show that age, children ever born, contraceptive use, urban residence, and women's economic activity and resource control are positively associated with demand for NO more children (see Table 2). While education is associated with reduced demand for children among the Hausa, Yoruba women with some secondary education are less likely than women with no education to say No more children. Since educated Yoruba women have fewer children ever born than less educated Yoruba women but more than the small group of similarly educated Hausa women (data not shown), this finding suggests that they still espouse social norms of high fertility although their behaviour itself deviates from that norm.

The bivariate relationships between demand for NO more children and women's work and resource control are consistent with the hypothesis. Women who work and decide earnings or women who work and pay more expenses than their husbands are more likely to say NO more children. Those relationships, however, are stronger among the Yoruba. The relationships in Table 2 also indicate that work alone is not the key dimension but whether women also have some say or control over their earnings.

We use logistic regression to assess the effects of women's work and earnings control on demand for NO more children net of a wife's demographic characteristics and human capital. The relationship of the covariates to the dependent variable are summarized using odds-ratios ($\exp[b]$) that express the relative likelihood that a woman will say NO more. An odds-ratio of 1.0 is equivalent to no relationship, ratios greater than 1.0 indicate increased likelihood that the wife wants NO more children, and ratios less than 1.0 indicate reduced likelihood. If the covariate is coded as a dummy variable, the reference is to the omitted category. In the case of continuous covariates (wife's age, live children), the comparison is made at the mean and the odds ratios tend to be smaller because they describe the effect of a unit change in the covariates.

Four models are presented in Table 3. The first model combines the Hausa and Yoruba samples and uses a dummy variable for ethnicity (1 = Yoruba) to assess the effects of women's work and resource control on demand after controlling for demographic and social characteristics. Model 2 introduces interaction terms between ethnicity and each of the covariates in order to evaluate whether the two groups differ in their demand dynamics. There are a number of substantive reasons why we expect relationships to differ in the two groups. Odds ratios significantly different from '1' for interaction terms indicate that the relationship between demand and the covariate differs in the two groups and specifies the

magnitude of the adjustment that is needed in the Hausa coefficient to obtain the Yoruba odds ratio. Since main effects and several of the interaction terms for ethnicity are significant in all of our models, we also estimate separate models for the two groups.

Model 1 shows that demand for NO more children is positively associated with wife's age, urban residence and number of live children. Compared to rural wives, those living in urban areas are over twice as likely to say NO more children. Wives in polygamous unions are also more likely to say NO more children, as are wives who have some primary or secondary education, compared to the referent group (no education or Koranic education). The findings offer strong support for our hypothesis inasmuch as wives who work and control their earnings are over twice as likely to say NO more children. Yoruba wives, however, are almost twice as likely as their Hausa counterparts to say NO more children.

Model 2 tests for interactions between ethnicity, a dummy variable coded '1' if Yoruba, and each of the covariates in order to evaluate whether women in the two groups have different preferences at given life cycle and resource levels. We reasoned previously, for instance, that Yoruba women should be more sensitive to the rising costs of children and, therefore, that the effects of work and earnings control should be stronger in that group. In a high fertility society but one where women have some economic autonomy, the case of the Yoruba, older women should be more sensitive than younger women to the costs of children, as should women with large numbers of children. Urban residence gives women both opportunities for increased access to non-traditional work activities and to non-normative ideas about ideal family size. Differences between the two groups in market activities, however, should give Yoruba wives in urban areas greater exposure to those influences. Formal education should also increase women's exposure to new ideas (e.g. that the costs of children are high and/or that the number of children should be a conscious

choice) and thus reduce demand for children. How those effects might vary by ethnicity are unclear but the effects of formal education, particularly secondary education, may be stronger for Hausa wives since they would be a highly selective group in their society. In contrast, Yoruba women are exposed to external influences through their work activities regardless of their education levels.

The odds ratios in Model 2, Table 3, show that the interaction terms for age, number of live children and secondary schooling are significant. While the main effects of urban residence and polygyny are not significant, the interaction term is in the expected direction and almost significant, supporting the view that the effects of urban residence are stronger among the Yoruba, as expected. Finally, the odds ratio for ethnicity indicates that Hausa women are only 6 per cent as likely as Yoruba women to say NO more children even after controlling for main and interaction effects. The interaction model differs significantly from the main effects model at the .000 level based on a test of the chi-squared statistic ($2|LL_2 - LL_1|$). Since the main effects and interaction models indicate that the determinants of NO more children differ significantly for Yoruba and Hausa wives, separate models are estimated for the two groups.

A comparison of the Hausa and Yoruba models in Table 3 shows that their fertility preferences differ in several respects. Age is a strong determinant of NO more children in both groups but particularly so for the Yoruba. The Yoruba odds ratio of 1.23 for age means that with each additional year of age, the odds of wanting NO more children is 1.23 times greater than the odds were the previous year. While the Hausa odds ratio is also positive, it is roughly half the magnitude of the Yoruba odds ratio (a 13 per cent annual increase compared to 23 per cent for the Yoruba). Formal schooling, however, has no effect on Yoruba demand but does for the few Hausa wives who fall in that category. For

instance, Hausa wives with secondary education or more (only 5.5 % of all Hausa) are almost seven times more likely than uneducated wives to say NO more children. The fact that urban residence has no effect on Hausa demand but a strong positive effect on Yoruba demand suggests that seclusion does reduce Hausa women's exposure to modern influences. The effects of wife's work/earnings control are positive and significant in both groups but more so for the Hausa. Indeed Hausa women who work and control earnings are over three times more likely than other Hausa women to say NO more children. Although we expected that work/earnings control would have stronger effects among the Yoruba, it appears that those effects are strongest for the Hausa. This finding may occur for the same reason as noted above for the strong effects of secondary education -- Hausa wives who work and control earnings deviate significantly from their group's normative ideal of seclusion, and thus are more likely to differ from their peers in reproductive attitudes and behaviour.

In sum, after controlling for background factors, work and earnings control is a significant determinant of NO more children in both groups. The fact that the work/earnings effects are similar although the effects of other social indicators (e.g. urban residence and education) change provides strong support for our hypothesis. While we speculated above that wife's work and earnings control might be weaker among the Hausa, the findings show that its effects, as well as the effects of secondary education, are large in Hausa society. Those findings have to be put in the larger context of Hausa society which constrains the extent to which women are likely to obtain either formal education or access to work outside the home. Unfortunately, we cannot measure with our data whether the Hausa women who say they work and control their earnings are doing so within the confines of seclusion, i.e. not actually working outside the family compound. The data suggest,

however, that the form of seclusion practiced varies among the Hausa. Families who send their daughters to formal schooling or who allow wives to work would seem to be more open toward modernization influences.

The overall model fit is better for the Yoruba than it is for the Hausa considering that both samples are similar in size and that the chi-square statistic for the Yoruba (340.04) is much larger than that for the Hausa (93.34). Moreover, since Yoruba women are more likely than Hausa women to work and control their earnings (56.4%, see Table 1), the prognosis for fertility reductions is higher among the Yoruba.

Given that relatively small proportions of women in both groups want NO more children, we explored whether the findings could be a statistical artifact of how the relationships operate in the referent group. To explore that possibility, we use multinomial regression to analyze the determinants of the likelihood that a wife responds 'yes' or 'God's will' to the question 'how many (more) children do you want.' The referent group in these models is wives who responded NO more. To the extent that the effects of the covariates operate in the same direction and have comparable effects on the likelihood of a wife responding yes rather than god's will, then the approach followed in Table 3 of combining wives who want more children into a single referent category would be justified.

Table 4 shows that the determinants of the likelihood of saying 'yes' or 'God's will' are comparable to those reported for the logistic models and thus support the view that the key cleavage is between women who want NO more children and those who want more. In all four models of Table 4, the control variables show the expected relationships. Desire for more children decreases with age, number of live births and work/earnings control. Secondary education, or more, reduces the likelihood that wives say 'God's will' and those effects are strongest for the Yoruba. That level of education has no effect on the 'yes'

response for the Hausa but is associated with increased odds of that response for the Yoruba. Yoruba wives with secondary education or more are over twice as likely to say 'yes', they want more children as are women with no formal schooling.

The multinomial models offer strong support for the hypothesis that women's work and earnings control reduces the demand for children in that the odds of saying 'yes' or 'God's will' are lower among wives who work and control their earnings. Among the Hausa, wives who work and decide earnings are only 33 per cent as likely to say 'yes' to more children and only 32 per cent as likely to say 'God's will' as wives who do not work and/or do not control their earnings. Yoruba wives who work and control their earnings are also significantly less likely to say 'yes' to more children or 'God's will.'

The logistic and multinomial analyses of fertility preferences presented in Tables 3 and 4 are consistent and support the research hypothesis. Factors that are positively associated with NO more children are negatively associated with demand for more children. The effects of the covariates are in the direction expected in all of the models, although magnitude and significance varies. In particular, wife's work and earnings control has a strong effect on demand for children. Compared to women who do not work and who work but do not control their earnings, women who both work and control earnings are more likely in both groups to say NO more children and less likely to say 'yes' or 'God's will.' The effects of education are mixed but tend to be stronger among the Hausa.

In order to assess the robustness of our findings, we look at an additional question -- whether women's work and earnings control has any implications for future fertility? Table 5 uses OLS regression to estimate the determinants of number of additional children desired. Only wives who gave a numeric response are included in the analytic subsample (16.2% of the Hausa vs. 31.2% of the Yoruba). The average number of additional children

desired by those Hausa and Yoruba women is 3.31 and 1.36, respectively. Unstandardized coefficients for the OLS models are reported in Table 5, which follows the same approach as the models of demand for NO more children in that the same covariates are used, and combined, interaction and group models are estimated. Since the interaction model (Model 2) indicates that relationships vary in the two groups, we focus our discussion on models 3 and 4.

Number of additional children desired decreases with age, number of live children, and urban residence. Hausa wives with secondary education or more want over one child less than their counterparts with no formal education, a significant difference. However, education has no significant effect on number of additional children desired by Yoruba wives. Work and earnings control has a negative and significant effect on number of additional children desired by Hausa wives, and is in the expected direction but not significant for the Yoruba. Compared to wives who either do not work and/or work and do not control earnings, Hausa wives who work and control earnings want more than a child less (-1.08). Those findings are consistent with our previous findings but need to be interpreted with caution given the small number of women who gave numeric preferences.

Discussion

This study uses data from a 1991 survey of currently married women in Nigeria to examine how women's work and earnings control affect demand for children among the Hausa and Yoruba, two of Nigeria's largest ethnic groups. After reviewing ethnographic evidence regarding how gender roles differ in the two groups, we tested the hypothesis that the joint occurrence of work and earnings control increases demand for NO more children. We also examined whether those effects differ in the two groups by looking at the main and

interaction effects of ethnicity. The ethnic effects are significant in each of the models specified and, therefore, we estimate separate models of the determinants of demand for the two groups. In general, the models do a better job of explaining demand for children among the Yoruba than the Hausa, considering the larger chi-squares for the former (see Tables 3 and 4) and variance explained (Table 5). This is not surprising considering that overall demand for children remains high among the Hausa and that relatively few Hausa women have obtained formal education or work outside the home. The fact that ethnic group membership has a significant effect on the demand models presented in Tables 3 and 5 suggests that there are other dimensions of being Hausa and Yoruba that affect demand for children that have not been measured in our models.

In general, our findings offer strong support for the hypothesis that women's work and earnings control affect demand for children. Our measure of that dimension has a strong positive effect on demand for NO more children among both Hausa and Yoruba wives, a strong negative effect on demand for more children, and a negative effect on number of additional children desired. In most of the models, work and earnings control was found to be a more important determinant of demand than school attendance. Only among relatively highly educated Hausa women does formal education have strong negative effects on demand. Among the Yoruba, in contrast, education was not a good predictor of demand or number of additional children desired.

Both the ethnographic and empirical work supports the view that the practice of seclusion in Hausa society constrains women's access to education and participation in market work. Yoruba society, in contrast, has been more adaptive in allowing women to build on the trading and other public roles open to them in traditional society. Yoruba women are increasing their human capital (education), expanding their trading activities into

more highly capitalized ventures, and taking up modern sector employment in large numbers. Our findings show that access to work outside the home, particularly if wives are able to control their earnings, is negatively related to demand for children. While the effects of work and earnings control are similar for the Hausa, the substantive importance differs in that fewer Hausa women have access to formal education and/or work outside the family compound, and thus are not in a position to take advantage of changing socio-economic opportunities opening up in Nigeria. Our work suggests, however, that if Hausa women are given greater access to economic activities and to formal schooling, demand for children could be reduced significantly.

While the analysis supports our study hypothesis, it is important that work of this type be replicated and extended to other parts of Africa. In addition, further attention needs to be given to developing better measures of women's resource access and control at the household level and using those refined measures to look at variations in the proximate determinants of fertility. Our measure of earnings control is a relatively crude one and could be improved by incorporating information on other issues, such as whether women can inherit and control property, decide what type of crops to grow (cash or subsistence), and/or have access to credit and extension training.

The robustness of our findings suggests that measures beyond women's education and current employment should be included in demographic surveys in order to gain fuller information on other dimensions of women's lives that shape reproductive attitudes and behaviour. Improved understanding of which women are likely to be the innovators in changing their fertility behaviour could probably be obtained by including a handful of additional questions in standard surveys. Our work suggests that it is important to improve data on women's control over economic resources. In addition, further work is needed on

how social institutions of gender vary across Africa and are likely to affect women's access to and control over economic resources in the years ahead. For example, will our finding that work/earnings control shapes demand for children be replicated in East African settings where women's traditional roles in farming and trading have been constrained relative to those of women in West Africa? On the other hand, East African women have had higher access to education than women in West Africa and thus could follow a modernization path of fertility decline (Lesthaeghe and Eelens 1989; Caldwell, Caldwell, and Orubuloye 1992). Given that rates of contraceptive use are increasing rapidly in some parts of Southern Africa and in East Africa, further work is needed that assesses whether there may be distinct paths to fertility decline in the two regions.

The policy implication of our findings is that women's access to credit, job training and other market activities should be high on the agenda of agencies seeking to improve women's status and increase contraceptive use. In many parts of Africa, women have traditionally had some economic dependence from their husbands and control over their economic affairs. Development agencies should seek means of strengthening and extending women's traditional roles. Government policy efforts that focus on improving markets and expanding credit and other opportunities for women (land ownership, access to new technologies such as seeds and fertilizer, job training, etc.) should be explored as means both of advancing development and generating reduced demand for children. This conclusion does not negate the importance of expanding education and other services, as others have advocated, but suggests that the economic domain should not be ignored.

FOOTNOTES

1. This paper builds on the theoretical work of Mason (1984, 1986), Smith (1986), and Cain (1984) but space does not permit an indepth review of that work. Most research on women's status has attempted to clarify the multidimensional nature of that construct, specify possible links to the proximate determinants of fertility, and identify measures of those multiple dimensions. Empirical testing of the relative importance of different dimensions has, however, been limited. As such, we chose to focus on a single dimension of African women's status, their work roles and control of earnings because a strong substantive case can be made for the importance of this dimension for reproductive processes in the region.

2. The pervasiveness of patriarchy in Nigeria is so strong that it was even accorded official recognition in the Nigerian Population Policy (1987:19): "the patriarchal family system in the country shall be recognized for stability of the home."

3. At the time the survey was being designed and carried out, in early to mid-1991, a sampling frame was not available for Nigeria but one was then being constructed by the National Population Commission in order to carry out a national census in late 1991. We had access to the Commission's detailed maps of Enumeration Areas but no reliable estimates were available of the % urban and, as such, we devised a sampling strategy based on the assumption that at least 50% of the population was predominately rural and resided in small towns, that 25% of the population resided in metro regions and engaged in non-agricultural activities, and that the remaining 25% were located in intermediate sized urban areas (nucleated settlements larger than 10,000) which lack most urban amenities (e.g. electricity, piped water, paved roads, secondary schools, etc.) and in which most of the population is engaged in agricultural pursuits but with growing employment in non-agricultural work. Thus, our sampling strategy yields a population that is about 50% urban measured by population concentration (10,000 or more) but about 30-35% urban measured by engagement in non-agricultural activity.

4. Ondo State, the site of our Yoruba survey, is located in the Southeast of Yorubaland and, as such, has a lower proportion Muslim than other Yoruba areas. Christianity tends to increase as one moves south and east in Nigeria.

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Table 1: Indicators of Hausa and Yoruba women's demographic, socioeconomic and gender characteristics, married women aged 14-40

Indicators	Hausa	Yoruba	Combined
Wife's current age	26.3	29.8	28.0
% Polygamous union	29.3	36.4	32.7
% Muslim	98.6	20.7	60.5
No. Children ever born	3.1	3.1	3.1
No. Live children	2.4	2.8	2.6
% Ever used contraception	10.5	17.5	13.9
% Pregnant now	18.2	14.3	16.3
% Urban area	24.9	24.3	24.6
Education level			
% No Education or Koranic	85.7	32.7	60.0
% Some primary or primary complete	8.5	29.6	18.8
% Some secondary or more	5.5	37.2	21.0
Economic activity and resource control			
% Wife works & decides use of earnings	34.3	56.4	45.1
% Wife works & has final say on wife	80.8	52.6	67.0
% Wife works & has some say family	24.9	66.6	45.3
% Wife works & pays more expenses than	1.2	11.2	6.1
% Currently working	46.3	93.4	69.3
% Working as traders ^a	21.2	61.1	40.8
% Working as farmers ^a	11.2	68.7	39.4
Demand for more children			
% Who want no more children	5.6	16.6	11.0
% Saying 'yes' want more children	62.2	64.5	63.3
% Saying 'God's will' to more children	31.6	18.5	25.2
Number additional children specified	3.31	1.36	2.06
Sample size	1279	1229	2508

^a Trading and farming are not mutually exclusive categories.

Table 2: Percentage of Hausa and Yoruba married women who want NO more children

Indicators	Hausa	Yoruba
% wanting NO more children	5.6	16.6
Wife's current age (1 = 30 or more)	10.5	29.6
Polygamous union = 1	6.7	19.8
Muslim = 1	5.6	15.4
Children ever born (1 = 4 or more)	11.1	37.0
Live children (1 = 4 or more)	10.2	39.8
Urban area = 1	9.1	20.3
Education level		
No education or Koranic education	5.0	20.3
Some primary or primary complete = 1	7.4	19.7
Some secondary or more = 1	13.0	10.7
Economic activity and resource control		
Wife works & decides earnings = 1	9.1	20.7
Wife works & has final say on wife income = 1	6.2	13.9
Wife works & has some say family income = 1	7.8	18.5
Wife works & pays more expenses than husband = 1	14.3	45.7
Wife works = 1	7.8	17.5
Wife trades ^a	6.3	16.3
Wife farms ^a	7.7	17.7
Sample size	1279	1229

^a Trading and farming are not mutually exclusive categories.

Table 3: Logistic regression of demand for NO more children on wife's background and earnings control for Hausa and Yoruba married women in Nigeria (presented as odds ratios; standard errors in parentheses)

Independent Variables	Model 1	Model 2	Model 3	Model 4
	Combined Ethnic Groups	Ethnic Interactions	Hausa	Yoruba
Wife's age ^a	1.18 (.02)***	1.13 (.03)***	1.13 (.03)***	1.23 (.03)***
Urban area (1=yes)	2.04 (.35)***	1.78 (.61)	1.78 (.61)	3.02 (.70)***
Live children ^a	1.36 (.06)***	1.20 (.08)**	1.20 (.08)**	1.57 (.10)***
Polygyny (1=yes)	1.39 (.22)*	1.32 (.39)	1.32 (.39)	1.31 (.26)
Some primary education (1=yes)	1.57 (.32)*	2.53 (1.19)*	2.53 (1.19)*	1.31 (.31)
Some secondary education or more (1=yes)	1.71 (.39)*	6.82 (3.36)***	6.82 (3.36)***	1.40 (.36)
Wife works & decides earnings (1=yes)	2.11 (.34)***	3.09 (.93)***	3.09 (.93)***	1.76 (.35)**
Ethnic group (1=Yoruba)	1.96 (.39)***	.06 (.07)*		
Wife's age * ethnicity		1.09 (.04)*		
Urban area * ethnicity		1.70 (.70)		
Live children * ethnicity		1.31 (.12)**		
Polygyny * ethnicity		.99 (.35)		
Some primary education * ethnicity		.52 (.27)		
Some secondary education or more * ethnicity		.21 (.11)**		
Wife works & decides earnings * ethnicity		.57 (.21)		
Fit of model				
X ²	475.55	520.35	93.34	340.04
Degrees of freedom	8	15	7	7
Log likelihood	-586.18	-563.78	-207.16	-356.62
Number of cases	2370	2370	1220	1150

*** p<.001 ** p<.01 * p<.05; two-tailed test.

^a Measured as continuous variable.

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Table 4: Multinomial regression of demand for more children on wife's background characteristics and earnings control for Hausa and Yoruba married women in Nigeria (presented as odds-ratios; standard errors in parentheses)

Independent Variables	Hausa		Yoruba	
	Yes, want more vs. no more Model 1	God's will vs. no more Model 2	Yes, want more vs. no more Model 3	God's will vs. no more Model 4
Wife's age ^a	.84 (.02)***	.89 (.02)***	.79 (.02)***	.82(.02)***
Urban area (1=yes)	.66 (.26)	.55 (.19)	.74 (.19)	.22 (.05)***
Live children ^a	.72 (.06)***	.85 (.06)*	.63 (.05)***	.64 (.04)***
Polygyny 1=yes)	.66 (.23)	.77 (.23)	.72 (.17)	.77 (.15)
Some primary education (1=yes)	.75 (.39)	.36 (.17)*	1.34 (.41)	.71 (.17)
Some secondary education or more (1=yes)	.42 (.22)	.11 (.05)***	2.22 (.69)**	.46 (.12)**
Wife works & decides earnings (1=yes)	.33 (.11)***	.32 (.10)***	.62 (.14)*	.56 (.11)**
Fit of model				
X ²	179.65		535.19	
Degrees of freedom	14		14	
Log likelihood	-662.10		-860.87	
Number of cases	1220		1150	

*** p<.001 ** p<.01 * p<.05; two-tailed test.

^a Measured as continuous variable.

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Table 5: OLS regression (unstandardized coefficients) of number of additional children desired on wife's background characteristics and earnings control for married Hausa and Yoruba women who gave numeric response to 'how many more children would you like to have (standard errors in parentheses)

Independent variables	Model 1 Combined Ethnic Groups	Model 2 Ethnic Interactions	Model 3 Hausa	Model 4 Yoruba
Wife's age ^a	-.14 (.01)***	-.14 (.02)***	-.15 (.03)***	-.13 (.01)***
Urban area (1=yes)	-.81 (.17)***	-.96 (.32)**	-.96 (.44)*	-.53 (.14)***
Live children ^a	-.38 (.05)***	-.52 (.07)***	-.52 (.10)***	-.23 (.05)***
Polygyny (1=yes)	-.03 (.17)	-.02 (.31)	-.02 (.43)	.07 (.14)
Some primary education (1=yes)	-.18 (.22)	-.06 (.39)	-.06 (.55)	-.00 (.19)
Some secondary education or more (1=yes)	-.23 (.22)	-1.15 (.38)**	-1.15 (.54)*	.40 (.18)
Wife works & decides earnings (1=yes)	-.45 (.17)**	-1.11 (.30)***	-1.08 (.42)**	-.17 (.14)
Ethnic group (1=Yoruba)	-.58 (-.21)	-2.79 (.81)***		
Wife's age * ethnicity		-.01 (.03)		
Urban area * ethnicity		.44 (.37)		
Live children * ethnicity		.29 (.10)**		
Polygyny * ethnicity		.09 (.37)		
Some primary education * ethnicity		.06 (.47)		
Some secondary education or more * ethnicity		1.56 (.47)***		
Wife works & decides earnings * ethnicity		.94 (.36)**		
Constant	8.43 (.37)***	9.25 (.51)***	9.25 (.71)***	6.46 (.44)***
R ² adjusted	51.2	53.8	43.0	52.1
Number of cases	561	561	198	363

*** p<.001 ** p<.01 * p<.05; two-tailed test.

^a Measured as continuous variable.

Paper 2

Ethnicity, Gender and Fertility in Nigeria

by

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Ethnicity, Gender and Fertility Preferences in Nigeria

by

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ABSTRACT

This paper examines five ethnic groups -- the Hausa, Ijaw, Ibo, Kanuri, and Yoruba of Nigeria -- that differ in both their gender regimes and fertility preferences. The major issue addressed is whether group differences in demand for children can be explained by two factors: wife's human capital and wife's social and economic control, net of background controls. Multinomial logistic regression is used to estimate a series of pooled models, as well as separate models for each group. The findings indicate that demand for children is highest in groups that have the most restrictive gender institutions and that differences between the groups in fertility preferences are not eliminated after controlling for human capital and socio-economic control. Since ethnic groups appear to be responding differently to modernization forces, the authors conclude that they will also differ in the pace of their fertility transitions.

The dimensions of women's lives that shape reproductive attitudes and behavior remain unclear. Although most studies show that education has a negative effect on fertility preferences, no relationship or a curvilinear relationship have been observed in some contexts (Acsadi and Johnson-Acsadi 1990; Cochrane and Farid 1990). The effects of labor force participation and family structure vary by socio-cultural contexts (DeLancey 1990). Dixon (1993) and Mason (1993) identify several other dimensions of women's lives, including autonomy over their physical movements and control over reproductive decisionmaking, but empirical testing of those propositions is just beginning.

Several problems make it difficult to advance understanding of the dimensions of women's lives beyond education and work that may affect reproductive processes. First, most data sets do not have data on multiple dimensions of women's lives. For instance, data are rarely available in demographic surveys on issues such as whether women control their income and other economic resources, how patriarchal systems limit girl's access to education and women's work for pay, or how community context interacts with individual and household characteristics to shape reproduction. Second, a number of terms -- women's status, women's autonomy, women's position, among others -- have been used to refer to the dimensions of women's lives, beyond education and employment, that may shape fertility. While most scholars agree that no single term or index can capture the material and psychosocial aspects of households that underlie fertility decisionmaking, the fact that we are indeed talking about multiple dimensions of women's lives complicates the conceptual and analytical task at hand, especially when there is a limited empirical base to build upon.

A third complication arises regarding the appropriate study population. Mason (1993) and Smith (1989) note that the dimensions of women's lives needing further examination are attributes that vary across social aggregates or societies rather than across individual women in a given society and, as such, that studies are needed that compare several social groups or societies that vary in their social institutions of gender. In other words, only comparative research will allow us to sort out the relative importance of variations across social systems in gender institutions from those that differentiate women within societies, such as education and income. Indeed the latter, according to Mason's (1993) arguments, are in turn shaped by the gender institutions of a society. Studies that show gender inequality in educational attainment or other factors support the view that women's access to resources will be constrained by the social systems in which they are embedded (Kritz and Gurak 1989; Schultz 1994).

In this study we address these issues by examining the determinants of fertility preferences in five Nigerian ethnic groups that differ in their gender regimes and along other social and economic lines. We examine several dimensions of women's lives that vary both within and across these ethnic groups. From a conceptual standpoint, we use the term "women's control" to refer to dimensions that differentiate individual women -- work for pay and income control, mate selection, and decision-making inputs on number of children. In addition, we look at the

normative context of the ethnic groups and their areas of residence to determine the extent to which that context explains the observed ethnic differences and mediates the effects of our measures of women's control.

Looking at these processes in Africa may help us understand both Africa's fertility transition. The anthropological literature (Callaway and Creevey 1994; Oppong 1987) documents differences across African societies and ethnic groups in gender institutions. Until recently, those differences had little implication for fertility because high levels of mortality prevailed throughout the region (Lesthaeghe 1989). Signs of changing attitudes in Africa toward fertility have been noted (Acsadi and Johnson-Acsadi 1990; van de Walle and Foster 1990), as well as growing use of family planning. Change is also evident in the increasing levels of formal education but there are sharp differentials across Africa in gender inequality in education.

CONCEPTUAL ISSUES

Fertility preferences are usually treated as functions of individual preferences and variations in preference levels across countries and across time in the same country as functions of development levels (Amin 1995 et.al.). Less understood are the factors underlying ethnic differences at a given point in time in the same countries. Such differences have been observed in several countries (Anderson 1986; Kritz and Makinwa-Adebusoye 1994; Lim, Jones and Hirschman 1987; Yang and Zhu 1993) but their determinants remain poorly understood. In general, ethnic differences tend to be attributed to culture without specifying the dimensions of culture that might underlie them (Hammel 1990; Hayes 1994; Pollak and Watkins 1993). Although numerous factors might account for ethnic differences in fertility preferences, we explore one dimension in this study, the extent to which differentials within and across ethnic groups in women's social and economic control shapes reproductive attitudes.

Mason (1984; 1986; 1993) laid out several hypotheses regarding possible linkages between women's status and fertility, but empirical testing of those hypotheses offers mixed results. Hogan, Chamrathirong and Smith (1985), for instance, examined how the fertility of rural Thai women was affected by their social status and found "little support for theories of fertility that emphasize family resources, personal economic opportunities of the women...or the extent to which the wife influences decisions about the family economy." That finding may result from the fact that their data were drawn from a fairly homogeneous rural community. In such settings, women tend to be socialized the same way and encounter limited opportunity structures, which, in turn, reduces social status differences between women; nonetheless, Hogan et.al. (1985) did find lower rates of parity progression among Thai women holding beliefs supportive of sex role equality, a finding consistent with theories of gender status.

An analysis of Indian data (Jejeebhoy 1991), looked at linkages between women's status and fertility at two points in time and at the factors mediating that relationship. Findings from that study show that the effects of women's status on

fertility vary across time and become increasingly negative as the demographic transition proceeds, although the mechanisms through which those effects occur change. For instance, during the early stages of the transition, improvements in women's status are associated with fertility-enhancing forces (reduced lactation, improved fecundity) that are not fully countered by the fertility-reducing forces (decreased marriage duration, increased use of contraception). As the transition proceeds, two dimensions of women's status, education and spousal age gap, change in directions favorable to fertility reduction, operating to increase age at marriage and use of contraception.

Some studies have looked comparatively at the effects of variations across societies in women's social position. Florez et.al. (1991) addressed this issue by looking at the effects of women's status in their communities in four regions of Colombia. However, neither their measures of women's community status nor their measures of women's autonomy at the household level were important correlates of fertility. While they did find significant variations in fertility across the four subregions, they concluded that those differences could not be linked to the social organization of gender at the household, community, or regional levels.

In a study of the Yoruba and Hausa of Nigeria, two groups that differ sharply in gender regimes, Kritz and Makinwa-Adebusoye (1995) found that a lower demand for children among the Yoruba, a group that affords women some economic independence, but that women in both groups who work and control income have a lower demand for children than other women. Their findings highlight the fact that differences in gender institutions between societies do have implications for fertility.

The inconsistent findings reported above on the effects of women's status on fertility may be due to differences in research design and study contexts. Only two of the studies (Kritz and Makinwa-Adebusoye 1995; and Florez et.al. 1991) examine more than one social aggregate and only the former examines social groups that differ in their gender institutions. The rationale for looking at ethnic groups stems from the premise that institutions of gender are more likely to differ across social aggregates that have distinct histories, cultures, languages and religions rather than in those that differ only in production mode and/or ecology. Although the latter underlie important differences in employment structure, they may be less important for fertility than historical and cultural context. In the case of the Colombian study (Florez et.al. 1991), women in the four regions studied share a common Indo-Spanish culture and probably do not differ significantly in their gender institutions.

The Ethnic Context of Gender and Fertility in Nigeria

The five groups examined in this paper differ significantly in their gender institutions and historical experiences and retain distinct cultural traditions and separate languages. Although interactions occur across the groups, each has a separate territorial base and pursues its work and family life based on normative standards set by the group rather than national dictates. A rural way of life typifies all of them although the sustenance mode differs in accordance with the ecologies

of their regions of residence. The rural Ibos reside in dispersed farm settlements in the Eastern savanna (Imoagene 1990b:Vol.5); the Ijaw have traditionally relied on fishing in their Niger Delta homeland; the Yoruba developed a cluster settlement pattern in their homeland, which runs from the coastal rainforest region in the southwest into the savanna Middle Belt; and the Hausa and Kanuri reside in the semi-arid Sahelian region and historically were pastoralists but are cultivators today (Imoagene 1990a: Vol.1).

The organization of women's work and family life also varies across the groups. Since Hausa and Kanuri societies practice seclusion, any economic activities carried out by women in those two groups tend to be done from within the confines of the family compound (Hill 1972).¹ In contrast, the other groups not only allow women to work outside the family compound but expect them to do so. For instance, Yoruba society obliges women to feed themselves and their children and thus Yoruba women engage in a numerous income-generating activities. Moreover the type of work that women do varies across these societies. While Ibo women are primarily farmers, Yoruba and Ijaw women tend to be traders. Hausa and Kanuri women, in contrast, carry out work such as food processing or animal tending from within the confines of their compounds and rely on their children or husbands to be their sales agents (Coles and Mack 1991; Callaway 1992; Hill 1972). These differences in the organization of work, in turn, give women in the Yoruba and Ijaw groups more physical mobility and access to non-household economic and social resources than women have in the other groups. Allowing women to move about outside the household can expose them to other women who may have different ideas about reproduction and to networks and institutions (e.g. health services, schools, markets) that expand their resource base.

Economic and social control over resources varies across the groups. Since Yoruba women have obligations for food and some other household expenses, their society gives them control over their income -- a practice often identified as the source of the relatively high levels of economic independence of Yoruba women (Sudarkasa 1973). Ijaw women also have a great deal of autonomy over their households which some have attributed to the fact that fishing, the principal sustenance mode in the Delta region, takes husbands away for extended periods of time (Imoagene 1990d:78). Although Hausa and Kanuri societies restrict women's activities outside the family compound, if they do earn money, their societies allow them to control it. Hill (1972) notes that Hausa and Kanuri women need to generate money to provide dowries for their daughters. In Ibo society, in contrast, household income is pooled and, as such, their women have less control over their income (Isiugo-Abanihe 1994).

There are some differences between the groups in inheritance rules. While patrilineal inheritance prevails among the Yoruba and Ibo, bilateral inheritance exists in Hausa and Kanuri societies. Patrilocal residence exists in all of the groups except that the Ijaw also practice some matrilineal residence. Imoagene (1980d:83-5) traces the dual marriage system among the Ijaw to the extended absences of husbands; Ijaw wives also can divorce their husbands relatively easily if the latter fail in their marital

obligations. Since the Ijaw and Ibo reside in the same region of Nigeria, there tends to be more interaction and intermarriage between them than occurs between any of the other groups.

Since Nigeria's independence in 1961, economic and social change has been rapid but women in these five groups have been differentially affected. School enrollment rates of both girls and boys have increased rapidly in three of the groups (Ibo, Ijaw, and Yoruba), but two of the groups, the Hausa and Kanuri, resist formal education for their daughters. Hausa girls may receive some Koranic education, which teaches them how to read the Koran in Arabic but Kanuri girls are denied even that opportunity. In addition, women in Yoruba, Ibo and Ijaw societies have been moving into the formal labor market and increasing their informal market activity. As previously noted, only a small proportion of Hausa and Kanuri women engage in work activities outside the home.

Fertility preferences should be higher in Hausa and Kanuri societies because women in those societies have less access to formal education, trading, and other opportunities outside the home and, as such, traditional beliefs which favor high fertility should continue to prevail. In contrast, On the other hand, some women in all of the groups have benefited from modernization and, therefore, there should be differences within the groups, as well as between them, in women's access to education and employment that have implications for fertility.

DATA, VARIABLE MEASUREMENT AND MODEL SPECIFICATION

We use data from a 1991 survey of a sample of married women aged 15-45 in five ethnic groups, including the Hausa, Ijaw, Ibo, Kanuri, and Yoruba. The Hausa, Ibo and Yoruba are the three largest groups in Nigeria, each numbering between 12-20 million people; the Ijaw and Kanuri are smaller groups that number 1.5 and 2.5 million people, respectively. Together the groups represent about 60 percent of Nigeria's total population. The data were gathered using a two-stage, stratified, cluster-sampling strategy. At the first stage, stratification was based on ethnicity, identifying states constituted predominately by members of each ethnic group: Borno (Kanuri), Imo (Ibo), Kano (Hausa), Ondo (Yoruba) and Rivers (Ijaw). Within each state, at the second stage, Local Government Areas (LGAs), the equivalent of counties in the United States, were classified according to their degree of urbanization and four LGAs were selected that include: the state capital, a small urban area, and two predominately rural LGAs.² Households were randomly selected and a quarter of the interviews conducted in each of those areas. One eligible wife per household was interviewed. The sample sizes are: 1161 (Kanuri), 1255 (Ibo), 1220 (Hausa), 1153 (Yoruba), and 1263 (Ijaw).

We first describe how the ethnic groups differ in their fertility preferences and in women's control over their economic and social affairs. Then we use multinomial logistic regression to evaluate whether ethnic differences in fertility preferences can be explained by two subsets of explanatory variables: individual indicators of wife's

economic and social control and aggregate indicators of the social context of the areas where the respondents live.

Variable Measurement

The concept of demand for children remains elusive in sub-Saharan Africa where surveys show that most women respond to questions on desire for future births by stating "god's will" (van de Walle 1992; Bongaarts 1990). However, Acsadi and Johnson-Acsadi (1990) note that growing numbers of African women are giving definitive answers to questions on ideal and desired number of children although the numbers doing so varies across countries and groups.

We examine the determinants of three types of fertility preferences: (a) women who responded "no more" to the question "Do you want to give birth to more children" (19.1% of the sample gave that response); (b) women who responded "more" and who gave a numeric response to a subsequent question, "How many more children would you like to have" (25.9%); and (c) women who responded "god's will" to both of these questions (55.0%). To measure wife's economic and social control, we look at several dimensions of women's lives that should affect reproductive processes, namely their work and income control, their conjugal relationship, and their decision-making inputs (Blumberg 1991). Five dummy variables measure these concepts. Work for pay before marriage, our first indicator, captures young women at a formative point in the life cycle and should make them more aware of the economic independence potentially available through work for pay. We then asked women whether they were working for pay at the time of the survey and, if so, "what is the main kind of work you do now to earn money? The bulk of the women said they were engaged in farming (___ %), followed by trading or trade-related work (e.g. preparing foods for sale). To determine whether type of work shapes fertility preference, we use a dummy variable set equal to one if the respondent said she worked as an employee or employer (). If conflict exists between These women contemporary measure of women's work activity is a dummy variable set equal to "1" if the wife was working at the time of the survey and responded affirmatively to the question "do you usually decide how your earnings are used." We look at income control, in addition to work status based on reasoning that work alone is not the critical factor likely to determine fertility preferences but whether women perceive that they have some control over the money they obtain from working. If women give their earnings to husbands, in-laws or others, they may perceive work differently than if they keep them.

Women's social control over family affairs, particularly areas related to reproductive matters, should have implications for fertility. We use mate selection to capture that dimension and expect wives who choose their own husbands to have greater control over their reproductive affairs than those whose parents made that selection for them. Although it is likely in most African societies that parents have some input into mate selection, we assume that women who perceive that they made that choice will be more likely to think that they are in control of other dimensions of their lives. That measure equals "1" if the wife responded "I chose him" to the

question "Did you choose your current husband or did your parents choose him for you?" Wife inputs into family decision making, our fourth measure, is measured by a dummy variable set equal to "1" if the wife said yes to "Do you have any say in the number of children you and your husband have?" We expect all four measures of wife's economic and social control to be positively related to modern fertility preferences.

We examine the effects of wife's human capital in the analysis using two measures: area of residence and education. Studies usually find negative relations between those measures and reproduction (Acsadi and Johnson-Acsadi 1990). Urban residence may increase women's exposure to other women who have modern "ideas" about reproductive behavior and family size. Access to social services, including education and family planning, is also disproportionately located in large urban areas in most African countries (Makinwa-Adebusoye 1991; World Bank 1989). Urban residence is defined conservatively in this study, as residence in the state capital.

Because of the non-linear relationship of education to demand for children and to fertility, observed by Acsadi and Johnson-Acsadi (1990) and others (Cochrane and Farid 1990; Ainsworth and Nyamete 1992), we include education in our models as a categorical variable and evaluate the effects of three educational patterns -- Koranic education, attended or completed primary, and attended or completed some secondary or higher level of education. Each educational type is measured as a dummy variable set equal to one and never attended school is the referent category.

Four variables are included as demographic controls in our models: wife's age, number of live children, current pregnancy status and polygyny status. Age is expected to reduce demand for children because older women will already have large numbers of children and have competing uses for their time, such as care of children, work, or social obligations. In addition, women in some groups, such as the Yoruba, have social taboos against sexual relations after they become grandmothers. To reduce sample loss for missing age data, we use the wife's age given by the husband, if the latter was interviewed, or calculate it based on information given by respondents on their age at marriage and marriage duration. Those changes reduced the sample loss due to age to 3.9 percent. Acsadi and Johnson-Acsadi (1990) found that number of children reduces demand for more children in Africa, as it does in other regions. Since child loss differs across the groups, "number of live children," measured as a continuous variable, is used in the analysis to enhance comparability. A dummy variable for current pregnancy status is included as a control variable given that women in pronatalist cultures are unlikely to say they want no more children if they are already pregnant.

Variable measurement rules along with the full sample means and standard deviations are specified in Table 1, and means and standard deviations for the five ethnic groups are provided in Table 2. All of the covariates are measured as dummy variables, except age and number of live children. Examination of the zero-order correlation matrix reveals no collinearity problems.³

[Table 1 About Here]

DETERMINANTS OF FERTILITY PREFERENCES IN NIGERIA

Group Differentials

Figure 1 shows that the fertility preferences of wives in the five groups vary considerably. In general, wives in the two Northern groups, the Hausa and Kanuri, give traditional responses, i.e. that more children is up to god or, if they want more, that the number of additional children is up to god. In contrast, Ibo and Ijaw wives tend to give modern responses, i.e. that they want no more children or they give a specific number if they want more -- 45 percent of the Ijaw and 41 percent of the Ibo give the latter response but only 15 percent of the Hausa and 7 percent of the Kanuri do so. Yoruba wives tend to give more modern responses than the Hausa and Kanuri but more traditional ones than the Ibo and Ijaw.

[Figure 1 About Here]

The means in Table 2 indicate that the groups also differ significantly in their demographic and social characteristics, in directions consistent with Ethnographic work. Educational levels are relatively high among the Ibo and Ijaw but low among the two Northern groups -- 59 percent of Kanuri wives have no education. Hausa wives have relatively low rates of no education (26%) but the highest rates of Koranic education (59%). The groups also differ sharply on religious status -- the Hausa and Kanuri contain few non-muslims and the Ibo and Ijaw are predominately Christians. As such, we do not include religious status in our analysis but do, later in the analysis, explore the importance of religion for fertility preferences among the Yoruba, since that group is diversified along religious lines.⁴

[Table 2 About Here]

Women's control over their economic and social affairs varies considerably across the groups. While 61 percent of Yoruba wives worked before marriage, only 3 percent of Kanuri wives did so. Ijaw wives, however, are most likely to be working today and in control of their income, followed by the Yoruba and then the Hausa. Although a relatively high proportion of Ibo wives work (69.3%, data not shown), as previously noted, the normative structure of the Ibos dictates that husbands control household income (Isiugo-Abanihe 1993) and our data reflect that norm in that only 28 percent of Ibo wives who work say they control their income (Table 3). In contrast in Hausa and Kanuri societies, although wives tend not to work, if they do obtain income, they control it. For instance, only 21.5 percent of Kanuri wives work but 81.5 percent of those who do say that they control their earnings, as do 80.4 percent of Hausa wives who work (not shown). Only Ijaw and Yoruba societies, however, have a predominance both of women who work (81% of wives work in both groups) and control their income -- 82 and 69.9 percent, respectively.

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The two measures of wife's decision making -- whether the wife chose her husband and whether she has a say on family size -- show that wives in the two Northern groups, the Kanuri and Hausa have the least control over those decisions. In contrast, Ijaw and Yoruba wives usually choose their husbands and Ijaw wives are the most likely to have a say on family size (77%). Most Ibo and Yoruba wives also have a say on family size, 70 and 71 percent, respectively, but only 13 percent of Hausa wives and 12 percent of Kanuri wives give that response.

The groups also differ in their demographic characteristics. Number of live children is highest among the Ibo and Ijaw and lowest among the two Northern groups, reflecting differential child loss (not shown). Only 9 percent of Ibo wives are in a polygamous union compared to at least one in five Hausa, Kanuri, and Yoruba wives. Although the 1991 DHS found the highest levels of polygyny in the North, our data show slightly higher levels for the Yoruba, a southern group.⁵ That finding may occur because the DHS data are not disaggregated by ethnicity and, therefore, not directly comparable to ours. Levels of urban residence are about the same across the groups, which is why we drew 25 percent of each group's sample from the capital of the state in which we did our work.

[Table 3 About Here]

Table 3 shows bivariate relationships between each of the covariates and the four fertility preference outcomes. Correlates of increased demand for no more children include: age, number of live children, urban residence, and the four measures of wife's control over economic and social affairs. In contrast, traditional up-to-god responses tend to be given by wives who are muslim and have Koranic education. Wives in polygynous unions are also significantly more likely to give traditional responses. Pronatalist norms prevail in that only a small percentage of pregnant wives give the no more children response (2.1%). The second modern response (want more children and give a number) tends to be given by wives who score high on wife's social and economic control and/or on human capital. Wives giving that response also tend to be younger, which is not surprising in a natural fertility context.

Figure 2 shows the relationship of age to fertility preferences and confirms the approach taken in this paper of looking at preferences as four discrete outcomes. As expected, older wives are considerably more likely to give the no more children response and very unlikely to say they want more children but the number is up to god. In contrast, women who give the traditional response of god's will are not sharply differentiated by age. However, the percentage of women who give the second traditional response -- that they want more children but the number is up to god does decrease sharply by age.

[Figure 2 About Here]

Explaining Ethnic Differences in Fertility Preferences

Table 4 shows the results of our multivariate analysis of the determinants of fertility preferences.⁶ Model 1 includes only dummy variables for ethnic status, using Kanuri wives as the referent group and provides a baseline for assessing the importance of group gender regimes for fertility preferences. Inasmuch as the Kanuri have the most restrictive gender institutions, comparisons between them and the other groups allow us to evaluate the importance of gender regimes for fertility preferences. The rankings of the four groups relative to the Kanuri in Table 4 are consistent with the ethnographic analysis and descriptive data presented above. For instance, the Ijaw and Ibo, groups in which wives have relatively high human capital and control over their economic and social affairs, are significantly more likely than Kanuri wives to give fertility responses that reflect a modern outlook -- Ijaw wives are almost 31 times more likely, and Ibo wives 28 times more likely, than Kanuri wives to say "no more children" (Panel 1, Model 1). Yoruba wives gave that response less than the Ijaw or Ibo but significantly more than the Kanuri. Even the zero-order odds for Hausa wives differ significantly from those of the Kanuri.

Comparing the rankings of wives who want more children and give a number (Panel 2, Model 1 of Table 4), a similar pattern and ranking can be noted -- Ijaw and Ibo wives are more than 25 times as likely as Kanuri wives to give that response and the Hausa are slightly more likely to do so. The third response, i.e. the wife wants more children but the number is up to god (Panel 3), is also less likely to be given by Kanuri wives although the differences between them and the other groups are not as great as for the modern responses. This finding suggests that the cleavage between wives who give the two traditional responses is not as large across the groups as it is between women who give modern versus traditional responses.

[Table 4 About Here]

Models 2 and 3 retain the ethnic group dummies but are estimated with two other subsets of variables -- wife's human capital and wife's control over economic and social affairs, respectively, in addition to demographic or background controls. These models allow us to evaluate whether the ethnic effects observed in Model 1 are attenuated by wife's social characteristics, net of her demographic characteristics. A finding of significant remaining group differentials provides indirect support for the proposition that it is not only the levels of resources (human capital; social control) available to women that have implications for fertility but also how those factors, and other unmeasured aspects of the groups' gender regimes, shape responses.

Wife's Human Capital

Wife's human capital does attenuate ethnic group differences in the odds of saying "no more children" (Panel 1, Model 2) but not the odds that wives want more children and specify how many (Panel 2, Model 2). However, the group rankings of wives does not change from that observed in Model 1 -- Ijaw wives still have the largest odds ratio, relative to the Kanuri, followed by the Ibo, Yoruba, and Hausa.

In other words, even if Kanuri wives had the same levels of human capital as their counterparts in other groups, they would still be significantly less likely to give modern fertility responses.

The control variables for demographic and other background factors have strong and significant effects on fertility and, as expected, those effects vary across the preference categories. For instance, with each additional year of age, women are 1.1 times more likely to say no more children (Panel 1) but 8 percent less likely to give the second modern response, i.e. that they want more children and to give a number (Panel 2), and 6 percent less likely to give the traditional response (Panel 3). This finding is consistent with the relationship observed between age and preferences in Figure 2. Number of live children has a similar relationship to preferences -- as that number increases, the odds that wives say no more children increase while their odds of saying that they want more children decrease (both Panels 2 and 3 responses). Also, as previously observed in Panel 1, pregnant women tend not to say "no more" and to affirm that they want the child they are bearing.

Polygyny has no relationship to either type of modern response but increases the odds that women say they want more children but the number is up to god (Panel 3). That finding is consistent with the view that wives in polygynous unions may compete with each other to have more children in order to enhance their status within the household (Ware 1981).

The two measures of wife's human capital show the expected relationships to modern fertility preferences (Model 2, Panels 1 and 2). Women residing in urban areas give modern preference responses as do those with some secondary education or higher. For instance, the latter are 2.8 times more likely than women with no education to say "no more children" (Panel 1) and 4.4 times more likely to say they want more and specify the number (Panel 2). Wives with primary education also tend to give those responses but wives with Koranic education are less likely to do so.

A comparison of Panels 2 and 3, Model 1, confirms our approach of disaggregating fertility preferences of wives who want more children by whether wives give traditional or modern responses to a subsequent question on how many more children they want. Those two panels show that the effects of human capital on the fertility preferences of wives who want more children and state how many, the modern response (Panel 2), differ from those who give the traditional response of god's will (Panel 3). While both of those two groups of women give similar responses if they are younger, have fewer children, or are pregnant, they give diverging ones on the human capital measures. For instance, urban residence and primary/secondary education have positive effects on the Panel 2 response but the former has no effect on the Panel 3 response. In addition, the education effects differ -- wives with Koranic education or primary education are less likely than their counterparts with no education to say they want more children but the number is up to God.

Wife's Social and Economic Control

The four measures of wife's control over selected economic and social aspects of their lives also alter the zero-order odds ratios of the groups (Model 3). Similarly to the effects of human capital, the wife's control measures attenuate the Panel 1 group differences in the odds of saying "no more" children but have little effect or even increase the odds ratios for the groups in the other two panels. Indeed addition of these variables to our model renders insignificant the differences between Hausa and Kanuri wives in the odds of saying no more and reduces the Yoruba odds ratio from 10.84 to 2.82 (Panel 1). Thus, if Kanuri wives had greater control over their social and economic affairs, their odds of giving modern preference responses would converge toward those of wives in the other groups, with some exceptions (e.g. the Ibo, Panel 2). At the same time, the specific measures of wife's control used in Model 3 tend to be slightly less important than the measures of wife's human capital (Model 2) for fertility preferences in that the chi squared statistic is higher for Model 2 and the log likelihood statistic is lower.

Although the direct effects of the four measures of wife's control are smaller than those for group membership itself, the directions are as expected. All four measures have positive effects on responses of "no more" and three of the four have that effect on the second modern response (Panel 2). For instance, wives who indicate that they have some say in number of children are 1.87 times more likely to say "no more" children and those who are working and control their earnings are 1.46 times more likely to do so. Panel 2 shows that wives who choose their own husbands are 2.19 times as likely to want more children, and give a number, as those who did not make that choice. Moreover, work before marriage increases the odds of that response. While the two work measures do not differentiate women who give traditional responses, mate selection increases the Panel 3 response, wants more children but number is up to god, but wife say on family size decreases it.

Model 4 allows us to evaluate the joint effects of wife's human capital and social and economic control on fertility preferences. Panels 1 and 2 of that model show further attenuation in the odds of modern responses between the Kanuri and other groups. In one case, between the Hausa and Kanuri for the "no more" response, the group differences are eliminated, although they increase between those two groups on the second modern response (Panel 2). In contrast, controlling for both women's human capital and their social characteristics increases differences between Kanuri wives and those in the other groups who give traditional responses (Panel 3). Net of women's social and demographic characteristics, Kanuri wives are significantly more likely than wives in other groups to say more children is up to god.

The effects of the measures of background and human capital on fertility preferences are comparable to those reported for previous models. However, there are some shifts, albeit small, in the effects of the four measures of wife's control. For instance, the effects of work and income control on the odds of "no more" children, net of human capital, increase in Model 4 while those for the social control measures decrease (Panel 1), and the effects of mate selection become stronger for the Panel

2 response. These shifts suggest that there is some association between these measures and wife's human capital and, therefore, we explore selected interactions between wife's human capital and control over their affairs in Model 5.

Interactions should be present in a context of rapid social change, such as characterizes Nigeria today, because women are differentially exposed to modern influences. Younger women and those residing in urban areas should have the highest exposure to modern influences while those who are older or reside in rural areas should have the lowest exposure. To explore this possibility, we add four interaction terms in Model 5. The first multiplies age by live births and allows us to evaluate whether wives who are both relatively older and have a higher number of live births are less likely to give modern fertility responses inasmuch as they are more traditional in outlook. The other interaction terms multiply urban residence by three of the four measures of wife's economic and social control based on reasoning that it is not just whether women have such control but, in the case of work, where they work and whether that context gives them the opportunity to expand their income-earning activities. In the case of wife say on family size, context may also be important. Urban areas, for example, should be more likely than rural ones to expose women to emerging ideas about fertility control.

The findings in Model 5, Table 4, support this reasoning. The interaction term for age by live births is negative and significant in Panel 1 while those for urban residence by wife's social and economic control are positive. This finding indicates that although the direct effects of age and number of children on the "no more" response are positive and significant, if women are both older and have a large number of children, they are significantly less likely to give that response. In other words, they hold more traditional fertility preferences, as expected. The effects of urban residence combined with women's control also have the expected effects. Wives who have control over their economic and social affairs (work control and number say) are over twice as likely to say "no more" children if they live in the capital of their state. Indeed the fact that the fixed effects of urban residence and work/earnings control are no longer significant indicates that it is the synergy between these two factors that reduces demand for children.

Findings for Panels 2 and 3, Model 5, provide support for the role of context in shaping the effects of women's control on fertility preferences. The interaction term of greatest importance for wives who say that they want more children is whether they worked before marriage and live in an urban area (odds ratio of 2.24 in Panel 2 and 1.98 in Panel 3). For the Panel 2 response, including the interaction terms in the model allows the measure of work and earnings control to become significant but cuts the significance of wife say on family size. In contrast, in Panel 3, wife say on family size no longer has a direct effect on fertility but does if wives both have that say and live in their state's capital.⁷

Group Differences in Response to Social Characteristics

The finding of significant group differences in fertility responses, net of wife's human capital and economic and social control, suggests that the five groups may

also differ in how they respond to these characteristics of wives or that their slopes differ as well as their means. In other words, do the groups differ in how resources such as education or work affect fertility preferences? Our basic tenet is that they do. We explore that possibility by estimating a full interaction model that includes all of the fixed covariates examined in Model 4 of Table 4.

As discussed in the theory section, there are numerous reasons to expect group differences in determinants of fertility preferences. The effects of age, number of live children, and urban residence, for instance, should be stronger in groups that give women more opportunity to pursue work and other activities outside the home. Since most work available to Nigerian women is in the informal sector, education may play less of a role in determining access to work in groups that are less gender restrictive than it will for Hausa and Kanuri women who traditionally have not worked in the informal sector. In contrast, Ibo, Ijaw and Yoruba societies have traditionally given women some public roles and their women should be able to build upon those roles in a context of economic and social change. A finding of relatively strong effects for age and live births for the Ibo, Ijaw and Yoruba groups would be consistent with that idea. For the Hausa and Kanuri, in contrast, while we expect that factors such as age and live children will operate in the same direction as they do in the other groups, their effects will be weaker. On the other hand, the effects of education on modern preferences may be stronger for Hausa and Kanuri women because of the selectivity associated with which women in those societies are likely to receive any education.

[Table 5 About Here]

To explore these ideas we estimate a series of models that allow us to evaluate the relative importance of both the fixed effects of the subsets of variables examined in Table 4 (Panel A, Table 5) and the interactive effects of those variables (Panel B). A standard model chi-squared test ($-2|L_1 - L_0|$) is used -- larger test statistics indicate that the set of covariates excluded from the model have the greatest effect on preferences. All of the model tests are highly significant (.0000 level) and indicate that gender regimes are important determinants of fertility preferences.

The chi-squared test statistics in Table 5 show that ethnic group membership has the largest effect on preferences, after the demographic control variables. Moreover, the fact that the interaction effect of ethnic group membership more than doubles (compare Model 3 in Panels A and B) indicates that the slopes of the covariates on preferences vary considerably across the groups. Wife's human capital and her social and economic control also make significant contributions to both sets of models although the effects of the former are larger. The effects of both wife's human capital and economic/social control increase by about a third in the interaction model tests (Panel B), a less dramatic increase than for ethnic group membership.

[Table 6 About Here]

Table 6 presents separate models for the five ethnic groups and allows us to explore in more detail how the effects of wife's social characteristics vary by group. We include the main covariates examined in Table 4 but combine Koranic education with no education because only wives in the two Northern groups (Hausa and Kanuri) experience that event. The three interaction terms between urban residence and wife's economic and social control are included in those models because we expect that they will shape preferences within the groups in ways comparable to those discussed above for the pooled models.

The findings for Panel 1 (no more children) indicate that live children increases the odds of that response and that the effects are stronger for the three groups that are less restrictive on gender. However, while age has its strongest effect for the Yoruba, consistent with our reasoning, its effects are about the same for the other groups. The effects of wife's human capital and economic and social control on "no more" children differ across the groups. The findings for the Hausa and Kanuri are consistent with the point noted previously that in gender restrictive societies, change will start first among women who obtain access either to human capital or some other non-traditional form of economic and social control. For instance, Hausa wives with primary or secondary education are more than three times as likely to say no more children as Hausa wives with no education. While the odds ratio for secondary education is positive and approaches significance for the Kanuri, the measures of wife's economic and social control take on greater importance in that group. Kanuri wives who work and control their income, a rare event, are 3 times more likely than their counterparts to say no more children.

Wives who say they want more children and give the number are examined in Panel 2 of Table 6. Age and live children decrease the odds of that response and the effects of age are strongest for the Ijaw and weakest for the Hausa. The effects of number of live children are strongest for the Ibo -- the latter are 32 percent less likely to give the numeric response with each additional child. Urban residence has no effect on the odds of the numeric response for Hausa and Kanuri wives but increases the odds of that response by 7.4 times for the Yoruba. The strong urban effect for the Yoruba may be linked to the fact that the trading work traditionally carried out by Yoruba women can be done best in an urban context. Secondary education increases the odds of a numeric response in all five groups but has its strongest effects among the Kanuri and Yoruba. Two of the measures of wife's economic and social control (worked before marriage and mate selection) increase the odds significantly that Hausa women give the numeric response, but do not affect the odds of that response for Kanuri and Ibo wives. Hausa wives who both live in and urban area and work and control their income are 5 times more likely to give the Panel 2 response. The effects of wife's control differ for the Yoruba in that wives who work and control income are less likely to give the numeric response than they are to say god's will. This somewhat surprising finding may be linked to the prevalence of work among Yoruba women and the fact that most of those women are engaged in traditional trading activities.

The third panel of Table 6 compares the two groups of wives in each group who give traditional responses. The key covariates shaping those responses differ across the groups. Only number of live children has a strong and negative effect on the Panel 3 response in all of the groups. Moreover, except for the Hausa, age decreases the odds that wives say they want more children, but the number is up to god. Urban residence has a strong positive effect for the Hausa, as does mate selection. Among the Ijaw, in contrast, work and income control and mate selection are the critical factors. Work and income control significantly decreases the odds that Yoruba wives give the Panel 3 response but polygyny significantly increases it.

Ideally we would like to evaluate the efficiency of the model in explaining fertility preferences in each of the groups but there is no conventional measure that allows us to do so. In Table 6, bottom row, we show the Pseudo R^2 in order to obtain some overall understanding of the efficiency of the model for the five groups. Hanushek and Jackson (1977) caution that this measure does not substitute for more careful evaluation of the strength of the coefficients and evaluation of change based on the log likelihood ratios themselves. The Pseudo R^2 s indicate that the model provides a better fit for the Ijaw and Ibo data, followed by the Yoruba, Kanuri and Hausa. That finding is not surprising given the concentration of preferences among the Hausa and Kanuri in the god's will categories and the limited extent to which women in those groups have been able to benefit from formal education and work outside the home.

The final issue addressed is whether the cultural source of the differences between the groups can be traced to religion. In other words, do differences in religious beliefs and practices lead to the differentials observed? A variable for religious status was not included in our models because, as previously noted, five of the groups are almost completely homogeneous along religious lines. The Yoruba sample, however, is 20 percent muslim, which affords us an opportunity to explore whether Yoruba muslims differ from Yoruba Christians in their fertility preferences. A multinomial logistic model was estimated with the main covariates included in Table 6 and a dummy variable set equal to one for Yoruba muslims. The findings (not shown) indicate that Yoruba muslims do not differ from Yoruba Christians in their fertility preferences. No significant differences by religion are found for any of the response outcomes and the odds ratios for the main covariates remain the same. Thus those findings support the argument developed in this paper that differences in the organization of gender across the groups are more likely to be the source of differences in fertility preferences than other cultural factors such as religion.

DISCUSSION

In the paper, we examine five ethnic groups in Nigeria that differ in both their gender regimes and fertility preferences and evaluate whether differences between the groups in preferences can be explained by two factors: wife's human capital and wife's social and economic control, net of background controls. The findings provide strong support for the study hypothesis that variations in gender regimes do have implications for fertility preference. Not only were large group differences in

demand for children between the Kanuri, the group with the most restrictive gender institutions, and wives in the other groups not eliminated after controlling for wife's human capital and economic/social control, they increased for some groups and response outcomes. Net of social characteristics, wives in groups that allow women more autonomy (e.g. the Ijaw, Ibo and Yoruba) are significantly more likely than the Kanuri to express modern fertility preferences and to say that they want "no more" children. Differences in that response between the Hausa and Kanuri, the two most similar groups on gender institutions, however, are accounted for by wife's social characteristics.

We suggested at the outset of the paper that gender regimes within ethnic groups would shape the extent to which women are able to take advantage of expanding educational and work opportunities and our findings support that idea. Although Nigeria has made major investments throughout the country since independence in building schools and experienced an economic boom in the 1970s and early 1980s, following the discovery of oil, women in the five groups studied have not responded the same way to those changes. Indeed, our study shows that formal education of women remains a rare event among the Kanuri and Hausa but is near universal among the Ibo and Ijaw. Our analysis suggests that the reasons for low education can be found in the gender regimes that prevail in the groups themselves rather than in lack of service availability. While the latter has not been examined in our analysis, World Bank (1989) reports indicate that government investments have been either evenly distributed throughout Nigeria. In other words, if schools and jobs are as available in Northern Nigeria as they are elsewhere in Nigeria, Hausa and Kanuri women's limited participation in those activities cannot be attributed to service inequities and lack of opportunity.

Assuming that increased numbers of Hausa and Kanuri women do obtain access to education and work, our work suggests that there would be positive implications for fertility preferences and, by extension, for Nigeria's fertility transition. Indeed, our findings suggest that wife's human capital and economic/social control may be more important for modern fertility preferences among the Hausa and Kanuri than they are for the other three groups. For instance, primary and secondary education are the most important determinants of whether Hausa wives say "no more" children while work and income control and wife say on family size are the key factors for the Kanuri.

At the same time, some aspects of wife's human capital and economic and social control are important for preferences in all of the groups, although the relative importance of the key factor varies. As just noted for the Hausa and Ijaw, several human capital and socio-economic control factors have strong effects on their fertility preferences. In all of the groups, however, some secondary education has a strong and significant effect on the numeracy response (Panel 2, Table 6) and on the "no more" children response (Panel 1) for four of the groups. The robustness of the findings is also reflected in the fact that the direction of the human capital and control covariates is usually positive, as expected, even if not significant. Only in the case of the Yoruba does one of those covariates have a negative and significant effect

on fertility preferences -- Yoruba wives who work and control income are significantly less likely to give the numeracy response than wives not in that situation (Panel 2 in Table 6). Why that unexpected finding occurs is unclear but may be linked to the pervasiveness of trading activity in that group and the fact that trading tends to be done by women who have relatively little formal schooling.

Since the sources of group differences appear to rest in the cultures and gender organization of the ethnic groups themselves, what are the implications for Nigeria's fertility transition? Our work suggests that ethnic groups will proceed through that transition on somewhat different timing and that change will come later to the Hausa and Kanuri. Government efforts directed toward educating fathers about the importance of enrolling their daughters in school might speed up that process. On the other hand, gender institutions are resistant to change and fathers may as well be convinced by the rapid growth of a market economy and society in Nigeria that a more efficient utilization of all family labor is required to survive.

FOOTNOTES

1. Estimates of seclusion vary. Generally seclusion is considered to vary directly with income and social class and to be higher in urban areas.
2. We used the sampling frame constructed by the National Population Office in mid-1991 for Nigeria's late 1991 census. Since reliable estimates of the % urban were not available, we assumed that at least 50% of the population was predominately rural and resided in small towns, that 25% of the population resided in metro regions and engaged in non-agricultural activities, and that the remaining 25% were located in nucleated settlements of 5-10,000 in which most of the population lack urban amenities (e.g. electricity, water and sewer systems, paved roads, secondary schools, etc.) and are engaged in agriculture or agriculture-related work. The interviews were conducted in the local language by young women who belonged to the given ethnic group. All interviewers participated in a one-week training program.
3. The highest correlation between any two main covariates was .5406 (age and number of live births), followed by .2726 (secondary education and chose of husband) and .2069 (age and work and control earnings). As expected, some of the correlations between categorical variables are high (e.g. -.2760 between secondary education and Koranic education and .6158 between Koranic education and Hausa).
4. The proportion muslim in our sample is lower than the estimated 50 percent muslim for the Yoruba as a whole. That is due to the fact that Ondo State, our survey site, contains fewer muslims than other Yoruba states that are located more to the West and North.
5. The Nigeria Demographic and Health Survey (1990) reports polygyny levels of 49.7% in the Northwest (Hausas predominate in that region) and 38.4% in the Southwest (homeland of the Yorubas).
6. The relationship of the covariates to the dependent variable are summarized using odds-ratios ($\exp[b]$) that express the relative likelihood of the given preference outcome. An odds-ratio of 1.0 is equivalent to no relationship, ratios greater than 1.0 indicate increased likelihood of the response, and ratios less than 1.0 indicate reduced likelihood. If the covariate is coded as a dummy variable, the reference is to the omitted category. In the case of continuous covariates (wife's age, number of live children), the comparison is made at the mean and odds ratios express the effect of a unit change in the covariates.
7. It cannot be assumed that work before marriage occurred in an urban area since the two measures that form the interaction term represent different time frames.

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Table 1: Variable measurement, sample means and standard deviations for analysis variables

Variable	Measurement	Mean	Standard Deviation
<i>Background Controls</i>			
Wife's age	continuous variable in years	28.56	6.78
Number of live children	continuous variable for number of children	3.0	2.18
Pregnant now	1=yes to "Are you pregnant now?"; 0=no	.15	.36
Polygyny status	1=yes "Does your husband have any wives besides yourself?"; 0=no	.25	.43
Muslim	1=wife is muslim; 0=christian or other	.43	.50
<i>Human Capital</i>			
Urban residence	1=wife lives in state capital; 0=semi-urban or rural residence	.25	.43
No education	1=wife has no formal education; 0=else	.28	.45
Koranic education	1=wife has some Koranic education; 0=else	.16	.36
Primary education	1=wife has some primary education; 0=else	.25	.43
Secondary education	1=wife has some tertiary or secondary education; 0=else	.31	.46
<i>Economic and Social Control</i>			
Worked before marriage	1=wife worked before marriage	.27	.45
Works and control earnings	1=wife is currently working and said "I decide" to "Do you usually decide how your earnings are used, does your husband decide, do you both decide, or who decides?"; 0=other responses	.41	.49
Chose husband	1=wife "I chose him" to "Did you choose your husband or did your parents choose him for you?"; 0=parents or other	.72	.45
Wife say family size	1=wife said yes to "Do you have any say in the number of children you and your husband have?"	.49	.50

Table 2: Means and standard deviations^a for variables in analysis of fertility preferences: wives aged 15-45 in five Nigerian ethnic groups

Variable	Hausa	Kanuri	Ibo	Ijaw	Yoruba
<i>Background controls</i>					
Age (years)	26.24 (7.10)	26.2 (6.80)	30.97 (5.71)	29.39 (6.48)	29.85 (6.35)
Live children(no.)	2.59 (2.14)	2.39 (2.08)	3.46 (2.23)	3.49 (2.28)	2.99 (1.91)
Pregnant now = 1	.19 (.39)	.15 (.35)	.16 (.37)	.14 (.34)	.14 (.35)
Polygyny = 1	.29 (.45)	.24 (.43)	.09 (.28)	.28 (.45)	.35 (.48)
Muslim = 1	.99 (.11)	.99 (.10)	b (b)	b (b)	.20 (.40)
<i>Human Capital</i>					
Urban residence = 1	.26 (.44)	.23 (.42)	.25 (.44)	.25 (.43)	.26 (.44)
No education = 1	.26 (.44)	.59 (.49)	.07 (.25)	.21 (.41)	.31 (.46)
Koranic education = 1	.59 (.49)	.19 (.39)	.002 (.04)	b (b)	.002 (.04)
Primary education = 1	.09 (.28)	.12 (.33)	.35 (.48)	.37 (.48)	.29 (.46)
Secondary education = 1	.06 (.23)	.10 (.30)	.58 (.49)	.42 (.49)	.39 (.49)
<i>Economic and Social Control</i>					
Worked before marriage	.15 (.36)	.03 (.18)	.29 (.45)	.30 (.46)	.61 (.49)
Work and control earnings = 1	.34 (.47)	.17 (.38)	.28 (.45)	.67 (.47)	.56 (.50)
Chose husband = 1	.62 (.49)	.45 (.50)	.77 (.42)	.87 (.34)	.88 (.33)
Wife say family size	.13 (.34)	.12 (.32)	.70 (.46)	.77 (.42)	.71 (.45)
Total (N)	1225	1165	1263	1267	1155

^aStandard deviations are in brackets

^bToo few cases for analysis

Table 3: Distribution (%) of fertility preferences by main covariates^a

Variable		Traditional		Modern		Total # of Cases
		More Children Up to God	Wants More Children; Number is up to god	Wants More Children; Gives Number	Wants No More Children	
Total (%)		23.0	33.1	27.5	16.4	6052
<i>Background Controls</i>						
Age	(30 or More)	27.0	25.0	18.0	30.4	2836
	(less than 30)	19.6	40.6	35.9	4.0	3216
# Live children	(4 or More)	27.2	19.9	15.4	37.6	2250
	(under 4)	20.6	40.1	34.6	3.9	3802
Pregnant now	(1=yes)	15.8	45.6	36.5	2.1	935
	(0=no)	24.4	30.8	25.9	19.0	5117
Polygyny	(1=yes)	24.3	37.7	20.7	17.4	1504
	(0=no)	22.6	31.5	29.8	16.1	4548
Muslim	(1=yes)	37.3	45.3	11.5	5.9	2583
	(0=no)	12.9	23.0	39.6	24.5	3905
<i>Human Capital</i>						
Urban	(1=yes)	19.7	25.9	29.9	24.5	1507
	(0=no)	24.1	35.5	26.7	13.7	4545
<i>Education</i>						
No education	(1=yes)	32.9	42.1	9.8	15.2	1709
Koranic	(1=yes)	39.6	45.6	10.6	4.2	945
Primary	(1=yes)	18.7	28.8	29.0	23.5	1491
Secondary	(1=yes)	9.3	22.0	50.1	17.8	1890
<i>Economic and Social Control</i>						
Worked before marriage	(1=yes)	13.8	28.3	37.2	20.7	1668
	(0=no)	26.6	34.9	23.8	14.8	4384
Work & control earnings	(1=yes)	18.6	28.8	29.3	23.4	2463
	(0=no)	26.1	36.0	26.3	11.6	3589
Chose husband	(1=yes)	17.7	31.7	33.4	17.3	4360
	(0=no)	36.8	36.7	12.4	14.1	1692
Wife Say on Family Size	(1=yes)	14.8	23.1	37.4	24.7	2970
	(0=no)	11.0	42.7	17.9	8.4	3082

^aAll differences are significant at .001 level

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Table 4: Multinomial logistic regression of fertility preferences on ethnicity, human capital and socioeconomic control for pooled sample of wives aged 15-45, 1991 (odds ratios)

Covariates	Ethnicity (Model 1)	Model 1 + Human Capital (Model 2)	Model 1 + Women's Control (Model 3)	Full Model (Model 4)	Partial Interaction Model (Model 5)
Panel 1: No more children VS. More children is up to god					
<i>Ethnic Status</i>					
Hausa = 1	1.95***	1.84**	1.34	1.51	1.73*
Yoruba = 1	10.84***	5.06***	2.83***	2.31***	2.37***
Ibo = 1	28.10***	9.93***	9.35***	6.33***	6.23***
Ijaw = 1	30.72***	11.98***	7.89***	5.98***	6.24***
<i>Background Controls</i>					
Age (years)		1.10***	1.08***	1.10***	1.18***
Live children (no.)		1.31***	1.28***	1.31***	2.24***
Pregnant now = 1		.20***	.20***	.20***	.21***
Polygyny = 1		1.05	.91	1.05	1.04
<i>Human Capital</i>					
Urban = 1		2.73***		2.80***	1.02
Koranic education = 1		.50**		.58*	.61*
Primary education = 1		1.31		1.26	1.23
Secondary education = 1		2.79***		2.50***	2.45***
<i>Economic and Social Control</i>					
Worked before marriage			1.47**	1.46**	1.37*
Works & controls earnings = 1			1.46***	1.51***	1.14
Chose husband = 1			1.64***	1.32*	1.32*
Wife say family size			1.87***	1.76***	1.38*
<i>4 Context Interactions</i>					
Age * live births					.98***
Work before * urban					1.75
Work control * urban					2.25***
Number say * urban					2.33***
Panel 2: Wants more children and gives number VS. More children is up to god					
<i>Ethnic Status</i>					
Hausa = 1	3.48***	5.15***	3.30***	4.21***	4.13***
Yoruba = 1	11.53***	11.56***	8.83***	6.00***	5.80***
Ibo = 1	26.16***	25.19***	33.07***	18.93***	18.50***
Ijaw = 1	34.59***	37.40***	34.38***	23.37***	23.38***
<i>Background Controls</i>					
Age (years)		.92***	.91***	.92***	.91***
Live children (no.)		.78***	.75***	.78***	.70**
Pregnant now = 1		1.71***	1.82***	1.72***	1.72***
Polygyny = 1		1.13	1.00	1.13	1.13
<i>Human Capital</i>					
Urban = 1		1.23*		1.23*	.99
Koranic education = 1		.80		.85	.87
Primary education = 1		1.70***		1.57***	1.58***

Covariates	Ethnicity (Model 1)	Model 1 + Human Capital (Model 2)	Model 1 + Women's Control (Model 3)	Full Model (Model 4)	Partial Interaction Model (Model 5)
Secondary education = 1		4.40***		3.73***	3.74***
<i>Economic and Social Control</i>					
Worked before marriage			1.80***	1.81***	1.58***
Work & control earnings = 1			1.11	1.18	1.24*
Chose husband = 1			2.19***	1.75***	1.75***
Wife say family size			1.47***	1.30*	1.20
<i>4 Context Interactions</i>					
Age * live births					1.00
Work before * urban					2.24**
Work control * urban					.86
Number say * urban					1.35

Panel 3: Wants more children but number is up to god VS. More children is up to god

<i>Ethnic Status</i>					
Hausa = 1	1.77***	2.30***	1.88***	2.17***	2.25***
Yoruba = 1	2.37***	3.76***	3.43***	3.60***	3.46***
Ibo = 1	1.88***	3.64***	3.49***	3.82***	3.83***
Ijaw = 1	2.47***	4.29***	4.21***	4.40***	4.11***
<i>Background Controls</i>					
Age (years)		.94***	.94***	.94***	.94***
Live children (no.)		.78***	.78***	.78***	.74***
Pregnant now = 1		1.97***	1.98***	1.97***	1.96***
Polygyny = 1		1.27**	1.28**	1.27**	1.26**
<i>Human Capital</i>					
Urban = 1		.93		.91	.86
Koranic education = 1		.67***		.66***	.65***
Primary education = 1		.76*		.75*	.74**
Secondary education = 1		.91		.87	.86
<i>Economic and Social Control</i>					
Worked before marriage			1.16	1.14	1.04
Work & control earnings = 1			1.09	1.09	1.04
Chose husband = 1			1.23*	1.26**	1.27**
Wife say family size			.75**	.74**	.81
<i>4 Context Interactions</i>					
Age * live births					1.00
Work control * urban					1.49
Work before * urban					1.98*
Number say * urban					.62*
# Cases	6052	6052	6052	6052	6052
Chi ²	1726.97	4270.49	4069.82	4428.85	4511.96
Log likelihood	-7341.05	-6069.29	-6169.63	-5990.11	-5948.55
Pseudo R ²	.11	.26	.25	.27	.28

Note: *pr < .05, ** < .01, *** < .001

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Table 5: Tests Statistics for Model Fitting and Model Evaluation

Model and tested effects	Model log likelihood	Chi2	DF	Chi2 Test ^a (-2 L ₁ -L ₀)
Panel A. Test of Fixed Effects Models in Table 4				
Model 2: Saturated or Full Model	-5948.55	4511.96	60	-
Model 3: Ethnic Group Membership	-6187.17	4034.74	48	477.23
Model 4: Wife's Human Capital	-6162.37	4084.34	39	427.63
Model 5: Wife's Social and Economic Control	-6060.86	4287.35	39	224.61
Model 6: Demographic Controls	-6872.63	2663.81	45	1848.15
Model 7: 4 Context Interactions	-5990.11	4428.85	48	83.11
Panel B. Test of Selected Models Against Full Interaction Models				
Model 1: Full Interaction Model	-5707.41	4994.25	189	-
Model 2: Saturated or Full Model	-5948.55	4511.96	60	482.2
Model 3: Ethnic Group Membership	-6187.17	4034.74	48	959.50
Model 4: Wife's Human Capital	-5190.13	4428.82	135	565.43
Model 5: Wife's Social and Economic Control	-7341.05	1726.97	120	354.73
Model 6: Demographic Controls	-6870.19	3068.70	126	1925.55
Model 7: 4 Context Interactions	-5731.56	4945.96	177	48.29
Variables in Models	Panel A Models	Panel B Models		
Model 1	--	Ethnic*HC; Ethnic*SC;		
Model 2	Ethnic, HC, SC, DC,	Same specification as Panel A		
Model 3	HC, SC, DC, 4 context	Same specification as Panel A		
Model 4	Ethnic, SC, DC, 4 context	Panel A specs + Ethnic*SC;		
Model 5	Ethnic, HC, DC, 4 context	Panel A specs + Ethnic*HC;		
Model 6	Ethnic, HC, SC, 4 context	Panel A specs + Ethnic*HC;		
Model 7	Ethnic, HC, SC, DC	Panel A specs + Ethnic*HC;		

HC=Human Capital; SC=Social and Economic Control; DC=Background Controls;
 4 context=4 substantive interaction terms used in Table 4, Model 5, i.e. age*live births, urban * work before, urban * work & control, and urban * number say.

The Chi2 Text measures the difference between the goodness of fit of the fullest model (Model 2 in Panel A and Model 1 in Panel B) and other models that drop selected subsets of variables. A larger difference in log likelihoods indicates a better model fit. Sample size is 6052 for all of the models. All of the models are significant at the .0000 level.

Table 6: Multinomial logistic regression of fertility preferences on human capital and wife's socioeconomic control for wives 15-45, 1991 (odds ratios)

Variable	Hausa	Kanuri	Ibo	Ijaw	Yoruba
Panel 1: No more children VS. More children is up to god					
<i>Background Controls</i>					
Age (years)	1.11***	1.09**	1.08***	1.06*	1.18***
Live children (no.)	1.15*	1.26***	1.40***	1.54***	1.32***
Pregnant now =1	a	.45	.26**	.20*	.41
Polygyny =1	1.63	1.07	1.07	.75	1.60*
<i>Human Capital</i>					
Urban =1	.45	2.77*	1.38	.95	7.49*
Primary educ. =1	3.11*	1.12	.82	1.33	1.35
Secondary educ. =1	3.89*	2.95	1.53	2.98**	2.30**
<i>Economic and Social Control</i>					
Worked before marriage	.97	.41	.92	1.06	1.88*
Work & control \$ =1	2.22	3.03**	1.15	1.09	.85
Chose husband =1	1.77	1.12	1.58	.86	1.49
Wife say family size	.51	3.41**	2.21**	1.12	.95
<i>Interactions</i>					
Urban * Work Before Marriage	a	a	2.53	1.11	.84
Urban * Work & \$ Control	2.57	.51	3.15	.98	1.05
Urban * Say on Family Size	16.08***	.50	1.01	9.41***	1.28
Panel 2: Want more children & give number VS. More children is up to god					
<i>Background Controls</i>					
Age (years)	.94***	.93*	.91***	.87***	.92***
Live children (no.)	.77***	.82*	.68***	.83**	.86*
Pregnant now =1	1.48	2.62**	3.13***	1.55	1.78
Polygyny =1	.84	.87	.93	1.32	1.36
<i>Human Capital</i>					
Urban =1	.59	.92	.79	.70	7.43**
Primary educ. =1	1.94*	2.04	1.81	.99	1.82*
Secondary educ. =1	2.85*	13.71***	3.28**	2.67**	5.08***
<i>Economic and Social Control</i>					
Worked before marriage	5.29***	.89	.87	1.32	1.76*
Work & control \$ =1	.79	1.82	1.17	2.66***	.60*
Chose husband =1	2.62***	1.53	1.55	2.08*	.97
Wife say family size	.59	1.35	1.35	1.57	1.19
<i>Interactions</i>					
Urban * Work Before Marriage	a	3.33	3.30	1.33	.78
Urban * Work & \$ Control	5.02**	.37	2.79	.28	.52
Urban * Say on Family Size	1.48	1.88	.84	2.43	1.77

Variable	Hausa	Kanuri	Ibo	Ijaw	Yoruba
Panel 3: Wants more children but number is up to god VS. More children is up to god					
<i>Background Controls</i>					
Age (years)	.98	.93***	.93**	.87***	.96*
Live children (no.)	.83***	.75***	.65***	.79**	.77***
Pregnant now =1	2.39***	1.17	4.48***	1.39	2.48**
Polygyny =1	1.09	.93	1.21	1.57	1.66**
<i>Human Capital</i>					
Urban =1	.40***	1.50*	.25	2.46	1.80
Primary educ. =1	1.02	.85	1.18	.40**	1.07
Secondary educ. =1	.86	1.20	1.24	.63	1.12
<i>Economic and Social Control</i>					
Worked before marriage	4.13***	.62	.46**	.74	.78
Work & control \$ =1	1.06	.82	.98	3.18***	.48***
Chose husband =1	2.59***	.84	.87	2.93**	.66
Wife say family size	.44**	.85	.67	1.73	.88
<i>Interactions</i>					
Urban * Work Before Marriage	a	1.47	1.87	1.47	2.91
Urban * Work & \$ Control	2.55	1.56	2.67	.26	.82
Urban * Say on Family Size	1.19	1.28	.89	1.36	.54
# of Cases	1220	1161	1255	1263	1153
Log Likelihood	-1185.54	-989.37	-1179.12	-1153.78	-1176.48
Chi ² (DF = 45)	448.25	414.12	868.16	861.72	721.27
Pseudo R ²	.159	.173	.269	.272	.235

Paper 3

**Sex Preferences, Women's Social Control, and Parity Progression
in Hausa, Ibo and Yoruba Societies**

by

**Mary M. Kritz
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1994 Cornell Working Paper No. 94-09

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Evidence is mixed on the prevalence of sex preferences in different cultures and, if present, on their importance for fertility. For instance, many studies conducted in Asia (Arnold and Kuo 1984; Nag 1991; Vlassoff 1990) show a preference for sons but some studies conducted in Latin America (Coombs 1977) and the United States (Williamson 1976) show preferences for balanced sex compositions or for daughters. Relatively few studies have been carried out on sex preferences in Africa and those that have tend to show mixed findings. Bhatia (1984) and Goody (1981), for instance, found no sex preferences in Ghana, nor did Cronk (1991) in Kenya but others (Orubuloye 1987) claim that there are strong sex preferences in Africa.

The observed effects of sex preferences on fertility also vary across and within regions. In Asia, for instance, several scholars (Arnold and Liu 1988; Bairagi and Langsten, 1986; Hardee-Cleveland 1988; and Rahman et.al. 1993) find that sex preferences encourage pronatalist attitudes and behaviors but others (Cleland, Verrall and Vlaessen 1983; DeTray 1980 and 1984; Repetto 1972) conclude that there are no significant effects. In the African region, Isiugo-Abanihe (1993) and Oyeka (1989) report a positive and significant effect of son preference on reproductive processes whereas Elisa (1989) and Goody et.al (1981) found no effect. Based on an analysis of DHS data for 27 developing countries, Arnold (1991) also reported that the effects of sex preferences on fertility are weak in Africa.

It is difficult to evaluate the relative merits of these contradictory findings because of the diversity of contexts studied. Most of the empirical studies cited have examined sex preferences in a single country or society and have not looked at dimensions of social structure that vary across societies and that could determine both whether preferences are likely to exist and how they might affect fertility. One social structural dimension of possible importance for sex preferences, in general, and son preferences, in particular, is gender differentiation. Hypotheses have been advanced by Cain (1993) and Mason (1993) that son preferences should be higher in societies characterized by high levels of patriarchy. According to their argument, strong patriarchal structures increase women's social and economic dependence on men and thus increase their vulnerability to marital dissolution and old age. Having many sons is one of several strategies women pursue to reduce their economic vulnerability. In patriarchal societies, roles performed by men are evaluated more highly than those carried out by women and, therefore, sons are in a better position than daughters to reduce their mothers' economic insecurity because they have access to land and other economic resources. There are also social motivations for sons. Vlassoff (1990) argues that sons provide psychological and emotional rewards to women. For instance, having many sons can enhance women's respect and support from her husband and thus reduce her vulnerability to divorce (Mason and Taj 1987:615).

Using survey data gathered in 1991, we explore how sex preferences vary in three societies or ethnic groups -- the Hausa, Ibo, and Yoruba of Nigeria -- and evaluate the effects of son composition on birth interval length and parity progression. First, we compare the three groups in terms of their social institutions of gender and their patterns of son preferences in order to assess whether differentials are consistent with the hypothesis advanced by Mason (1993) and Cain (1993). Second, we examine how son preference affects the length of birth intervals and parity progression. In the multivariate analysis, we evaluate the importance of gender inequality at the aggregate level by looking at whether differences across the groups in birth intervals and parity progression remain after controlling for differences in son composition and other covariates. We also evaluate how individual-level differences in women's control of economic and social resources across the three groups affect those outcomes.



Theoretical Approach and Hypotheses

To identify whether social institutions of gender matter in shaping sex preferences and fertility behavior, it is important to look comparatively at societies or groups that vary culturally (Mason 1993). The underlying assumption guiding Mason's work is that while women within given societies may be socially differentiated along age, class and other dimensions, they are also differentiated from women in other societies in their societal "status" or position, a fact which derives from their group membership alone. The social systems to which a woman belongs largely determine her access to resources such as education, employment, and/or income, although those outcomes are not invariant across individuals and households. Thus Mason (1993) argues that it is necessary to look both at social aggregates that vary in their patriarchal structures and at the behavior of individual women within those groups in order to sort out the relative importance of aggregate versus individual-level factors in shaping sex preferences and reproductive attitudes and behavior. To the extent that gender institutions do matter for sex preferences and fertility, one would expect to find: (a) that the levels of sex preferences vary across groups in a direction consistent with their relative degrees of patriarchy; and (b) that the effects of sex preferences on fertility are most intensive in social groups that have high levels of patriarchy. The latter would be detected if interaction effects are found between group membership and main covariates used in the analysis.

It is by no means clear which social groups should be considered as the key aggregates that shape gender differentiation and demographic behavior. While Mason (1993:14) states that it is important to compare "groups with different gender-role regimes" and that are "socially differentiated communities", she does not indicate how those groups should be defined. Using countries or communities as comparison units may not yield the desired social differentiation if those units share a common cultural heritage and/or differ little in their social institutions of gender. Although many country comparisons do reveal differentials in cultural heritage and social institutions, they also reflect differentials deriving from mode and stage of development that cannot be sorted out based on analysis of a small number of units. Kritz and Makinwa-Adebusoye (1994) have argued that comparisons of ethnic groups within the same country can provide the requisite diversity on gender institutions while controlling for development context.

The three groups examined in this study are large enough in population size, and sufficiently differentiated historically and culturally, and isolated territorially, to be considered as distinct societies. Group sizes range from an estimated 12 million for the Yoruba to 20 million for the Ibo; together they constitute about half of Nigeria's population (Nigeria NDSS 1980). Members of the groups speak different languages, reside in different parts of Nigeria, and order their work and family life on the basis of their own group norms rather than by national dictates. The homeland of the Ibo is located in the East while that of the Hausa and Yoruba are in the North and Southwest, respectively.

Gender institutions vary across the groups in a manner that sheds light on reproductive attitudes and behavior. Hausa society, according to Callaway and Creevey (1994), emphasizes an "Islamic way of life." Dictates of Islam clearly define proper roles for both men and women, with girls socialized in childhood for their primary roles of wife and mother. Girls marry at young ages and are secluded following marriage in compounds within which they interact largely with other women. Other features of Hausa society, however, give women rights that reduce their economic vulnerability. Inheritance under Islamic law, for instance, is bilateral and daughters inherit from their parents as well as their husbands (Callaway and Creevey 1994:30-31). In the event of a divorce, Hausa women may keep dowries they bring into marriage as well as any property or resources obtained from their husband or others during marriage. Husbands, on the other hand, are entitled to keep any children born during the marriage (Callaway and Creevey 1994:39), which suggests that children would not be

good insurance for reducing women's economic vulnerability. Thus staying in a marital state would seem to be a high priority for Hausa women since it is that state more than children *per se* that gives them social prestige and economic security.

From a material standpoint, Hausa society obliges husbands to provide support for their wives but women do have autonomy within their secluded worlds to engage in income-earning activity (Callaway and Creevey 1994:34; Coles 1991). Moreover, they are entitled to keep any income they earn. Those Hausa women who do engage in activities that generate income from within the confines of their households use their daughters as sales agents (Callaway and Creevey 1994:34). Thus while Hausa women may be pronatalist in their overall outlook and behavior, they may not necessarily have a strong preference for sons over daughters. Although sons may be important for securing women's social position within the household, Hausa women may be optimistic that they will get those sons given the early ages at which they start their reproductive careers, their high rates of remarriage following marital dissolution, and their low levels of formal education. On the other hand, having no daughter or a perceived deficit of daughters at the early reproductive stage could encourage them to shorten their birth intervals given the fact that daughters act as their mother's sales agents and thus affect directly the economic status of Hausa women.

Ibo and Yoruba women, in contrast, are socialized into social systems that differ from that of the Hausa. Both Ibo and Yoruba societies have strong lineage structures and descent is unilineal through the male line. Neither society gives women inheritance rights to land or other property although they may gain temporary access to land from their husbands' lineages after marriage (Imoagene 1990a 1990b). In comparison to Hausa society, inheritance patterns among the Ibo and Yoruba suggest that son preferences should be strong. Although land historically has been communally owned in these two societies, lineages have usufructuary rights over land and can pass those holdings along to adult sons (Imoagene 1990:50 and 103). Therefore, high fertility becomes a rational means for attaining large numbers of sons and sons, in turn, allow patrilineages to secure control over land, a major source of wealth in these societies. Concern over maintaining land rights should be higher among the Ibo than the Yoruba because of high population-to-land ratios in Iboland (Imoagene 1990:96).

On other dimensions Ibo and Yoruba women have more autonomy and control over their affairs than Hausa women. Seclusion, for example, is not practiced by the Ibo and is practiced only by a small proportion of Yoruba muslims (about half of the Yoruba are muslims). Moreover, women in both groups engage regularly in income-earning activities outside the household and move freely about within and outside of their communities. The type of work traditionally carried out by women in these two societies differs -- Yoruba women work predominantly as traders while Ibo women tend to be farmers. Compared to farming, trading gives women more exposure to strangers and new ideas because of the spatial mobility associated with carrying out that activity. Control of earnings also differs in the two groups -- in Yoruba society, women control their earnings but are expected to use those earnings to provide food and other goods to their children (Sudarkasa 1973). While control of earnings should enhance women's economic security, assuming responsibility for basic household needs greatly increases women's work burden and economic insecurity. In Ibo society, in contrast, women are expected to work on family plots but any earnings they have are pooled with those of other household members and the lineage takes responsibility for the basic needs of family members (Imoagene 1990:45).

Bridewealth practices differ in Ibo and Yoruba societies in ways that could have implications for fertility. Ibo society maintains a high bridewealth payment -- a transfer of money and other goods from the groom's to the bride's lineage. Isiugo-Abanihe (1993) claims that bridewealth payments have even increased among the Ibo in recent years although they have decreased to an insignificant amount among the Yoruba (Imoagene

1990b:45-6). While increasing bridewealth has contributed to a rise in the average age of marriage of men and women in Ibo society (Isiugo-Abanihe 1993), it may also be a realistic response to high population density in the Ibo homeland. Since men receive their share of farmland only after they marry, it is rational for a society in which population density is high to postpone marriage. If this is the case, however, one could also argue that it would be rational for such a society to lower its fertility but there is limited evidence of that occurring among the Ibo. In spite of significant gains in universal education by Ibo women, pronatalism remains high in that region and mothers continue to be celebrated after they bear their 10th child (Imoagene 1990a:51; Isiugo-Abanihe 1993).

This review of gender institutions and norms that provide support for fertility and sex preferences in three Nigerian societies underscores the difficulty of ranking societies on social structural dimensions such as degree of patriarchy. Social organization takes on multiple dimensions, some of which appear on the surface to favor a lower position of women (e.g. Islam and seclusion among the Hausa). However, other dimensions (e.g. inheritance and bridewealth systems) are also important and can enhance or constraint the effects of other institutions. Complicating the picture further is the fact that the three groups seem to be responding differently to social opportunities such as education and urban employment that have opened up to women in the postcolonial era. While enrollment in formal education is near equality for girls and boys in both Iboland and Yorubaland, Hausa girls continue to have limited access to formal education and their attendance at school tends to be limited to memorization of the Koran.

Recognizing that gender inequality is high and pronatalism remains strong in all three societies, we hypothesize that fertility should be highest among the Hausa due both to their early age at marriage and the limited spread of modern influences such as education. While Ibo women marry later and have relatively high levels of formal education, norms favoring high fertility are strong in that group and should be associated with shorter birth intervals. Yoruba women are the least economically dependent on their husbands and most sensitive to deteriorating economic conditions, which should predispose them toward lower demand for children than women in the other two groups. Previous research (Kritz and Makinwa-Adebusoye 1993) supports that claim. The spatial mobility of Yoruba women would also favor longer birth intervals than occur among their Ibo or Hausa counterparts.

Sex preference in the three groups may follow a different pattern. Based on our review of the normative contexts, we expect Hausa women to have the lowest son preference and Ibo women to have the highest, with the Yoruba falling in between. As previously discussed, Hausa women derive economic security by being married rather than having sons *per se*. While sons may help Hausa women to secure their marital positions, their high fertility ensures that they are likely to have a sufficient number to satisfy their husbands' desires for sons. Daughters, on the other hand, are their mothers' sales agents and thus contribute directly to enhancing Hausa women's economic security. Patrilineal descent should be associated with higher son preferences among the Ibo and Yoruba, compared to the Hausa, but we expect those preferences to be stronger among the Ibo given the reasoning that wealth in that society derives principally from land and migration to other parts of Nigeria. Both of those activities are restricted largely to males in Iboland.

Data and Variable Measurement

Our data are drawn from a 1991 survey of married women age 15-45. The data were gathered using a two-stage, stratified, cluster sampling technique. At the first stage, stratification was based on ethnicity, selecting a state in each region where a given ethnic group predominated. Within the three states selected, at the second

stage, Local Government Areas (LGAs), the equivalent of counties in the USA, were classified according to their degree of urbanization and four LGAs were selected that met the criteria of being: the state capital, an intermediate-size urban area, and two predominantly rural LGAs. Households were randomly selected and a quarter of the interviews conducted in each of those areas.¹ Only one eligible wife per household was interviewed, along with about 60 percent of their husbands, although only the wife data are used in this paper. The sample sizes are: 1284 (Ibo), 1288 (Hausa), and 1235 (Yoruba). The data are unweighted since we focus on group comparisons.

We first explore how the three ethnic groups differ in their fertility and sex preferences and then look at how women's social and demographic characteristics condition their sex preferences and fertility behavior. To assess the effects of sex preferences on fertility, we use a multivariate framework to examine determinants of two dimensions of fertility behavior: the duration of the last open-birth interval (OLS regressions), and parity progressions (Cox event history models of the hazard of closing the intervals following the first four births). The central concern of the multivariate models is the assessment of the effect of gender composition, measured at the appropriate parity, on fertility behavior (measured for the OLS models by interval duration and, for the Cox models, by whether the interval was closed). We consider the parity progression event history models to be the most sensitive means of detecting any behavioral responses to sex preferences that may exist. The OLS analysis of the open interval provides both a consistency check and uses a larger proportion of the sample. However, because the open-interval analysis focuses on a much more heterogeneous population, the specification of models adequate to uncover sex-preference effects is more difficult than for the parity progression models. Several covariates are used in both sets of models in an effort to control for heterogeneity in other factors that could influence outcomes. The covariates include age, number of surviving children, education, urban residence, women's work and income control, and mate selection. In order to determine the extent to which processes vary across ethnic groups, we estimate ethnic interaction models for both the OLS and event history models.

The duration in months of the last open-birth interval for women who had at least one birth since 1981 is the dependent variable in the OLS regressions. The 1981 criteria is used because the surveys obtained only a 10-year detailed birth history and such a history is needed in order to compute durations. This constraint results in a sample attrition of 16% (609 women had no births since 1981). Because the start of the open interval corresponds to the last birth, no alterations need be made in the specification of any of the covariates. The parity progression models necessarily involve several constraints to both the analytic sample and to several covariates. They focus on the progression from the first to the fifth birth of all women whose first birth occurred since 1981. Duration to the closing of the interval or to the survey date if the interval remains open constitutes the dependent variable. Measures of parity and gender composition are specified at the appropriate parity level. These measures are described in greater detail below.

¹ At the time the survey was being designed and carried out, in early to mid-1991, a sampling frame was not available for Nigeria but one was then being constructed by the National Population Office in order to carry out a national census in late 1991. We had access to the Office's detailed maps of enumeration areas but no reliable estimates were available of the % urban and, as such, we devised a sampling strategy based on the assumption that at least 50% of the population was predominantly rural and resided in small towns, that 25% of the population resided in metro regions and engaged in non-agricultural activities, and that the remaining 25% were located in intermediate-sized urban areas (nucleated settlements larger than 10,000) which lack most urban amenities (e.g. electricity, water and sewer systems, paved roads, secondary schools, etc.) and in which most of the population is engaged in agricultural pursuits but with growing employment in non-agricultural work. Thus, our sampling strategy yields a population that is about 50% urban measured by population concentration (10,000 or more) but about 30-35% urban measured by engagement in non-agricultural activity.

Age is measured as a continuous variable and is expected to increase the length of the birth interval because older women will have competing uses for their time such as care of children, work, or social obligations.² In addition, women in some groups, such as the Yoruba, have social taboos against sexual relations after they become a grandmother. Residence in a highly urbanized area may expose women to modern ideas about reproductive behavior and family size. If so, urban women should have longer birth intervals than women in rural areas. Urban residence is defined conservatively, as residence in the state capital. Because education has been found to have an inconsistent effect on fertility (Acsadi and Johnson-Acsadi 1990; Cochrane and Farid 1990), we include education in our models as a categorical variable, using never attended school as the referent category and introducing three dummy variables set equal to one if the respondent has attended or completed Koranic school, primary school, or secondary or more advanced schooling.

Gender differentiation at the societal level is evaluated in our models by dummy variables for ethnic group membership. We also attempt to evaluate individual-level differences within the groups in women's control over their lives by looking at two measures: whether women work and control their own income and whether they have a say in the choice of their husband. Our premise is that work alone does not empower women but maintaining control over their earnings does. Mate selection can also be viewed as a proxy variable for control over one's life. While Nigerian parents may continue to influence who their daughters marry, we expect that influence to vary across the three groups and to be associated with reduced son preference and increased birth intervals. Our previous research indicates that these two measures of women's control do affect demand for children (Kritz and Makinwa-Adebusoye 1994).

The first measure of women's control focuses on women's control over their economic affairs; it is a dummy variable set equal to "1" if the wife was working at the time of the survey and responded affirmatively to the question "do you usually decide how your earnings are used". The second measure evaluates social control and is set equal to "1" if the wife responded "I chose him" to the question "Did you choose your current husband or did your parents choose him for you." Both measures of wife's control are expected to have a negative effect on birth interval length. The measurement of all of the covariates, as well as their means and standard deviations are provided in Table 1 for each ethnic group.

Son Preferences in Nigeria

The first question we address is whether and how the three ethnic groups differ in their sex preferences. Data on the mean number of additional children desired and total children desired are presented in Table 2 for the three groups. The means are standardized on the age distribution of Yoruba women to control for age differentials across the three groups. Since large numbers of women in Africa give responses of "god's will" to questions such as "do you want additional children" and "how many additional children would you like to have" (Acsadi and Johnson-Acsadi 1990; van de Walle 1992), the group samples that could be analyzed are reduced considerably. It is of interest, however, to note that while only 18% of the Hausa women gave a numeric response to queries about the number of additional children desired, considerably higher percentages of Ibo and Yoruba women did so -- 67% and 42%, respectively.

² The effect of age is expected to be non-linear in its effect on interval durations: first decreasing interval durations as women bear the large proportion of their children, and then increasing intervals as desires and abilities to have more children decrease. Thus we utilize age-squared in the OLS multivariate models. Age in general was found to be insignificant in the Cox parity progression models and thus we dropped the age-squared variable from the final models.

The data in Table 2 are consistent with our expectations. While Hausa women desire more additional children than Ibo or Yoruba wives (row a), they are only slightly more likely to express a preference for sons over daughters (row c). The Ibos are the most likely to desire sons over daughters (.36 more sons) but the Yoruba also desire more sons (.26). Since the number of additional children desired is likely to be affected by the current number of children and their gender composition, we estimated the desired gender composition of the completed or total family by summing the number of surviving children and desired additional children. Those data are presented in rows e-h of Table 2 and show that total desired family size is the same for the Ibo and Hausa (5.81/5.82) but lower for the Yoruba (5.12). The fact that the Hausa desire a higher number of additional children than the Ibo (row a) but have a similar completed size as the other two groups (row e) results from both the younger average age of the women in the Hausa sample and the higher infant mortality in Northern Nigeria.³ Ibo women express the strongest son preference in their completed family while the Hausa are least likely to favor sons over daughters.

Our second assessment of sex preferences looks at whether the length of the last open-birth interval is greater than 24 months under different gender compositions of surviving children (Table 3). While gender composition of surviving children is not a good indicator of sex preferences, at least not in the Nigerian context where gender differentials in infant mortality are small, it can shed light on preferences if examined in conjunction with reproductive attitudes and behavior. In Table 3 we evaluate how different gender compositions affect length of the last open-birth interval. If son preferences exist, women who perceive a deficit of sons should have shorter birth intervals. We look at the importance of two types of gender composition: the relative numbers of sons to daughters (rows a-b); and the presence of some minimal number of children of each gender (rows c-i). Longer birth intervals are consistent with less concern about the family's gender composition or lower son preferences.

There is very little difference among the three groups in percentages of women with birth intervals greater than 24 months -- 47.4% of Yoruba women fall in that category, as do 48.8% of Hausa women. Comparing how interval length changes as relative numbers of sons to daughters change (rows a and b), we observe that Hausa women show no son preference although Ibo and Yoruba women are somewhat more likely to have a shorter birth interval if they have fewer sons than daughters. Similarly Ibo and Yoruba women are significantly more likely to have a shorter birth interval if they have no sons or one sons. That pattern is strongest for the Ibo -- women are almost twice as likely to have a birth interval greater than 24 months if they have 2 rather than no sons. Those odds, however, are similar if women have 2 versus no daughters. Indeed Hausa women are likely to have a short birth interval if they have no daughters rather than no sons (row f and i). Rows i-k in Table 3 give the percentage point differences at given gender compositions. While most of the differences are negative, consistent with son preference expectations, the differences are small, which suggests that gender composition has only a small effect on length of birth intervals.

Numerous factors other than gender composition can influence the duration of birth intervals. Table 4 shows differentials for the principal covariates used in the multivariate analysis. Mean length of last open-birth interval increases from 17.2 months for the combined sample to 49.6 months for women age 35 and over; a

³ Standardizing the groups directly on the Yoruba age structure results in a near equating of the number of surviving Hausa (3.01) and Yoruba (3.06) children (the age-adjusted figure for Ibo women is the highest at 3.30). This suggests that total desired children of the Hausa would be much higher if the age differences across the groups were taken into account. In addition, it is important to recognize the considerably higher child mortality of the Hausa (as Hausa women themselves probably do when responding to survey questions). As of the time of the survey, .29, .33, and .79 children of Ibo, Yoruba and Hausa women, respectively, had died. When standardized for age, the adjusted figures are .27, .33 and 1.0. Taking this high child mortality for the Hausas into account for fertility, we find that it reduces their age-standardized total number of desired children from 5.98 (actual) to 5.82. The standardized Ibo mean is almost unchanged: 5.62 versus 5.61.

comparable pattern occurs for each of the groups. It also increases if women have four or more children and live in urban areas. The birth interval length decreases with education -- women with no education have the longest birth interval, a pattern that probably reflects a shifting reliance on breastfeeding and postpartum abstinence among women exposed to modern influences. The largest difference between uneducated and educated women occurs among the Ibo. As expected, women who work and control their income have longer birth intervals than women not in that condition but those differentials are largest among the Ibo and Yoruba. However, women who said yes to mate selection have a shorter birth interval than women who said no. This suggests that who one marries may be less important than spouse compatibility or other factors in shaping the pace of childbearing. We do not examine those other dimensions, however, in this analysis.

Given the heterogeneity among women in the three societies in their social characteristics, a multivariate framework is needed to evaluate the effects of son preferences on birth spacing. Table 5 summarizes a series of OLS regressions of the duration of the last open-birth interval on total parity, gender parity, and a set of covariates, discussed above. The measurement of all of the covariates is specified in Table 1, along with means and standard deviations for the three ethnic groups and the combined sample. All of the covariates are measured as dummy variables, except age, age-squared and number of live children.⁴

Gender composition is measured by including an indicator of the total number of surviving sons along with one for the total number of surviving children. Other measures of son preferences were explored but failed to yield additional or different information.⁵ Our interest is to evaluate whether women behave differently as their number of sons increases. If son preferences exist, we would expect that having a greater number of sons would be related to a lengthening of the birth interval. In contrast, women who perceive that they have too few sons, should have a shorter birth interval. The OLS models reported in Table 5 show no effects of number of surviving sons on duration of last open interval. Neither in the ethnic-specific equations or in the total equation do we find that the number of sons is significantly related to the duration of the open interval. While the coefficients are positive, the expected direction for son preferences, they never approach significance. This result appears similar to the findings in Tables 2-4: weak indications of a son-preference exist in Nigeria but the impact of this preference on fertility behavior appears to be trivial.

Most of the other covariates employed in the OLS regressions are substantively and statistically significant in the combined model. Of interest is the finding that Hausa and Ibo women have significantly longer birth interval duration than Yoruba women, the referent population, after adjusting for social characteristics. Given our interest in exploring differentials across the groups in women's position, we ran a model that introduced interaction terms between Hausa and Ibo ethnicity and each of the covariates. That model indicates that the effects of covariates vary significantly across the three groups, especially in the effects of urban residence, age, education, and the women's control variables. Although no significant interactions were detected between ethnicity and number of surviving children or number of surviving sons, there were some between women's social characteristics and birth intervals, and, thus, we run separate equations for each ethnic group (see Table 5).

⁴ Examination of the zero-order correlation matrix reveals no collinearity problems. The highest correlation between any two main covariates was .6158 between Koranic education and Hausa, followed by .5406 (age and number of live births), .2726 (secondary education and chose of husband) and .2069 (age and work and control earnings).

⁵ The alternate procedures included: separate count variables for daughters and sons in the same model, a daughter count variable along with the total count indicator, gender-parity dummy variables, and parity-specific gender and total number of children at specific parities. Other models also tested for interactions between gender composition and total counts.

Although the OLS regressions do not provide support for the hypothesis that son preferences affect length of the birth interval, caution is needed in interpreting those findings because of the heterogeneity of the population under examination. The last open-birth interval might occur at a wide range of parities and women at different parities are probably far more heterogenous by age, education and other characteristics⁶ than are women at the same parity at any given point of historical time. The application of statistical controls is intended to address this problem, but the greater the observed heterogeneity of the population being studied, the more difficult it is to design a comprehensive set of controls. A wide range of specifications of gender composition parity were employed for the OLS models and none indicated anything approaching significance for the effect of gender composition of surviving children on the duration of the open interval. The most promising specifications approximated parity progressions because they provide the most controlled means of detecting any effect of going from N children to N+1 children. As such in the analysis that follows we examine the actual progressions from first-born to fifth-born for subsets of the NISER sample.

In order to investigate the possible influence of gender composition of children on parity progressions we focus on a subset of the survey women. The NISER survey provides a detailed birth history for all births that occurred during the ten-year period prior to the survey and information on the outcomes of those births (gender, survival status, year of birth). For 54.2 percent of the respondents, the first birth described in the birth history was actually their first birth. The remaining women had births in the ten-year period covered by the birth roster but they also had earlier births. Since we have no data other than counts on those earlier births, we constrain the analysis of parity progressions to the 54.2 percent of the sample for which the detailed roster data covers all births.

This analytic subsample consists largely of women under 31 years of age: 83 percent fall in that category. In contrast, only 62 percent of the total sample of Yoruba, Hausa and Ibo women are younger than 31 years of age. In order to evaluate how similar the women in the analytic subsample are to other women in the sample, we compare them to all under-31-years-of-age women. In general, the two groups are similar on measures such as education and urban residence. However, women in the analytic subsample are somewhat better educated than the under-31 subsample (46.4% versus 38.0% had at least some secondary education) and the former are also less likely to have had only Koranic education (16.2% versus 21.6%).

We estimate a series of Cox proportional hazards models (Yamaguchi, 1991) in order to determine whether and how gender composition of children influences the pace of movement towards closing an interval. These simulated event history models utilize information on both whether the interval is closed and the duration of the interval. In a context such as Nigeria that is characterized by high fertility and limited stopping at low parity, traditional fertility control is most likely to be expressed in the form of variations in the duration of post-partum abstinence and breastfeeding. If women have a preference for sons, then having no sons at a particular parity should increase their odds or hazard of having another birth -- i.e. they should be more likely to have another birth and to have that birth sooner than women who do have sons. Hazard ratios are used in Table 6 to summarize the effects of the covariates and can be interpreted in the same manner as odds ratios in logit regression. A hazard ratio of 1 is equivalent to a coefficient of zero. Hazard ratios greater than 1 correspond to positive coefficients and those less than 1 indicate negative coefficients. As an example, a hazard

⁶ This point is illustrated by the direction of several of the covariates. For example, after adjusting for other covariates, the effects of number of surviving children and age are negative. The positive coefficient for age-squared indicates that the effects of age on birth interval duration are non-linear. As women age, the length of the birth interval increases but at younger ages women have shorter birth intervals. Since age-squared captures the effects at older ages, age itself can be viewed as summarizing the effect of age for younger cohorts. The negative coefficient for number of surviving children tells us that after adjusting for age (or holding the effects of age constant), birth intervals of women (of a given age) with higher fertility are shorter.

ratio of 2.84 (as for koranic education for the 4th to 5th birth interval) indicates that the hazard of closing the interval is 2.84 times (or 184 percent) greater for those with only koranic education than it is for those with no formal education.

For each of the four birth intervals examined, a set of dummy variables indicates the son composition of surviving births at the start of a specific interval. At parity one, for instance, a woman could have only one son or one daughter whereas at parity two she could have one of each sex or both of the same sex. Table 6 presents results with son composition evaluated in terms of the number of surviving sons at each parity. The reference category is the condition in which all births are sons.⁷ Several covariates are included in each of the parity progression models in order to control for potential sources of heterogeneity in the effects of son composition on the hazard of closing the specific birth interval. These covariates are: age, urban residence, educational attainment, women's work and income control, mate selection, and ethnicity. In addition, the possible role of heterogeneity across the ethnic groups in the effects of son composition was also explored with models including interactions between the ethnicity indicators and the son composition variables, as well as the other covariates, but only one of eight of the interaction models approached statistical significance.⁸

The effects of son composition on the hazards of closing birth intervals are mixed. For both the 2nd to 3rd and 4th to 5th intervals, having no sons markedly increases the hazard of closing the interval. Women with no sons at parities 2 and 4 are much more likely to have another birth and to go on to their next birth more quickly than women with all sons. For the 2nd to 3rd interval, women with no sons have a hazard of closing the interval that is 31 percent greater than that of women with all (two) sons. For the 4th to 5th interval, women with no sons have a hazard of closing the interval that is 444 percent (hazard ratio of 5.44) greater than that of women with all (4) sons. In the case of the latter interval, the conditions of having one, two, or three sons are also positively (and in declining magnitude) related to the hazard of closing the interval. While only the coefficient for no sons is statistically significant, this pattern of declining hazards as the number of surviving sons increases suggests that to the extent that son preferences are present in a high fertility context, they interact with birth spacing, the traditional fertility control mechanism, to balance the gender composition of families.

The results do not indicate a very strong son preference since only women with no sons have a significantly increased hazard of closing the birth interval at two parities. No significant effects occur at the first and third parities. The substitution of daughter for son composition indicators in the models produces no evidence of a similar effort to close an interval if all of the surviving children are sons. This suggests that to the extent that sex preferences do influence fertility behavior, it is son preference that is most coherent; however those preferences only emerge under a highly skewed gender composition that includes few or no sons. Thus what we may be witnessing is a desire for a balanced gender composition with a bit more concern for imbalance when it involves the absence of sons.

The interval starting at parity 3 provides a deviation from the patterns so far discussed. At that parity, having no sons is unrelated to the hazard of closing the interval but, in contrast to expectations, having one son (hence two daughters) is negatively related to the hazard (hazard ratio of .65 is significant at the .05 level).

⁷ More precisely, the reference category includes all births, including children who have died. However, the inclusion of indicators of mortality does not alter the results presented in Table 6.

⁸ When variables measuring daughter composition are introduced, one model (that for the highest parity interval) is significant at the .05 level. All of the significant interactions involve the gender composition variables at this parity, but the substantive alterations to coefficients are quite small and would not change any of the discussion in the text.

Women with one son at this parity have a hazard of closing the interval that is 35 percent less than that of women with three sons. It is difficult to explain this deviation. It does not correspond to a countervailing preference for female children at this parity because results with female composition variables (not shown) suggest that the number of daughters is unrelated to the hazard of closing the third interval. It may be simply that the subset of parity 3 women in the analytic subsample includes a disproportionate number of women who delayed in closing the interval with little regard to gender composition. More work is needed on other data sets to evaluate whether these findings result from sampling problems, as we suspect, or whether son composition effects do indeed reverse at some parities.

Several interesting relationships emerge among the other covariates and the birth interval hazards. The ethnic group hazards, for example show that Hausa and Yoruba (the reference category) women progress from parity 1 to parity 5 at very similar rates whereas Ibo women have interval hazards that are from 1.80 to 3.35 times greater than those of Yoruba women. The differential between Ibo and Yoruba women is strong for the progression from parity 1 to 2, but is even stronger for the progression from parity 4 to 5 -- at that parity, the Ibo hazard is 3.35 times that of the Yoruba. This Ibo pattern of shorter intervals and greater probability of closing birth intervals is stronger in the multivariate models than in zero-order models that do not include control covariates.⁹ Despite this strong main effect of ethnicity, tests for interactions are not significant, which indicates that there are no differences across the three groups in how other covariates affect the hazard ratios (i.e. the slopes). After adjusting for differentials in social characteristics, we find that Ibo women simply moved from one parity to another in the 1980s at a faster pace than either Hausa or Yoruba women. That finding is consistent with the parity-ten custom and the relative absence of polygamy among the Ibo (Isiugo-Abanihe 1993).

Our measures of women's education and women's control show that those effects are likely to be strongest for the first birth interval. At that interval, the higher the level of formal education and if women work and control their own income, the greater the hazard (or the shorter the interval). Women with secondary education have a hazard of closing the interval that is 30 percent greater than those with no formal education, and women who work and control income have a hazard that is 14 percent greater. This is consistent with findings from other studies which show that more educated and working women rely less on breastfeeding (Lesthaeghe et.al. 1989). It may also reflect a growing awareness of the opportunity costs of children as women seek to compress their childbearing period. If so, that period may be followed by the use of deliberate methods of birth control to constrain total family size, which would bode favorably for fertility transition. The fact that the effect of secondary education becomes non-significant and negative at parity 2 and continues to move in a negative direction, though the coefficients are insignificant, at higher parities is consistent with that speculation. In other words, more educated Nigerian women are tending to space their children closer but they are less likely than women with no education to close the interval as parity increases. Women's work and income control, in contrast, increases the hazard marginally at parity 4 (.1 level), which does not conform with expectations.

⁹ When no covariates other than the gender composition measures are included in the Cox model, the Hausa effect is significant for the two highest intervals. For the 3rd interval the hazard ratio is 1.36 (significant at .1 level) and for the 4th interval the hazard ratio is 2.31 (significant at the .05 level). Thus a Hausa-Yoruba difference in the pace of closing these intervals can be explained by including covariates such as education. This is definitely not the case for the larger Ibo-Yoruba differences.

CONCLUSIONS

Despite providing new information on an understudied topic in Africa, this analysis probably raises more questions than it answers about the effects of sex preferences on fertility and how those effects are modified by a society's gender institutions. The descriptive portion of the paper shows that Nigerian women do prefer, at least slightly, sons over daughters and that variations across Hausa, Ibo and Yoruba societies in sex preferences are consistent with their differentials in gender institutions. The multivariate analysis also supports the expectation that son preferences produce detectable differences in fertility behavior -- defined in this study as a shortening or lengthening of birth intervals. While the analysis confirmed the presence of this effect, it only occurred under the condition of significant deficits in the number of sons and was only statistically significant in two of four parity progressions in our event-history models. However, those models did not support the hypothesis that the effects of son preference varied by ethnicity.

The observed son preference effect in Nigeria can probably best be described as a preference for a balanced gender composition since only significant imbalances in the form of son deficits are likely to reduce birth interval length or speed up fertility. Comparable daughter deficits, however, do not illicit the same response.¹⁰ In a context such as Nigeria, which is characterized by limited use of modern means of fertility control or sex determination during pregnancy, the duration of birth intervals is controlled largely by variations in breastfeeding duration and postpartum abstinence.

In this type of context, what is likely to happen when modern methods of fertility control become widespread and when normative pressure for having fewer children become institutionalized? Will gender preference effects that now appear weak and that only operate consistently at higher parities become more forcefully articulated? These are not easy questions to answer because the social changes associated with a shift from a high to a low fertility regime will affect various institutional areas and such changes could cause the current son preference pattern to become only a vague cultural symbol that will have little effect on fertility behavior. Our analysis provides some basis for hazarding a guess, albeit a tenuous guess, about the future. The lack of evidence of a strong son preference suggests that its impact will not grow as fertility control becomes more effective. While we have examples, as from China, of increasing sex ratio imbalances under a modern fertility control regime, in such cases the evidence of son preferences acting to influence the gender composition of children at earlier times was also much stronger.

The analysis offers mixed support for Mason (1993) and Cain's (1993) hypothesis that son preferences and their effects on fertility will be higher in societies characterized by high levels of patriarchy. While we do find that sex preferences vary across the groups in ways that are consistent with their social institutions of gender, it is not clear that the group that has the lowest son preference -- the Hausa -- should be considered as having the lowest level of patriarchy. If patriarchy refers to control of men over different economic and social dimensions of women's lives, it could indeed be argued that patriarchy is the highest among the Hausa. Among the latter, women's lives are ordered and constrained by men -- girls have little access to formal education, are married before they reach social maturity, and spend their adult lives secluded from public life. Cain (1993) argues that women's economic dependence on men contributes to son preference. However, in the case of Hausa society, the control by men of almost every dimension of women's lives seems to be

¹⁰ In this paper we consider sex preference effects at the group level while recognizing that individuals or unspecified sub-aggregations may express strong sex preferences and act upon them while others express and act on different sex preferences. Observed effects of a particular sex preference pattern on fertility, thus, represent the relative dominance of that pattern.

manifested in a preference for daughters because the latter give Hausa women a potential basis for some economic autonomy --- participation in income-generating activity by using their daughters as sales agents.

Although the effect of gender composition of children on birth intervals proved to be essentially equal for Hausa, Yoruba and Ibo women, group membership itself was found to be an important determinant in both our OLS and event history models, after adjusting for other differentials in social characteristics. We argued at the outset of the paper that group differences in fertility outcomes could be attributed at least partially to how groups define what are appropriate reproductive attitudes and behavior for women. For instance, the finding that Ibo women have their first five births at a significantly faster pace than women in the other two groups is consistent with the parity-ten norm of Ibo society which confers prestige on women who achieve large numbers of children. Since other findings suggest that Ibo women do not have the highest fertility (Hausa women hold that status, after adjusting for age and infant mortality), we speculate that a new norm may be evolving in Ibo society which builds on the traditional norm of relatively short birth intervals but will be combined with a new norm of using deliberate fertility control after desired numbers of children are achieved. That interpretation is consistent with other findings, not presented in the paper, which show the highest levels of contraceptive use among the Ibo.

In contrast, the individual-level indicators of women's control provide an ambiguous image of the effect of this social dimension on interval length. Arranging one's own marriage is unrelated to the hazard of progressing from parity one through parity five and work and control of income is associated with significantly faster parity progressions at parities one and four. However, in the OLS models, work and income control is associated with a significantly longer last open-birth interval for Yoruba women. Because it is Yoruba women who have the greatest degree of economic autonomy, this suggests that some threshold in women's economic and social positions is needed within a group before an effect can be detected. Thus while it is clear that differentials across our societies in gender institutions do have implications for the pacing of birth intervals, the analysis also suggests that differences between women within those societies, captured by our measures of women's control, are not the key determinants of child spacing.

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Table 1: Variable Measurement; Means and Standard Deviations (in parentheses)

Variables	Measurement	Hausa	Yoruba	Ibo	Total
Age	Age in years and age in years squared (Stats not presented)	26.27 (7.14)	29.84 (6.32)	30.94 (5.69)	28.37 (6.80)
N Surviving Children	Number of children still alive at time of survey (presented here) or at a specified parity (not presented here).	2.57 (2.17)	3.06 (2.07)	3.47 (2.26)	3.04 (2.20)
N Surviving Sons	Number of sons still alive at time of survey (presented here) or at a specified parity.	1.31 (1.42)	1.57 (1.42)	1.85 (1.47)	1.58 (1.45)
Urban Residence	Dummy variable coded 1 if R resided in State capital, also coded 0.	.25 (.43)	.24 (.43)	.25 (.43)	.26 (.44)
Koranic Education	Dummy variable coded 1 if only form of formal education was Koranic. No formal school is reference category.	.60 (.49)	.00 (.04)	.00 (.04)	.14 (.34)
Primary Education	Dummy variable coded 1 if primary school was the highest level of school attended.No formal school is reference category.	.08 (.28)	.30 (.46)	.35 (.48)	.25 (.43)
Secondary Education	Dummy variable coded 1 if secondary or beyond was highest level of school attended. No formal school is reference category.	.06 (.23)	.37 (.48)	.57 (.50)	.32 (.47)
Worked & Controlled Income	Dummy variable coded 1 if R was working at time of survey and said that she usually decided how earning are used.	.34 (.47)	.56 (.50)	.29 (.45)	.41 (.49)
Arranged Own Marriage	Dummy variable coded 1 if R said she chose her husband or coded 0 if parents selected him.	.61 (.49)	.88 (.33)	.77 (.42)	.72 (.45)
N		1,288	1,235	1,284	3,807

Source: NISER Household Survey, 1991

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Table 2: Desired Gender Composition By Ethnicity

	Ibo ^a	Hausa ^a	Yoruba	Total
a) Number Additional Children Desired	2.14	2.66	1.80	2.13
b) Number Additional Boys Desired	1.23	1.28	0.83	1.11
c) Number Additional Girls Desired	0.87	1.14	0.57	0.82
d) b-c	0.36	0.14	0.26	0.29
e) Total Desired	5.81	5.82	5.12	5.50
f) Total Boys Desired	3.12	3.04	2.74	3.00
g) Total Girls Desired	2.45	2.70	2.32	2.47
h) f-g	0.67	0.34	0.42	0.53
Number of Cases ^b	864	232	523	1,619

^a Means for Ibo and Hausa are directly standardized on the age distribution of Yoruba women.

^b The number of cases is that for the total measures (without regard to gender). Those for the gender variables are somewhat lower (by about 10%) due to additional responses of "God's will" or "Don't know". 20.76 of the sample responded with one of these two options to a query about whether they wanted more children. These cases are dropped from this table. Only 11.8% of Ibo gave such responses, but the percents for Yorubas and especially Hausa were higher: 18.63% and 31.72%, respectively. The approximately 10% further sample attrition occurred in responses to follow-up questions seeking numerical estimates of the number of additional children desired.

TABLE 3: PERCENT WITH LAST OPEN-BIRTH INTERVAL GREATER THAN 24 MONTHS, BY GENDER PARITY (SURVIVING CHILDREN) AND ETHNICITY, NIGERIA 1991

	HAUSA	IBO	YORUBA	COMBINED
TOTAL WITH BIRTH INTERVAL >24 MONTHS	48.8	46.2	47.4	47.4
a) More sons than daughters	50.6	45.7	49.4	48.5
b) Fewer sons than daughters	50.7	42.4	44.8	49.8
c) Has no sons	52.2	27.3	39.0	41.3
d) Has one son only	42.9	41.5	43.0	42.5
e) Has 2 sons	51.6	49.6	50.0	50.0
f) Has no daughters	47.8	30.1	40.4	40.1
g) Has one daughter only	48.0	44.3	47.7	46.7
h) Has 2 daughters	51.6	50.8	47.6	49.9
i) c-f	+4.4	-2.8	-1.4	+0.8
j) d-g	-5.1	-2.8	-4.7	-4.2
k) f-h	0.0	-1.2	+2.4	+0.1

**TABLE 4: MEAN LENGTH OF LAST OPEN-BIRTH INTERVAL (MONTHS)
BY COVARIATE CATEGORIES**

	HAUSA	IBO	YORUBA	COMBINED
TOTAL	31.0	32.0	30.3	31.1
AGE:				
< 19	18.0	19.8	12.9	17.2
20-24	22.0	14.9	18.8	19.5
25-29	27.4	18.6	21.6	22.2
30-34	37.2	29.0	30.3	31.4
35+	50.6	52.8	45.8	49.6
SURVIVING LIVE BIRTHS				
4+	30.7	36.6	34.7	34.4
< 4	27.1	27.6	27.6	28.6
AREA OF RESIDENCE				
Urban	34.7	39.3	29.1	34.2
Rural	29.7	29.8	30.7	30.1
EDUCATION				
None	35.4	49.2	36.2	37.3
Koranic	30.2	21.5	34.0	30.2
Primary	26.7	32.9	31.0	31.5
Secondary	23.3	29.2	24.5	27.1
WIFE WORKS & CONTROLS INCOME				
Yes	30.5	36.7	32.0	32.7
No	31.4	30.1	28.0	30.0
WIFE CHOSE HUSBAND				
Yes	28.1	31.2	29.7	29.8
No	35.8	34.3	34.7	35.1

Table 5: OLS Regression of Duration of Open Interval^a on Gender Composition, Ethnicity, and Socioeconomic Status

	Hausa	Ibo	Yoruba	Combined
Hausa	--	--	--	6.11****
Ibo	--	--	--	2.49**
N Surviving Children	-4.23****	-1.54**	-1.75***	-2.33****
N Surviving Sons	.31	.41	.51	.42
Age	.61	-6.67****	-.98	-2.39****
Age-Squared	.03	.15****	.05**	.08****
Urban	8.22****	11.40****	1.97	6.61****
Koranic Education	-3.38*	-32.37*	6.23	-3.12*
Primary Education	-3.73	-7.79**	-.17	-2.84*
Secondary Education	-9.71**	-8.40**	-3.57*	-5.06****
Worked & Controlled Income	.07	1.16	2.74*	1.89**
Arranged Own Marriage	-3.50**	-.26	-.75	1.98*
Intercept	9.06	95.24****	19.60	37.07****
Adj. R ²	.21****	.29****	.17****	.21****
N	925	1069	1070	3064

^a The open interval is the duration in months since the most recent birth prior to the survey that was recorded in the 10-year detailed birth history. If the most recent birth occurred prior to 1981, then such cases are excluded from the analysis.

^b A test for interaction between the Ethnicity indicators and each of the other covariates indicated that significant differences in parameters across ethnic categories exist. For this reason, ethnic-specific equations as well as one for the total sample are presented.

^c Statistical significance is indicated as follows: * indicates significant at the .1 level, ** at the .05 level, *** at the .01 level, and **** at the .001 level.

TABLE 6: Cox Event History Models of Progressions From 1st to 5th Births (Hazard Ratios)

Covariates	1st-2nd	2nd-3rd	3rd-4th	4th-5th
Gender Composition At Interval Start:				
No Sons	.95	1.31**	.98	5.44***
One Son	--	.95	.65**	1.97
Two Sons	--	--	.86	1.70
Three Sons	--	--	--	1.34
Age	1.00	.99	.98	.98
Urban Residence	1.14	1.02	.91	.70
Koranic Education	1.14	1.25	1.20	2.84**
Primary Education	1.21*	.99	1.02	1.55
Secondary Education	1.30***	.96	.88	.79
Controls Work Income	1.14**	.97	.93	1.49*
Arranged Own Marriage	1.10	1.16	.89	1.25
Hausa	1.23*	1.04	1.04	1.34
Ibo	2.16****	1.96****	1.80****	3.35**
LL	-7169.57	-3876.55	-1775.67	-473.81
Chi-Squared	147.82****	65.22****	31.39****	35.11****
Mean Interval Duration (Months)	28.76	25.71	25.58	18.87
% Intervals Closed	69.7	58.8	49.8	33.1
N	1,617	1,127	663	330

This analysis is restricted to those women whose first birth in a roster of all births during the 10 years prior to the survey was her first birth. This restricts the sample to about 54% of the total sample and is similar to constraining the sample to women under the age of 30. Statistical significance is indicated as follows: * = .10; ** = .05; *** = .01; **** = .001. When age and age-squared are included in the models, neither is significant.

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Paper 4

**Spousal Agreement, Women's Status, and Family Planning
in Nigeria**

by

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Introduction¹

The role of spousal agreement in shaping use of family planning has received scant research attention. Indeed few databases even allow scholars to examine those linkages since they only include data on women. Moreover, several studies that have examined spousal agreement cast doubt on its importance for reproductive outcomes. For instance, work by Mason and Taj (1987) shows that there is little disagreement between couples on fertility desires; other work shows, in cases of disagreement, that women's views are more important than men's for fertility decisions and contraceptive use (Beckman et al. 1983; Coombs and Chang 1981; Mott and Mott 1985; Townes et al. 1977). A couple of recent studies in the African context, however, show that couples often disagree on reproductive issues and that husband's fertility desires do matter for reproductive outcomes in that context (Bankole 1995; Ezeh 1994). Work in other contexts also suggests that models may be misspecified if men's characteristics are not included (Fried et al. 1980; Thomson et al. 1990).

Some scholars (Ezeh 1994; Isiugo-Abanihe 1994; Renne 1993) argue that ignoring men's views toward family planning in the African context contributes to the low levels of contraceptive prevalence found in that region. Based on fieldwork carried out among the Yoruba of Nigeria in the 1970s, Caldwell (1987) advanced the argument that men and their lineages rule over reproduction in Africa. Oni and McCarthy (1991) confirmed the importance of men's views for contraceptive prevalence in a study of men in Ilorin, Nigeria. They asked men whether they or their wives should decide about contraceptive use. Most men said they should decide and very few men said the wife should decide -- only men with postsecondary education favored the modern response, i.e. that both spouses should make the decision. All of these studies, however, have focused on a single ethnic group or community and thus it remains to be determined whether men from different cultural contexts hold similar views and whether women have greater inputs into the decision making process as they gain access to education and other resources. Mason and Taj (1987) and Dixon (1993) argue that women who have greater control of material and social resources will have more inputs into household decision making and be favorably disposed toward fertility reduction and contraceptive use.

In this paper, we look at the effects of spousal agreement on use of family planning in Nigeria and at how that relationship varies in five ethnic groups that differ in their gender institutions. We proceed from the premise that women's inputs into household decision making derive initially from their ethnic group membership but expect that their access to education, employment, and income will condition spousal agreement. We examine several dimensions of agreement, including demand for children, wife say in family size decisions, communication, and contraceptive use drawing on 1991 survey data on the Hausa, Ibo, Ijaw, Kanuri and Yoruba.

Theoretical Approach

Miller and Pasta (1994) argue that we have limited knowledge of the effects of couple interactions on fertility because scholars utilize different outcome measures and look at different phases of the intentions-behavior-fertility sequence (Miller 1992). They note that predictors of each of these phases differ and that the effects of spousal agreement on different reproductive outcomes may also differ. Drawing on longitudinal data, their study and others carried out using U.S. data tend to show that characteristics of both spouses are important determinants of fertility outcomes although effects vary by type of agreement and phase of the reproductive cycle (Beckman 1982, 1983; Thomson et al. 1990).

The effects of spousal agreement on reproductive outcomes in developing countries are less clear. Lack of data on husbands and wives has kept knowledge limited largely to insights gained from studies conducted in the 1950s and 1960s which showed that spousal interactions do shape fertility desires and contraceptive use (Stycos, Back and Hill 1956; Yaukey, Roberts and Griffiths 1965). Subsequent studies have focused largely on establishing whether differences exist in spousal fertility desires and offer mixed findings regarding the implications of disagreement for future childbearing intentions (Coombs and Chang 1981; Ezeh 1993; Jejeebhoy and Kulkarni 1989; Mott and Mott 1985). Based on a literature review of

women's and men's desired family size and demand for children, Mason and Taj (1987) conclude that differences in desires are small but, if they do exist, that women are more likely than men to want to stop bearing children. However, in a study of 107 couples in Ondo State, Nigeria, Mott and Mott (1985) find considerable disagreement between husbands and wives on fertility desires. Nonetheless, they conclude that relying on wife intentions alone would be a reliable indicator of future fertility because husbands, who want more children on average than their wives, will take on additional wives to satisfy their fertility desires.

Mason and Taj (1987) suggest that spousal disagreement on fertility goals will be greater in contexts characterized by strong patriarchy, high fertility and low levels of development. Other literature also suggests that levels and type of spousal agreement vary across contexts. For instance, Beckman (1982) and Hollerbach (1980) use the concepts of concordance and consensus to differentiate types of spousal agreement. Concordance refers to spousal agreement that derives from a society's social norms -- i.e. spouses may agree on reproductive issues not because they have discussed them but because they give the normative responses in their society. Consensus, in contrast, refers to agreement that results from discussion -- in this situation, both spouses are likely to be aware of the other's position and share it. Beckman (1982) argues that consensus should be higher in societies that are more modern and have higher levels of economic development while concordance will be higher in societies that are more traditional and have relatively low levels of economic development. In the Nigerian context, these concepts are useful since age cohorts and ethnic groups share different social change experiences and fall at different points on the traditional to modern continuum.

By examining ethnic differentials in spousal agreement in this study, we aim to shed some light on how social context shapes and constrains marital interactions. In particular, the five ethnic groups differ in their degree of patriarchy and gender institutions. Patriarchy, defined as the extent to which men control women's lives, shapes normative attitudes toward reproduction and the gender institutions established by a society. Although elements of strong patriarchy exist in all five of the ethnic groups, previous work indicates that Kanuri and Hausa societies are more gender restrictive than Ibo, Ijaw and Yoruba societies (Kritz and Makinwa-Adebusoye 1995). While women in the latter societies are increasingly gaining access to education and are engaged in employment outside the home, Hausa and Kanuri societies remain traditional and restrict women's access to education and employment (Callaway 1992; Coles and Mack 1991). In contrast, Yoruba and Ijaw women have historically been active in the informal economy as traders and have expanded their work in the formal sector in recent decades (Sudarkasa 1973); Ibo women also do some trading but have traditionally engaged in farming. Seclusion in Hausa and Kanuri societies tends to restrict women's economic activities to the family compound (Hill 1972).

Given these group differences in degree of patriarchy and access to education and employment, we expect consensus agreements to be higher among spouses in the Ibo, Ijaw and Yoruba groups and concordance agreements to be higher in the Hausa and Kanuri groups. We also will evaluate Beckman's proposition (1982:417) that couples who have achieved consensus will be more effective in achieving other reproductive preferences -- use of family planning is the outcome we examine. Finally we look at how wife's education, employment and other indicators of wife's control modify the effects of spousal agreement.

Data, Variable Measurement and Model Specification

We use data from a 1991 survey of married women aged 15-45 in five Nigerian ethnic groups -- the Hausa, Ibo, Yoruba, Ijaw and Kanuri. The first three groups are the largest ethnic groups in Nigeria, each numbering between 12-20 million people, and the Ijaw and Kanuri are smaller groups that number 1.5 and 2.5 million people, respectively. Together the groups include about 60 percent of Nigeria's total population. The data were gathered using a two-stage, stratified, cluster-sampling strategy. At the first stage, stratification was based on ethnicity, identifying states constituted predominately by members of each ethnic group: Borno (Kanuri), Imo (Ibo), Kano (Hausa), Ondo (Yoruba) and Rivers (Ijaw).

Within each state, at the second stage, Local Government Areas (LGAs), the equivalent of counties in the United States, were classified according to their degree of urbanization and four LGAs selected that include: the state capital, an intermediate size urban area, and two predominately rural LGAs. Households were randomly selected and a quarter of the interviews conducted in each of those areas.² One eligible wife per household was interviewed, along with about 60 percent of their husbands. Only the couple data are used in this paper. Sample sizes for the matched husband/wife data are 3,168 for the pooled sample and, for the subgroups, 631 (Kanuri), 708 (Ibo), 590 (Hausa), 570 (Yoruba), and 669 (Ijaw). Wives were interviewed by female interviewers and husbands by male interviewers.

Variable Measurement

Because spousal agreement varies by topics and phase of the reproductive cycle (Coombs and Chang 1981; Miller and Pasta 1994), we look at several dimensions: demand for children, spousal communication, wife say on family size, and use of family planning. Our substantive interest is to determine how spousal agreement on some reproductive dimensions affects spousal agreement on use of family planning. Since use of any method of family planning is relatively low in two of the ethnic subgroups, 2.8 and 5.2 percent for the Kanuri and Hausa, respectively,³ our dependent variable includes spouses who agree that they currently use some method of birth control or that they will use one in the future. For the pooled sample, two thirds of the couples agree that they are current users and an additional third say they will use in the future. Most users, however, rely on traditional methods of birth control, particularly rhythm and withdrawal. Keeping these caveats in mind, our dependent variable consists of a dummy variable set equal to one if both spouses agree that they are either currently using family planning or will use it in the future.

For each of the other three measures of spousal agreement, we look at several forms of agreement/disagreement. Six types of spousal agreement on demand for children are examined, including: (a) both husbands and wives responded "god's will" to the question "Do you want to give birth to more children;" (b) both responded "no more" to that question; (c) both responded that they want "more children;" (d) the wife said she wants more children but the husband said no more; (e) the husband said no more children but the wife said she wants more; and (f) all other forms of disagreement on the three agree categories (e.g. one spouse said god's will and the other said no more or wants more). Dummy variables are constructed for these six demand categories.

In keeping with the concepts of concordance and consensus, spouses in the Hausa and Kanuri groups should have higher levels of agreement on god's will than spouses in the other groups because they are the most traditional and gender restrictive. In contrast, the Ibo, Ijaw and Yoruba should have higher levels of agreement on the modern response (want no more children) and that response should be an indicator of consensus. Since the "want more children" category includes both spouses who hold the modern orientation of wanting more and give a number and those who want more but express traditional attitudes of god's will on the number (Kritz and Makinwa-Adebusoye 1995), we expect less difference across the groups on that response. We also expect that spouses who agree that they want no more children will have increased odds of use of family planning. Of particular substantive interest is which spouse's views matter most in cases of disagreement. If husbands indeed dominate reproductive affairs in Africa and are more pronatalist than their wives, then we would expect to find reduced use of family planning if the husband says more children but the wife says no more. Moreover, in cases where the husband say no more children but the wife says more, husband dominance would lead us to expect increased use of family planning.

Spousal communication on family planning in the last year is a direct measure of the consensus concept and should be highest among spouses in the groups that are less gender restrictive -- i.e. the Ibo, Ijaw and Yoruba. Four agreement categories are examined based on responses to the question "how many times did you talk to your husband [or wife] about family planning in the last year": (a) never talked; (b) talked 1-2 times; (c) talked 3 or more times; and (d) agree that they talked but disagree on number of times. Two forms of disagreement are examined: (a) wife says they talked but husband says they never

talked; and (b) husband says they talked but wife says they never talked. Dummy variables are constructed for each of these agreement and disagreement categories. The traditional normative response would be that they never talked and, therefore, according to the concordance thesis, should be highest among Kanuri and Hausa wives. Spouses in the Ibo, Ijaw and Yoruba groups, in contrast, should be more likely to say that they talked and to quantify the number of times that they talked. In addition, we expect spousal communication on family planning to be positively associated with use or intended use. Spouses who never talked, in contrast, should have the lowest levels of contraceptive use.

Spousal agreement on wife's say on family size measures the relative power of wives within the marriage dyad. Wives were asked "do you have any say on family size" while husbands were asked "does your wife have any say on family size." Four categories of agreement are based on their responses to that question: (a) both spouses said no, that the wife has no say on family size; (b) both said yes, that the wife has some say on family size; (c) wife says she has no say but husband says she has some; and (d) husband says she has no say but wife says that she has some. The Hausa and Kanuri groups are expected to have relatively high levels of spousal agreement that the wife has no say on family size, since that is the traditional normative response, while the Ibo, Ijaw and Yoruba groups should be more likely to agree that the wife has some say.

Since we are also interested in evaluating how the effects of spousal agreement on family planning is shaped by women's status, we look at several dimensions that shed light on that issue. First, we look at differences in spousal agreement across the five ethnic groups to determine whether those patterns operate in the direction expected, given the differences in their gender institutions. In general, we expect normative responses to be higher for the Hausa and Kanuri since those societies remain traditional and restrictive of women's activities. Second, we look at several dimensions of women's lives that are changing as modernization proceeds, namely their work and income control and their conjugal relationships (Blumberg 1991; Kritz and Makinwa-Adebusoye 1995). Third, we use the measure, described above, of spousal agreement on wife say on family size as a direct measure of women's inputs into family decision making. If spouses agree that the wife has some say on family size, this should be a direct indicator of her actual decision making inputs on reproduction.

These three dimensions capture different aspects of wife's relative power within the family. Ethnic group membership determines which opportunities are likely to be open to women in the first place. However, even in gender restrictive societies, some women obtain more education than others, have greater access to employment, and experience other differences in their lives, which is why it is important to look at social and economic characteristics of women. The third indicator, wife say on family size, allows us to assess whether wives have control over their reproduction and to determine how that varies across ethnic groups.

Four dummy variables measure women's economic and social characteristics. Work before marriage, our first indicator, captures a point in the life cycle when women are still forming their ideas about marriage and work and should equip them with skills that can subsequently increase their employment. We use a contemporary measure of women's work activity, a dummy variable set equal to "1" if the wife was working at the time of the survey and responded affirmatively to the question "do you usually decide how your earnings are used." We look at income control, in addition to current work status, based on reasoning that work alone is not the critical factor likely to affect family planning use but whether women perceive that they have some control over the money they obtain from working. If women give their earnings to husbands, in-laws or others, they may perceive work differently than if they control their earnings.

Women's social control over family affairs, particularly on aspects related to reproductive matters, should have implications for fertility. Mate selection, our first measure, equals "1" if the wife responded "I chose him" to the question "Did you choose your current husband or did your parents choose him for you?" Wives who chose their own husbands should have greater control over their reproductive affairs than those whose parents made that selection for them. Although it is likely in most African societies that

parents have some input into mate selection, we assume that women who perceive that they made that choice will be more likely to think that they are in control of other dimensions of their lives. The second measure evaluates the importance of mother-in-law presence in the household for use of family planning. The theoretical justification for looking at the implications of mother-in-law presence stems from Caldwell and Caldwell's claim (1987) that male dominated lineages control women's reproduction and encourage pronatalism in Africa.

We also control for both wife's and husband's age and education in the analysis. We expect that age may operate differently by sex.⁴ For instance, age should increase women's use of family planning, inasmuch as it gives women time to bear large numbers of children and also allows them to develop other uses for their time, such as work or social obligations. Nigerian men, on the other hand, are expected to continue producing offspring as they age and, material resources permitting, often do so by taking on additional wives. If so, age should not change their attitudes toward children. Education is included in our models as a categorical variable and we evaluate the effects of four educational patterns -- no education, koranic education, attended or completed primary, and attended or completed some secondary or higher level of education. Each educational type is measured as a dummy variable set equal to one. Formal education is expected to be positively associated with use of family planning.

Four variables common to both spouses are included as demographic controls: number of live children, current pregnancy status, polygyny status, and area of residence. Couples who have large numbers of children should be more likely to discuss family planning and to agree on use of family planning. Since child loss differs across the groups, we use number of live children, measured as a continuous variable, rather than number of live births. A dummy variable for current pregnancy status is included as a control variable given that women are unlikely to be family planning users if they are pregnant. Polygyny status is expected to be negatively associated with use of family planning either because women may be competing with other wives for husband's favors or because women in that status will be more traditional in outlook. Urban residence may increase exposure to others who have modern "ideas" about reproductive behavior and family size (Acsadi and Johnson-Acsadi 1990). Access to social services, including education and family planning, is also disproportionately located in large urban areas in most African countries (Makinwa-Adebusoye 1991; World Bank 1989). Urban residence equals one for residence in the state capital.

Variable measurement rules are specified in Appendix 1, and means and standard deviations for the full sample and five ethnic groups provided in Table 1. All of the covariates are measured as dummy variables, except age and number of live children. Examination of the zero-order correlation matrix reveals no major collinearity problems.⁵

[Table 1 About Here]

DETERMINANTS OF FERTILITY PREFERENCES IN NIGERIA

For the pooled sample and the five groups, Table 1 shows the distribution of spousal agreement: demand for children, spousal communication in last year on family planning, and wife say on family size. A pronatalist picture emerges for the total sample: 42.9 percent of the spouses agree that they want more children, 56.2 percent agree that they did not talk about family planning in the past year, and 35.4 percent agree that the wife has no say on family size. From the standpoint of change, however, it is important to note that more modern views are shared by a minority of spouses: 8.7 percent agree that they want no more children; 18.6 percent say that they talked about family planning in the past year; and 32.5 percent agree that the wife has some say in family size matters.

The five ethnic groups differ considerably in levels and extent of agreement on reproduction. On the topic of demand for children, for instance, Kanuri spouses are more likely to agree on god's will (28.4%) than spouses in other groups. Moreover, spouses in the two gender restrictive groups, the Hausa and Kanuri, have large percentages in the "other disagree" category, which includes responses in which at least one of the spouses said god's will while the other would have responded no more or want more. On the other hand, Ibo, Ijaw and Yoruba spouses are more likely to give the modern response of "no more"

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children or to indicate that they want more, rather than leaving that decision up to god. In cases of spousal disagreement on demand, the most common response is for husbands to want more children and wives no more, except among the Ijaw.

Panel B of Table 1 describes spousal agreement on family planning communications in the past year. Agreement that they never talked about family planning ranges from a high of 78.3 percent among the Kanuri to a low of 27.3 percent for the Ibo. At the same time, relatively large numbers of Yoruba spouses, 57.4 percent say they never talked and 49.8 percent of Ijaw spouses. Ibo spouses were the most likely to have talked, although they often disagreed about the number of times talked. In cases of disagreement on whether they talked or not, Kanuri and Hausa wives are more likely than their husbands to say that they talked about family planning whereas spouses in the other three groups are as likely to show either type of disagreement.

[Table 1 About Here]

Similar discrepancies across the groups occur for wife say on family size. Whereas over 78 percent of Kanuri and Hausa spouses agree that the wife has no say on family size, only 6.7 percent of the Ibo, 10.5 percent of the Ijaw, and 11.5 percent of the Yoruba give that response. Indeed only 2.2 percent of Hausa spouses and 5.3 percent of Kanuri spouses agree that the wife has some say on family size. In cases of spousal disagreement, Ibo, Hausa, and Kanuri husbands tend to say that their wives have a say while Yoruba and Ijaw husbands say that the wife has no say.

The means in Table 2 show that the groups differ significantly from each other in their demographic and social characteristics in directions consistent with their gender institutions. Educational levels are relatively high among Ibo, Ijaw and Yoruba wives but low among wives in the two Northern groups -- 60 percent of Kanuri wives have no education. Hausa wives also have relatively low rates of no education (29%). While 58 percent of Hausa wives have Koranic education, the latter's teachings are limited largely to memorizing the Koran in Arabic and is not the equivalent of formal schooling. Educational differentials in modernization by ethnicity reflect differentials in modernization. Whereas only 4 and 10 percent of Hausa and Kanuri wives, respectively, have some secondary education or higher, almost half of Ibo (46%) and Yoruba (47%) do, and 70 percent of Ijaw wives. Group differences in gender inequality are also high -- Hausa and Kanuri husbands are 2-3 times more likely than wives to have secondary education whereas Yoruba spouses have similar educational profiles and Ibo wives have more secondary education than husbands. Although spousal age gaps are high in all of the groups, they are highest among the Hausa and Kanuri.

The groups also differ in their demographic characteristics. For instance, the Ibo and Ijaw have the highest number of live children and the Kanuri and Hausa the lowest. However, these levels reflect differential child loss (data not shown) rather than fertility preferences. Polygyny levels differ across the groups -- only 7 percent of Ibo wives are in a polygynous union compared to at least a quarter of the wives in the other groups. Although the 1991 DHS found the highest levels of polygyny in the North, the region where the Hausa and Kanuri reside, our data show similar levels of polygyny for the Yoruba and the Hausa.⁶ This may be due to the fact that the DHS sampling procedure focused on regions while we sampled by ethnicity. Levels of urban residence are about the same across the groups, which is consistent with the fact that we drew 25 percent of each group's sample from the capital of the state in which we drew our samples. The groups differ sharply on religious status -- the Hausa and Kanuri contain few non-muslims and the Ibo and Ijaw are predominately Christians. We do not include religious status in our analysis because of intragroup homogeneity.

[Table 2 About Here]

Women's control over their economic and social affairs also varies considerably across the groups. While 62 percent of Yoruba wives worked before marriage, only 3 percent of Kanuri wives did so. Ijaw wives, however, are most likely to be working today and in control of their income (66%), followed by the

Yoruba (56%). Although a relatively high proportion of Ibo wives work (69.3%, data not shown), the normative structure of Ibo society dictates that husbands control household income (Isiugo-Abanihe 1993). Our data reflect that norm in that only 26 percent of Ibo wives who work say they control their income (Table 2). In Hausa and Kanuri societies, in contrast, although wives tend not to work, if they do obtain income, they tend to control it. For instance, only 21.5 percent of Kanuri wives work but 81.5 percent of those who do say that they control their earnings, as do 80.4 percent of Hausa wives who work (data not shown). Ijaw and Yoruba societies, however, have a predominance both of women who work (81% of wives work in both groups) and control their income -- 82 and 69.9 percent, respectively.

The two measures of wife's social control -- whether the wife chose her husband and whether her mother-in-law lives in the household -- show that wives in the two Northern groups, the Kanuri and Hausa are least likely to say they chose their husbands. In contrast, most Ijaw and Yoruba wives say they chose their husbands. Mother-in-laws are most likely to be present in Hausa (19 percent) and Ibo (12 percent) households. In contrast, only 3 percent of Ijaw wives and 7 percent of Kanuri wives say that their mother-in-law lives with them.

[Table 3 About Here]

Table 3 shows the bivariate relationships between spousal agreement on demand for children, communication on family planning, and wife say on family size and our dependent variable -- spousal agreement on current or future use of family planning. Overall, 20 percent of spouses agree on family planning use, ranging from a high of 55 percent of Ibo spouses to a low of 1.3 percent of Kanuri spouses.⁷ Not surprisingly, spouses who agree that they want no more children tend to agree that they use or will use family planning (48.6 percent). However, so few Hausa and Kanuri spouses agree on those two outcomes that their cells are empty. As expected, agreement on use of family planning tends to be very low if spouses agree that their future fertility is up to god -- only 6 percent of spouses who say god's will indicate that they use or will use family planning. In cases of spousal disagreement, use is increased if either the husband or wife said "no more", even though their spouse said more. At the same time, husband's desire for no more children has greater weight -- 41.5% of dyads in which the husband says no more and the wife more agree that they use or will use family planning.

The relationships of spousal agreement on communication to use of family planning are also in the expected direction (Panel B, Table 3). For the pooled sample, Only 2.9 percent of spouses agreeing they never talked about family planning say they use or will use family planning compared to 84.6 percent of those who say they talked about family planning three or more times. Agreeing that they talked is more important than disagreement on number of times talked -- if at least one spouse said they talked 3 or more times and the other that they only talked 1-2 times, 73.3 percent agree on use of family planning. Disagreement on communications, in contrast, shows no relationship to family planning for the pooled sample but does at the group level. For instance, agreement on family planning use among the Yoruba is more likely to occur if the wife says they talked, even though her husband said no, but less likely to occur among the Ibo if the wife says they did not talk and her husband says they did.

Panel C of Table 3 shows the relation between spousal agreement on wife's say on family size and agreement on family planning. The relationships are as expected: agreement on family planning use is higher if spouses agree that the wife has some say on family size and lower if they agree that she has no say. Although only 1.3 percent of Hausa spouses agree on use of family planning, that percentage increases to 16.7 percent if they agree that the wife has some say on family size. While disagreements on wife say tend to be associated with reduced family planning use for the Ibo, Yoruba, and Ijaw, it is associated with increased use for Hausa dyads in which the husband says his wife has a say but the wife says she has none.

[Table 4 About Here]

Table 4 shows the bivariate relationships between spousal agreement on use or intended use of family planning and other covariates included in our multivariate analysis. Correlates of increased spousal agreement on use of family planning include: urban residence, wife's age, wife's secondary education, husband's primary and secondary education, work before marriage, and wife's selection of her husband. The principal correlates at the group level vary, however. While wife's and husband's secondary education is associated with increased use in all five groups, reduced use occurs among muslim spouses and among Yoruba, Ijaw and Ibo spouses whose highest level of education is some primary or primary complete. Selected aspects of wife's economic and social control correlates with increased use of family planning in all groups except the Ibo. Spouses in polygynous unions are also somewhat less likely to agree that they use or will use family planning.

Effects of Spousal Agreement and Women's Control on Family Planning

We use binary logistic regression to evaluate the relative importance of spousal agreement on demand for children, communication, and wife say for use or intended use of family planning. The first model in Table 5 includes covariates for wife's and husband's age and education, as well as a set of control variables shared by both spouses and allows us to evaluate the relative importance of wife's versus husband's characteristics for family planning use. Models 2-4 retain those covariates but look at how each of the three dimensions of spousal agreement modifies their effect on family planning. Models 4-6 look at the effects of three dimensions that tap different aspects of wife's control over her affairs: spousal agreement on wife say on family size (Model 4), wife's economic and social control (Model 5), and ethnic group membership (Model 6). Model 7 includes the full set of covariates.

Model 1 in Table 5 shows that both wife's and husband's characteristics have independent effects on our dependent variable, spousal agreement on use or intended use of family planning. Wives who have some secondary education are 10.7 times more likely to agree with their spouse that they use or will use family planning. Husband's primary and secondary education also has strong significant effects on use of family planning. As expected, wife's age correlates positively with agreement on family planning use but husband's age shows no relationship. Of the four background control variables, number of live children has the expected positive relationship to agreement on family planning use while spouses in polygynous unions are less likely to agree on use. The effects of area of residence and current pregnancy status are in the expected direction but not significant.

[Table 6 about here]

Spousal agreement on demand for children, examined in Model 2, increases the explanatory power of the base model and attenuates slightly the effects of the formal education covariates. As expected, spouses who agree that they want no more children are likely to agree on use of family planning, relative to the referent category (one spouse says god's will while the other says either no more or wants more). Also of interest is the finding that in cases of disagreement, spouses are significantly more likely to agree on use if the husband says no more and his wife says more. This finding is consistent with the thesis that men control women's reproduction in Africa.

Model 3 examines the effects of different types of spousal communication on family planning, using no talk as the referent category. As noted previously, spousal agreement on talk is a direct indicator of consensus type agreement. Although under 20 percent of the spouses in our sample have obtained this level of consensus, a very strong relationship to family planning emerges among those who have. Compared to spouses who agreed that they never discussed family planning, the referent category, the odds of agreement on use are 59 times higher if spouses said they discussed family planning three or more times in the past year and 21 times higher if they discussed it once or twice. Spousal agreement on communication is important even if the spouses disagree on the number of times they discussed family planning -- 31.7 percent of spouses in that situation agree on use. Moreover, spouses who disagree about whether they discussed family planning are more likely to agree that they use or will use family planning in the future. For those two combinations, agreed use is slightly higher in cases where the wife says they

talked and the husband said they did not. After controlling for spousal communication, the effects of live children on agreed use are no longer significant, which suggests that spouses with more children are more likely to discuss family size and family planning. The effects of wife's and husband's education are also attenuated by controlling for spousal communication.

All three measures of spousal agreement on wife say, introduced in Model 4, are significant and have a positive and significant effect on spousal agreement on use or future use of family planning. Spouses who agree that the wife has some say on family planning are 5.8 times more likely to agree on use than spouses who agree that the wife has no say, the referent category. Moreover, use is increased even if the spouses disagree on wife say. In other words, the fact that one of the spouses thinks that the wife has some say, even though the other spouse disagrees, increases the odds of use over what it would be if both spouses agree that the wife has no say.

The four measures of wife's economic and social control are added in Model 5 and while only one of those is significant, controlling for those factors has the effect of strengthening the effects of women's and men's primary and secondary education. Moreover, the effects of urban residence become positive and significant, net of women's economic and social control. These findings suggest that there may be some interactions between education, urban residence and wife's social control. On the other hand, of the four measures of women's economic and social control examined, only wife's work and earning's control is significant, although it operates in a negative rather than positive direction as expected. The implication of that finding is discussed further below.

Ethnic group membership, our proxy measure for degree of patriarchy at the societal level, is added in Model 6 and shows that Kanuri and Hausa spouses are significantly less likely than Yoruba spouses, the referent group, to agree that they use or will use family planning. That finding is consistent with the fact that degree of patriarchy or men's control over women's lives is highest in Kanuri and Hausa societies. Ibo spouses, in contrast, are 6.3 times more likely than Yoruba spouses to agree on use, a consistent finding given the high value Ibo society places on education and the fact that gender inequality in education is minimal in Ibo society. No significant differences occur between the Yoruba and Ijaw, however, in spousal agreement on current or intended use of family planning.

Model 7 includes all of the variables and serves as the saturated model for log likelihood tests of the relative importance of the covariate subsets included in Models 2-6. A comparison of the log likelihoods $(-2|L_1 - L_0|)$, in the bottom row of Table 5, indicates that, net of wife's and husband's characteristics, the most important determinant of family planning use is spousal communication, followed by ethnic group membership, wife say on family size, wife's social and economic control, and demand for children.

Examining the individual covariates, increased agreement on use of family planning correlates with spousal communication of any type, Ibo group membership, wife's and husband's secondary education, mother-in-law presence in the household, and wife say on family size. Decreased agreement on family planning correlates with Kanuri and Hausa group membership and wife's work and earning's control. Spouses who talked 3 or more times about family planning in the past year are 64 times more likely to agree on use than those who never talked. Ibo spouses are almost 5 times more likely than Yoruba spouses to agree on use. Dyads in which the husband has some secondary education or more are 2.8 times more likely to agree on use. Controlling for spousal communication renders insignificant all of the measures of agreement on demand for children except one measure of disagreement -- husband says he wants more children and wife says no more. That finding is suggestive in that it indicates that net of other covariates included in the model, wife's views are more important than their husbands for family planning.

After controlling for spousal agreement and wife's inputs into household decision making, the effects of husband's and wife's education on family planning are greatly attenuated and the effects of wife's age are no longer significant. Wife's primary education no longer has any significant effect and wife's secondary education has a smaller effect on use than husband's secondary education. Since the addition of

controls for ethnic group membership in Model 6 eliminated the significant effects of wife's age and primary education observed in Models 1-5, this finding suggests that it is differences across the groups in women's access to education which account for those effects.

The effects for three of the four measures of wife's economic and social control are significant in Model 7 but not necessarily consistent with expectations. As expected, work before marriage increases the odds of agreement on use of family planning. However, we expected mother-in-law presence in the household to have a negative effect on use of family planning but find that spouses in households where a mother-in-law resides are 1.8 times more likely to agree that they use or will use family planning. This finding suggests that mother-in-laws play a very different role in household decision making in Africa than they do in South Asia.

Based on previous findings that women who work and control their earnings are also significantly more likely to say that they want no more children (Kritz and Makinwa-Adebusoye 1995), we expected work and earning's control to have a positive effect on use of family planning. Model 7 shows, however, that dyads in which the wife works and controls her income are 32 percent less likely than other spouses to agree on use of family planning. Since that relationship was unexpected, we explored the correlates of wife's work and earning's control and determined that wives in that situation are significantly older, likely to have worked before marriage, likely to have large numbers of children, more likely to be in polygynous unions, and more likely to be Yoruba or Ijaw. Further analysis indicates that the fact that they are not using nor intend to use family planning may relate to the higher prevalence of abstinence among these women. Our data also show that women who work and control earnings are significantly less likely than other women to have resumed sexual relations since their last birth and report a longer interval since time of last sexual activity (data not shown). Thus, abstinence may be the method these women use to avoid pregnancy. The fact that they are older may also mean that some of them are menopausal.

DISCUSSION

This paper uses data from a pooled sample of husbands and wives in five Nigerian ethnic groups to examine how spousal agreement affects use of family planning and how that relationship is modified by wife's inputs into household decisionmaking. By looking at how those relationships vary across five ethnic groups that differ in their degree of patriarchy, we have observed that both spousal agreement and the structure of women's lives vary tremendously even in the same country and that the key cleavages occur along ethnic or cultural lines rather than along development lines. Our findings indicate that women's lives in the five ethnic groups have been affected very differently in the post-independence era and that the groups are now starting to proceed at very different paces through their fertility transitions. Of the five groups examined, we find an openness toward family planning in three of them -- the Ibo, Ijaw, and Yoruba -- but a resistance toward it in the other two -- the Kanuri and the Hausa.

Several other issues addressed in the paper are of potential relevance for further research and policy purposes. In general, our findings indicate that a more comprehensive picture is obtained of the determinants of family planning if the characteristics of both spouses are examined. In our models, husband's secondary education consistently has a positive and significant effect on family planning and, after controlling for wife's economic and social inputs, has a stronger effect than wife's education. That finding, along with those on spousal agreement, supports the point advanced by Ezeh (1994) and other scholars (Isiugo-Abanihe 1994; Renne 1993) that men's views are important for reproductive dynamics in Africa.

Our work also shows, however, that wife's relative power within the family modifies the effects of husband's and wife's characteristics and those of spousal agreement on family planning. We measure wife's relative power by three factors in our analysis: ethnic group membership, which serves as a proxy for patriarchal differences across groups, wife's economic and social control, and wife's say on family size. Of these three factors, wife's ethnic group membership has the most important effect on use of family planning. In particular, we find that spouses in the two groups with strong patriarchy, the Kanuri and

Hausa, are much less likely than Yoruba spouses to agree that they use or will use family planning while spouses in the Ibo group, who have the highest educational levels, are more likely to agree on use. We argue in the paper that spousal agreement on wife say on family size is a good indicator of wife's relative power within the household. Our findings show that if the spouses agree that the wife has a say on family size, they are also likely to agree on use of family planning. In cases of disagreement, we find that spouses are more likely to agree on use of family planning if the husband says his wife has a say on family size but his wife says no, she does not have a say. Husbands giving that response may subscribe to egalitarian norms but maintain more traditional behavior. Their wives, on the other hand, may realize that their husbands have an open attitude toward family planning with which they agree, even though they feel that their husbands do not listen to their views. If this reasoning is correct, it again gives credence to the argument that men's views carry more weight than those of women in Nigeria.

Of the individual-level measures of wife's relative power in the family, only work before marriage and mother-in-law presence increase spousal agreement on use of family planning. On the other hand, work and earning's control has a negative effect on family planning. We did not expect the effects for mother-in-law presence and work and earning's control to be in the direction observed. In the paper we offered an explanation for the latter, arguing that women who work and control earnings may have less need to use family planning because they are older, have already completed their childbearing, and are practicing abstinence. Nonetheless both of these findings suggest that the determinants of wife's economic and social control itself should be given greater attention, as well as why the effects of different dimensions on reproductive outcomes vary.

What are the implications of our findings for policy purposes given that we find that one of the more powerful factors differentiating attitudes and behavior is ethnic group membership, an ascribed characteristic? Although we did not evaluate the determinants of spousal agreement at the group level in this paper, due to insufficient variation on both the dependent variable and women's economic and social control among the Hausa and Kanuri, the bivariate relationships presented in Table 4 indicate that wives in those groups who do obtain some formal education and increased control over their lives (e.g. work and control earnings, chose husband) are more likely to agree with their spouses on use of family planning. On the other hand, the dominance of Hausa and Kanuri men over reproduction is quite clear in that the majority of both spouses in those groups agree that the wife has no say on those matters and that they never talked about family planning (Table 1). On balance these findings suggest that efforts to increase contraceptive use in groups such as the Hausa and Kanuri will be ineffective unless concerted attention is given toward convincing men that they may have something to gain by educating their daughters, allowing their wives to work outside the home, and devoting fewer resources to large families.

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Table 1: Spousal agreement on demand for children, communication on family planning, and wife say on family size in five Nigerian ethnic groups

	Total	Kanuri	Hausa	Yoruba	Ijaw	Ibo
A. Demand for Children						
<u>Agree</u>						
No more children	8.7	0.0	0.3	4.4	12.3	23.6
Want more children	42.9	21.0	46.4	45.6	51.1	49.4
God's Will	10.5	28.4	10.5	9.7	1.6	3.5
<u>Disagree</u>						
Wife more/husband no more	2.6	0.5	0.0	3.0	3.6	5.4
Husband more/wife no more	3.5	1.9	2.9	3.9	5.8	2.8
Other disagree	31.9	48.3	39.8	33.5	25.6	15.3
B. Spousal communication in last year on family planning						
<u>Agree</u>						
Never talked	56.2	78.3	74.6	57.4	49.8	27.3
Talked 1-2 times	4.7	1.5	1.2	2.4	7.6	9.3
Talked 3 or more times	5.0	1.1	0.6	6.3	4.8	10.9
Talked but disagree on # times	8.9	1.5	2.3	8.1	6.9	23.1
<u>Disagree</u>						
Wife says talk/Husband no talk	15.0	14.4	17.3	12.3	14.6	16.3
Wife says no talk/Husband yes	10.3	3.3	4.1	13.6	16.2	13.2
C. Wife Say on Family Size						
<u>Agree</u>						
Wife has no say	35.4	78.5	78.8	11.5	10.5	6.7
Wife has some say	32.5	5.3	2.2	46.6	39.5	62.0
<u>Disagree</u>						
Wife says say/husband no	15.2	6.4	7.5	23.1	28.6	9.6
Husband says wife say/wife no	16.9	9.8	11.6	18.7	21.4	21.6
Number of Cases	3167	630	590	570	669	708

Note: The columns are percentaged for each panel and group.

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Table 2: Means for other analysis variables for wives aged 15-45 and their husbands in five ethnic groups

Variable	Total	Kanuri	Hausa	Yoruba	Ijaw	Ibo
<i>Controls for both spouses</i>						
Live children(no.)	3.0 (2.2)	2.46 (2.2)	2.59 (2.2)	2.90 (1.9)	3.53 (2.4)	3.59 (2.2)
Pregnant now=1	.15 (.36)	.15 (.36)	.18 (.38)	.15 (.35)	.13 (.34)	.16 (.36)
Polygyny =1	.23 (.42)	.25 (.43)	.30 (.46)	.31 (.46)	.26 (.44)	.07 (.26)
Muslim =1	.42 (.49)	.99 (.10)	.99 (.10)	.20 (.40)	a	a
Urban residence=1	.25 (.25)	.22 (.42)	.27 (.44)	.26 (.44)	.25 (.43)	.25 (.43)
<i>Wife's Characteristics</i>						
Age (years)	28.4 (6.8)	25.9 (6.6)	26.4 (7.2)	29.59 (6.5)	29.2 (6.5)	31.0 (5.7)
No education =1	.29 (.45)	.60 (.49)	.29 (.46)	.29 (.45)	.21 (.40)	.07 (.25)
Koranic education =1	.14 (.35)	.16 (.37)	.58 (.49)	.001 (.04)	a	.001 (.04)
Primary education =1	.26 (.44)	.14 (.34)	.09 (.29)	.30 (.46)	.38 (.48)	.36 (.48)
Secondary education =1	.31 (.46)	.10 (.30)	.04 (.20)	.40 (.49)	.41 (.49)	.56 (.50)
<i>Husband's Characteristics</i>						
Husband's age	39.7 (10.4)	40.8 (11.8)	38.4 (11.3)	39.7 (10.6)	38.6 (9.5)	40.9 (8.4)
No education	.13 (.34)	.21 (.41)	.14 (.34)	.24 (.43)	.05 (.21)	.06 (.23)
Koranic education	.20 (.40)	.46 (.50)	.59 (.49)	.01 (.10)	a	a
Primary education	.24 (.43)	.09 (.29)	.08 (.27)	.28 (.45)	.25 (.43)	.48 (.50)
Secondary education	.31 (.49)	.23 (.42)	.12 (.33)	.47 (.50)	.70 (.46)	.46 (.50)
<i>Wife's Social Control</i>						
Worked before marriage	.28 (.45)	.03 (.18)	.15 (.36)	.62 (.49)	.35 (.48)	.29 (.45)
Work and control earnings =1	.40 (.49)	.18 (.39)	.33 (.47)	.56 (.50)	.66 (.47)	.26 (.44)
Chose husband =1	.73 (.45)	.46 (.50)	.60 (.49)	.89 (.33)	.89 (.34)	.78 (.42)
Mother-in-law presence	.10 (.30)	.07 (.26)	.19 (.40)	.08 (.27)	.03 (.18)	.12 (.33)
Total (N)	3167	630	590	570	669	708

a Standard deviations are in brackets. b Too few cases for analysis.

Table 3: Percentage (%) of spouses who agree that they are currently using or will use family planning in the future by spousal agreement, pooled Nigerian sample and five ethnic groups

	Total	Kanuri	Hausa	Yoruba	Ijaw	Ibo
Total (%)	20.0	1.3	1.7	14.9	20.0	55.0
A. Demand for Children						
<u>Agree</u>						
No more children	48.6	a	a	36.0	19.5	64.7
Want more children	22.7	3.0	2.2	20.4	20.5	50.0
God's Will	6.0	0.6	a	5.5	a	60.0
<u>Disagree</u>						
Wife wants more/Husband no more	41.5	a	a	29.4	25.0	60.5
Husband wants more/Wife no more	27.3	a	5.9	27.3	23.1	65.0
Other disagreements	10.7	0.9	1.3	6.8	18.7	52.8
B. Spousal communication in last year on family planning						
<u>Agree</u>						
Never talked	2.9	a	a	2.2	3.4	15.1
Talked 1-2 times	61.4	a	a	76.9	49.0	81.0
Talked 3 or more times	84.6	57.1	a	67.5	90.3	91.9
Talked but disagree on # of times	73.3	33.3	23.1	45.5	70.5	87.9
<u>Disagree</u>						
Wife says Talked/Husband says no	20.9	a	a	23.9	17.0	55.0
Wife says No Talk/Husband says yes	20.7	a	a	12.6	16.4	38.9
C. Wife Say on Family Size						
<u>Agree</u>						
Wife has no say	2.9	1.0	1.1	4.6	10.0	25.5
Wife has some say	40.4	a	16.7	22.0	27.9	62.8
<u>Disagree</u>						
Wife says she has a say/Husband no	16.5	a	a	9.2	18.9	40.3
Husband says wife has say/Wife no	22.4	a	6.5	14.2	12.7	52.3

a These cells contain no observations or 1-2 cases only.

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Table 4: Percentage of spouses who agree that they are currently using or will use family planning in the future by analysis covariates, pooled Nigerian sample and five ethnic groups

		Total	Kanuri	Hausa	Yoruba	Ijaw	Ibo
Total (%)	(1=yes)	20.0	1.3	1.7	14.9	20.0	55.0
<i>Controls for both spouses</i>							
# Live children	(4 or More)	16.5	1.8	2.3	14.7	19.9	59.4
	(under 4)	25.8	1.3	1.7	16.1	20.1	50.9
Pregnant now	(1=yes)	18.7	1.1	0.0	14.5	16.9	56.4
	(0=no)	20.3	1.5	2.3	15.8	20.5	55.0
Polygyny	(1=yes)	10.9	0.6	1.1	9.8	20.0	49.0
	(0=no)	22.8	1.7	2.2	18.2	20.0	55.7
Muslim	(1=yes)	2.2	0.0	0.0	7.8	a	a
	(0=no)	32.8	1.4	1.9	17.6		
Urban	(1=yes)	27.5	1.4	5.7	30.0	14.3	77.5
	(0=no)	17.5	1.4	0.5	10.5	22.0	47.7
<i>Wife's Characteristics</i>							
Wife's age	(30 or More)	23.1	0.5	1.4	14.6	16.9	55.1
	(less than 30)	17.5	1.9	2.2	16.6	22.7	55.4
<i>Education</i>							
None	(1=yes)	4.31	1.1	1.7	3.6	6.5	34.7
Koranic	(1=yes)	0.9	1.0	1.0	a	20.0	a
Primary	(1=yes)	19.9	2.3	5.7	8.1	15.9	40.5
Secondary	(1=yes)	43.1	3.3	8.3	30.0	30.7	67.4
<i>Husband's Characteristics</i>							
Husband's age	(30 or More)	21.1	1.7	2.0	15.6	19.1	55.3
	(less than 30)	13.4	a	1.5	16.0	25.8	54.6
<i>Education</i>							
None	(1=yes)	2.4	a	a	1.5	a	17.5
Koranic	(1=yes)	0.8	a	1.2	a	a	a
Primary	(1=yes)	24.2	a	a	10.0	9.0	45.8
Secondary	(1=yes)	33.5	6.2	9.6	26.3	24.7	69.9 69.9
<i>Wife's economic and Social Control</i>							
Worked before marriage	(1=yes)	23.7	a	a	15.5	20.3	53.9
	(0=no)	18.6	1.5	1.1	15.7	19.9	55.8
Work & control earnings	(1=yes)	17.2	2.6	2.0	16.1	17.2	44.8
	(0=no)	21.9	1.2	2.0	15.0	25.7	58.9
Chose husband	(1=yes)	23.4	2.4	2.5	16.3	21.1	56.8
	(0=no)	11.1	0.6	0.9	9.8	11.1	49.7
Mother-in-law presence	(1=yes)	20.3	a	1.7	20.0	27.3	53.4
	(0=no)	20.0	1.5	1.9	15.2	19.8	55.5

a These cells contain no observations or 1-2 cases only.

Table 5: Binary logistic regression of spousal agreement on the topic of current or future use of family planning on husband and wife characteristics, spousal agreement, ethnic group membership, and wife's social and economic control, pooled sample of wives aged 15-45 and their husbands (odds ratios)

Covariates	Wife/ Husband Char. & Controls Model 1	Model 1+ Spousal Agree on Demand Model 2	Model 1+ Spousal Agree on Comm. Model 3	Model 1 + Wife Agree on Say Model 4	Model 1 + Wife's Social Control Model 5	Model 1+ Ethnic Group Model 6	Full Model Model 7
<i>Wife's Characteristics</i>							
Wife's Age (years)	1.05***	1.04**	1.04*	1.03	1.06***	1.00	.98
Primary education=1	3.22***	2.88***	2.74***	2.38***	3.30***	1.48	1.27
Secondary education=1	10.74***	9.22***	6.37***	7.40***	11.15***	3.68***	2.39***
<i>Husband's Characteristics</i>							
Husband's Age (years)	1.00	1.00	1.01	.99	.99	.98	1.00
Primary education=1	6.82***	5.87***	4.80***	4.64***	7.05***	2.58***	1.85
Secondary education=1	6.84***	6.14***	3.91***	4.62***	7.56***	5.23***	2.80**
<i>Controls for Both Spouses</i>							
Live children (no.)	1.15***	1.11***	1.04	1.14***	1.17***	1.18***	1.05
Pregnant now =1	.89	.91	.88	.93	.87	.86	.93
Polygyny =1	.66**	.68*	.73	.71*	.77	1.14	1.20
Urban =1	1.17	1.09	1.02	1.12	1.27***	1.42**	1.23
<i>Wife's Social Control</i>							
Worked before marriage					1.00		1.08*
Works & controls earnings=1					.68**		.68**
Chose husband =1					1.08		.91
Mother-in-law =1					1.35		1.77*
<i>Spousal Demand for Children</i>							
No more children		2.56***					1.26
Want more children		1.43*					.88
God's Will		.88					1.54
Wife more/Husband no		2.32***					1.08
Husband more/Wife no		1.59					1.96*
<i>Spousal Communication on Family Planning</i>							
Talked 1-2 times			21.50***				19.57**
Talked 3 or more times			59.38***				64.18**
Talked but disagree on times			31.65***				24.66**
Wife says talk/Husband no talk			4.82***				4.90***
Wife says no talk/Husband says			3.44***				2.67***
<i>Spousal Agreement: Wife say</i>							
Wife has some say				5.77***			1.86*
Wife says say/Husband no				2.72***			1.16
Husband says wife say/Wife no				3.29***			1.76*
<i>Ethnic Status</i>							
Kanuri=1						.19***	.20***
Hausa=1						.37**	.37*
Ijaw=1						.97	1.41
Ibo=1						6.30***	4.99***
# Cases	3167	3167	3167	3167	3167	3167	3167
Chi ²	810.39	842.79	1431.42	914.22	861.68	1099.89	1634.65
Log likelihood	-1180.41	-1164.21	-869.90	-1128.50	-1154.77	-1035.66	-768.28
(-2 L1 - L0)	824.27	791.86	203.23	720.43	772.97	534.76	----

Note: *pr <.05, **<.01, ***<.001. Referent category for education=no education and koranic education; for ethnic group=Yoruba; for demand for children=other forms of disagreement (i.e. one spouse says god's will and other responds no more or more); for spousal communication=never talked; and for wife say on family size=wife has no say.

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Appendix A: Measurement of variables used in the analysis of spousal disagreement

VARIABLE	MEASUREMENT
<i>Controls for both spouses</i>	
Number of live children	continuous variable for number of children
Pregnant now	1=yes to "Are you pregnant now?"; 0=no
Polygyny status	1=yes "Does your husband have any wives besides yourself?"; 0=no
Muslim	1=wife is muslim; 0=christian or other
Urban residence	1=wife lives in state capital; 0=semi-urban or rural residence
<i>Wife's Characteristics</i>	
Wife's age	continuous variable in years
[No education]	1=no formal education; 0=else
[Koranic education]	1=some Koranic education; 0=else
Primary education	1=some primary education; 0=else
Secondary education	1=some tertiary or secondary education; 0=else
<i>Husband's Characteristics</i>	
Husband's age	continuous variable in years
[No education]	1=no formal education; 0=else
[Koranic education]	1=some Koranic education; 0=else
Primary education	1=some primary education; 0=else
Secondary education	1=some tertiary or secondary education; 0=else
<i>Wife's Social Control</i>	
Worked before marriage	1=wife worked before marriage
Works and control earnings	1=wife is currently working and said "I decide" to "Do you usually decide how your earnings are used, does your husband decide, do you both decide, or who decides?"; 0=other responses
Chose husband	1=wife said "I chose him" to "Did you choose your husband or did your parents choose him for you?"; 0=parents or other
Mother-in-law presence	1=wife said mother-in-law lives with her

VARIABLE	MEASUREMENT
<i>Spousal Demand for Children</i>	Spouses were asked: "Do you want to give birth to (more) children? Responses were grouped as: yes, no, god's will, don't know. The latter 2 categories were combined and the following variables constructed:
No more children	1=husband and wife agree that they want no more children;
Want more Children	1=husband and wife agree that they want more children;
God's will	1=husband and wife agree that the decision is up to god or said don't know;
Wife more/Husband no	1=wife said she wants more; husband said no more;
Husband more/Wife no	1=husband said he wants more; wife said no more;
[Other disagree]	1=one spouse said god's will; other spouse said no more or more
<i>Spousal Communication on Family Planning</i>	Spouses were asked: "How often have you talked to your husband [or wife] about family planning in the last year?" Responses were grouped as: never talked; talked once or twice; or talked more than twice.
[Never talked]	1=husband and wife agree that they never talked;
Talked 1-2 times	1=husband and wife agree that they talked 1-2 times;
Talked 3 or more times	1=husband and wife agree that they talked 3 or more times;
Talked but disagree on # times	1=husband and wife agree that they talked either 1-2 times or 3 or more times;
Wife says talk/Husband no talk	1=wife says that they talked either 1-2 times or 3 or more times; Husband says that they never talked;
Wife says no talk/Husband yes	1=wife says that they never talked; Husband says that they talked either 1-2 times or 3 or more times.
<i>Spousal Agreement on Wife Say</i>	Wives were asked: "Do you have any say in the number of children you and your husband have?" Husbands were asked: "Does your wife have any say in the number of children you and your wife have (will have)?" The yes or no responses formed the following:
Wife has some say	1=husband and wife agree that wife has some say;
[Wife has no say]	1=husband and wife agree that wife has no say;
Wife says say/Husband no	1=wife says she has a say; husband says that she has no say;
Husband says wife say/Wife no	1=husband says wife has a say; wife says she has no say

Note: Variables marked with brackets [] form the referent category in the multivariate analysis.

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FOOTNOTES

1. Our research is supported under a Cooperative Agreement (No. CCP-3060-A-00-3021-00) between the U.S. Agency for International Development (USAID) and Family Health International (FHI) through a subcontract to Cornell University (FHI FCO #4008;OSP #25494). The data gathering was supported under a grant from the Rockefeller Foundation to the Nigerian Institute of Social and Economic Research through a subcontract with the Population and Development Program, Cornell University.
2. At the time the survey was being designed and carried out, in early to mid-1991, a sampling frame was not available for Nigeria but one was then being constructed by the National Population Office in order to carry out a national census in late 1991. We had access to the Office's detailed maps of enumeration areas but no reliable estimates were available of the % urban and, as such, we devised a sampling strategy based on the assumption that at least 50% of the population was predominately rural and resided in small towns, that 25% of the population resided in metro regions and engaged in non-agricultural activities, and that the remaining 25% were located in intermediate sized urban areas (nucleated settlements larger than 10,000) which lack most urban amenities (e.g. electricity, water and sewer systems, paved roads, secondary schools, etc.) and in which most of the population is engaged in agricultural pursuits but with growing employment in non-agricultural work. Thus, our sampling strategy yields a population that is about 50% urban measured by population concentration (10,000 or more) but about 30-35% urban measured by engagement in non-agricultural activity.
3. These figures are based on wife data only. The figures would be lower if based on spousal agreement on use. About 18 percent of couples disagree regarding whether they are using family planning.
4. To reduce sample loss for missing age data. we use the wife's age given by the husband or calculate it based on information given by respondents on their age at marriage and marriage duration. In the case of missing data for husband's age, we follow the same procedure.
5. The highest correlations between any two main covariates are: .5966 (husband's age and wife's age), .5178 (husband's koranic education and spousal agreement that wife has no say on family size), followed by .3907 (wife's koranic education and spouses agree that wife has no say), .3833 (number of live births and spouses agree that they want no more children), -.3670 (number of live births and spouses agree that they want no more children), .3510 (number of live births and husband's age), .3285 (spouses agree that they never talked about family planning in past year and spouses agree that wife has no say on family size), and -.3115 (husband's koranic education and disagreement on wife say on family size [wife says she has a say/Husband says no]).
6. The Nigeria Demographic and Health Survey (1990) reports polygyny levels of 49.7% in the Northwest (Hausas predominate in that region) and 38.4% in the Southwest (homeland of the Yorubas).
7. Spousal agreement on current use is 10.9 percent while that on current use of a modern method drops to 4.6 percent. Current use based on wife data alone is 16.7 percent while 21.2 percent of husbands say they are users. Since any use includes traditional methods as well as rhythm and withdrawal, disagreement could mean that spouses do not actually consider these methods to be family planning. In addition, husband's responses could refer to use with another wife or with girlfriends rather than to use with the wife interviewed.

Paper 5

**Reproductive Decision-Making in Nigeria:
A Literature Review**

by

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**REPRODUCTIVE DECISION MAKING IN NIGERIA: A LITERATURE
REVIEW**

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Introduction

In this report, we review selected literature on fertility and family planning in Nigeria. We document how research interests have changed since work was initiated on those issues in the 1960s and focus on the narrower issue of the role of women's decision-making inputs on reproduction. A secondary interest is to determine how women's position in the household and community shapes the inputs that women have on reproduction. As Africa's largest country, Nigeria is an important country for the population community to monitor since fertility transition appears to have started in some parts of the country but not in others (Nigeria Federal Office of Statistics 1992). Moreover, Nigeria is on course to becoming the 6th largest country in the world by the middle of the next century. Of today's large countries,¹ Nigeria has the fastest population growth rate (3.1%), the lowest rate of contraceptive use (6%), and the second lowest per capita GNP (\$320). Although women's reproductive health in Nigeria is probably comparable to that found in other African countries, the fact that one in six African women lives in Nigeria means that conditions for the region as a whole will be heavily influenced in the year's ahead by Nigeria.

A couple of caveats are in order prior to turning our attention to the main question of what the Nigerian research literature tells us about reproduction in general, and women's decision-making inputs into that process in particular. The first caveat relates to the unevenness of research capacity and, concomitantly, of knowledge on various population issues for the country as a whole. Indeed, most generalizations found in the research literature for Nigeria tend to be based on studies carried out on a particular ethnic group or region. This is problematic in that research capacity and knowledge differ significantly across ethnic groups and regions of the country -- for the vast majority of Nigeria's 100 plus ethnic groups, no ethnographic or demographic studies are available. Even if we focus attention on Nigeria's largest groups -- the Hausa, Ibo, and Yoruba -- which together constitute about half of the population, we find differential capacity and knowledge. Much more literature is available, for instance, on the Yoruba's population dynamics than on those of the Hausa. Some work also exists on the Ibo but not as much as on the Yoruba. As we will note often in this review, women's status and decision-making inputs differ widely across ethnic groups, just as they do across countries, but lack of comparative research on different groups limits our understanding of these patterns and their implications for population policies and programs.

The second caveat underscores a point made over a decade ago in the Report of the International Review Group on Population and Development (Miro and Potter 1980), namely that knowledge on population issues within given countries tends to develop in stages and cannot be separated from overall research capacity. This being the case, we proceed by providing some background on the institutions and issues that were instrumental in the growth of the population research community in Nigeria. We divide our review of population research into three phases that correspond to the decennial intergovernmental population conferences: the pre-Bucharest phase (pre-1975); the post-Bucharest phase (1975-1984); and the post-Mexico City/pre-Cairo phase (1985-present). These international conferences are important markers for the population field since they signal shifts in population policy objectives which, in turn, shape funding priorities of donor agencies. Since the bulk of research support for population in Nigeria comes from international donors, at least some of the changes in research priorities across time respond to

¹ Those countries, by population size order, are: China, India, United States, Brazil, Russia, Indonesia, Pakistan, Bangladesh, and Nigeria.

shifting foci within the population field as a whole rather than to scholarly research priorities or even country needs.

Table 1 provides tallies of research on selected population issues in Nigeria during each of these phases drawing on literature included in the POPLINE database.² As expected, the database includes a relatively large volume of research material (3303 items) and the number of items increases across the three time periods, as expected. Although classification of research by time periods is useful from the standpoint of identifying shifting priorities, major themes reoccur with varying degrees of emphasis in each time period. The counts in Table 1 are based on a detailed record search. In particular, we searched titles, keywords, and abstracts of each record for word/topic occurrence. However, we did not attempt to differentiate between work that gives major versus minor attention to the topic. The main topic entries (shaded rows) are not mutually exclusive and, therefore, items may be included in the counts for more than one category. Subsets of two categories -- family planning and women's status -- are also identified to determine counts for subtopics of interest (reproductive health, attitudes, and decision making).

About a third of the items identified in the database give some attention to fertility (1125) and slightly more focus on family planning (1446). The fact that work on fertility increased only slightly in the third period whereas that on family planning almost doubled is consistent with the intergovernmental consensus reached at the 1984 Mexico City International Population Conference that countries should get on with the business of extending availability of family planning services. In accordance with that mandate, over half of the items on family planning in the database give some attention to family planning services (659). However, people's attitudes toward family planning (168) is addressed in only 11.6% of the family planning items and the decision-making process (55) in less than 4% of them. Indeed, no work in the pre-1975 period addressed family planning decision making; rather most of the work on that topic was produced in the post-1985 period. Women's status receives attention in fewer than 6% of the total records. Looking at subsets of the women's status records, 86 of them address family planning issues but the numbers decline quickly when we ask how many of those look at either decision making (10) or attitudes (8). A similar picture emerges when the literature is limited to women's status and fertility -- 20 records in total address both of those issues but only one of them also looks at attitudes and 3 look at decision making.³

First Period: Before the Bucharest World Population Conference

Growth of interest in population picked up after Nigeria achieved independence on October 1, 1960. Although concern about the number of illegal, induced abortions led to establishment of the first family planning clinic in Lagos in 1958, for the first three decades following independence the federal government kept a low profile on population questions. Prior to the late 1980s, family planning services were provided largely by the Planned Parenthood Federation of Nigeria (PPFN), which was started in 1964 by the National Council of Women's Societies with

² Row 1 contains the total number of entries on Nigeria for the entire POPLINE database. The other rows give counts for subsets of the database. The POPLINE database only includes articles published in leading population journals and, as such, is not a compilation of all population literature on Nigeria.

³ After reviewing the items included in the subcategories shown in Table 1, we decided that the POPLINE classifications do not identify the best literature available on particular topics and thus that we should not limit the discussion to the items identified via the POPLINE compilations.

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assistance from the Pathfinder Fund, the International Planned Parenthood Federation (IPPF), and the Unitarian Universalist Service Committee. PPFN's efforts were assisted by teaching hospitals at the universities of Ibadan and Lagos, which took the lead on educating the public to the importance of birth control and by providing family planning services.

Research efforts were slowed during the early period due to the lack of trained indigenous demographers (Lucas 1972; Umoh 1972).⁴ Economists (Nigerians and expatriates) were the first to alert the research community and policy makers to dangers inherent in the dearth of demographic information on which to base present and future development plans. Two donor agencies -- the Rockefeller Foundation and the Population Council -- responded to this perceived need for demographers who would be able to assist the effort to build a Nigerian database on population. To meet this need, those agencies used a multipronged approach that focused on: building up university-based research centers in Nigeria; staffing those centers with expatriate faculty and advisors so that teaching and research could be launched on population dynamics; and providing fellowships to Nigerians for study abroad in demography with the expectation that they would return home and replace expatriates after their studies were completed. At the University of Ile Ife (now Obafemi Awolowo University), an institute for demographic research was set up in 1969 with Population Council support. That institute later became a department of demography and social statistics and continues today as the only training program offering degree courses at both undergraduate and postgraduate levels.⁵

In this period, the research effort focused on identifying Nigeria's basic demographic indices. To assist that effort, a census was conducted in 1962 but the results were never released because researchers and policymakers disputed the regional population counts. Some surveys on marriage and family life were conducted during this period but they were limited to Lagos (the capital city which is mainly inhabited by the Yoruba ethnic group). The Population of Tropical Africa (Caldwell and Okonjo 1968) contains most of this early work and includes estimates of fertility, mortality, and annual growth rates. Another important publication of this period, Sub-fertility and Infertility in Africa (Adadevoh 1974), contains research findings emanating from various university teaching hospitals (particularly ones in Lagos, Ibadan, Zaria, Benin and Enugu) and from demographers.

KAP surveys conducted in the mid to late 1960s show growing awareness of family planning. For instance, Farooq and Adeokun (1974) analyzed data from a round of four KAP surveys, conducted between 1969 and 1972 in the rural area of Irrua, home of the Ishan ethnic group in midwestern Nigeria, to chart changes in fertility and contraceptive attitudes and practices following the establishment of a private family planning clinic in 1968. The authors concluded that both awareness and use of family planning increased in the study period. In addition, Caldwell and Igun (1972) reviewed data from two KAP surveys carried out in Lagos (1964, 1968) and concluded that knowledge and practice of family planning increased between the two surveys. Other KAP studies conducted in Lagos and in the midwestern region also revealed a high value of children and preponderance of polygynous marriages (Ekanem 1973,1974; Olusanya 1969). Although the latter led to a literature debate on the fertility impact of polygynous versus

⁴ Articles cited provide an illustrative rather than exhaustive listing. We made an effort to select the most important work but other compilations might differ, given the large amount of material available. The internal ordering of sources is alphabetical.

⁵ At several other Nigerian universities, students receive training in demography in social science disciplines such as geography, economics, sociology and anthropology.

monogamous unions, scholars subsequently agreed that no significant differences by marriage type exist (Ahmed 1976; Ohadike 1968; Olusanya 1971). Based on these surveys and profiles of family planning acceptors, the main correlates of family planning use identified were age, women's formal education and urbanization (Caldwell 1968; Caldwell and Igun 1972; Farooq and Adeokun 1974; Ohadike 1969).

The Second Period: 1975-1984

The second period, which covered the interim between the Bucharest and Mexico City international population conferences, spawned more literature on the paucity of information on Nigeria's basic population indices and trends (Igun 1976; Population Association of Nigeria 1980). However, the number of trained Nigerian demographers was increasing, as is reflected in the growing number of studies carried out in this period on diverse topics that ranged from fertility determinants to the impact of rapid population growth on the growth of urban centers and on sectoral investments, particularly on health, education, and labor force (Fadayomi 1981; Fadayomi and Oyeneye 1984; Olusanya 1981). Many of these studies were reported at a national workshop held at the University of Lagos, 12-14 September 1979, and published in Population and Economic Development in Nigeria in the Nineteen Eighties (Chojnacka, Olusanya and Ojo 1981).

In the late 1970s, two large scale studies on fertility determinants generated a number of research publications and new knowledge on Nigeria's fertility regime. Although the fieldwork for both studies was carried out in the early 1970s, most of the research publications emerged during the second period and thus are discussed in this section. Much of this work is reviewed by Lucas et.al. (1986) in An Annotated Bibliography of the Nigerian Fertility and Family Planning Literature up to 1982. An annotated bibliography by Coles et.al. (1986) looks at the role of women in Nigerian development efforts, including population, up to the early 1980s.

The first project, entitled the Fertility, Family and Family Planning (FFFP) Survey of Nigeria, was conducted by G.M. Farooq, an expatriate advisor and member of the Department of Demography and Social Statistics at the University of Ile Ife. The main objective of the survey, which was carried out between 1971 and 1972 in Yoruba and Ibo speaking areas, was to obtain an understanding of household reproductive behavior in a traditional African society that was undergoing rapid social and economic transformation. Findings from that survey (Farooq 1980) showed that fertility (measured by children ever born and family size preferences) in both ethnic groups was strongly influenced by socioeconomic factors. Women's education had the most pervasive influence on CEB as well as on desired family size although the direction of the relationship differed -- education was negatively related to desired family size but had a curvilinear relationship to CEB. In particular, women with no education and those with secondary or higher levels had fewer children than women with some primary (Ware 1981).

In 1972, John Caldwell and Frances Okediji initiated the second project, the Nigerian segment of the Changing Africa Family Project (CAFN), from their base at the Department of Sociology, University of Ibadan. That study aimed to identify the preconditions of stable high fertility and of fertility decline in Nigeria. Although it focused only on the Yoruba in Ibadan City, a rich body of data was generated on: 1) the beginning of family limitation; 2) the value of children; and 3) the achieved small family (under 6 live births) (Okediji, Caldwell, Caldwell and Ware 1976). The data were analyzed by several scholars (see the volume Marriage, Fertility and Parenthood in West Africa by Opong et.al. 1978) and were the basis for Caldwell's wealth-flow thesis, presented in Theory of Fertility Decline (Caldwell 1982).

Findings emanating from these two projects tended to provide support for modernization theories, which hold that as urbanization, secular education and female employment proceed, changing attitudes toward family size and use of contraceptives occur (Adeokun and Ilori 1976; Arowolo 1978; Farooq 1979; Farooq et.al. 1977; Feyisetan 1985; Freeman et.al. 1983; Omideyi 1983; Orubuloye 1981). But researchers disagreed about the generalizability of these findings for Nigeria as a whole. Thus while Caldwell (1978), Harrington (1978), and Ware (1981) found secondary education to be associated with work outside the home, type of occupation, and type of marital union, Arowolo (1978) concluded that female employment is not related to fertility, based on analysis of the same Ibadan survey data. In 1976, McWilliam and Uche reviewed studies of fertility determinants and concluded that modernization may actually lead to higher fertility over the short term as traditional mechanisms of birth spacing erode and fail to be replaced by modern contraception.

Other scholars pursued the issue of the effects of traditional mechanisms of birth spacing, notably breast-feeding and postpartum and terminal abstinence, on fertility. Traditionally, these mechanisms had kept fertility levels below the biological maximum but were being eroded by modernization processes, a fact which underscored the need to raise awareness of and use of modern contraceptive methods (Ekanem 1974; Dow 1977; Caldwell and Caldwell 1977, 1981; Ojofeitimi 1981; Adeokun 1981). Researchers also looked at other proximate determinants of fertility, particularly the relatively young age at marriage or first birth (Ware 1976). Page and Lesthaeghe (1981) report important findings on breast-feeding and postpartum abstinence as methods of birth spacing and/or fertility limitation in Childspacing in Tropical Africa: Traditions and Change.

The implications of these often contradictory findings for government policy began to be debated during this period. While some researchers argued that high levels of fertility underscored the need for a national population policy and program, others countered that the high value of children, preponderance of polygynous unions, and ignorance and lack of interest in modern contraceptives, except for spacing births,⁶ reflected a low demand for contraceptives (Bradley and Giles 1981; Caldwell and Caldwell 1976; Lucas and Ukaegbu 1977; Okojie and Montague 1975; Okore 1977; Orubuloye 1977; Oyediran and Ewumi 1976; Trevor 1975; Uyanga 1979; Ware 1976; Weiss et.al. 1985) and, therefore, that family planning services would not be a cost effective investment.

There were also too many deficiencies in the knowledge base to convince the government to change its attitude toward population policy. Most of the research focused only on the southern parts of the country and on the Yoruba, in particular, although the Ibo had received some research attention. But women's conditions in the Northern regions of the country where women were not being exposed to modernization forces had received scant attention. As late as 1981/82 when the Nigerian Fertility Survey was carried out, 81.2% of women in the Northeast and 96.5% of women in the Northwest had no formal schooling. In the southern regions of the country, in contrast, the proportions with no schooling ranged from 44 to 47%. Although there was growing awareness that women in different parts of the country led very different lives (Burnham 1974), no work had yet addressed the implications of this for fertility transition. The net

⁶ In contrast, reporting on the characteristics of contraceptive acceptors at Ile-Ife University teaching hospital, Ayangade (1984) reported that the majority of users (78.4%) were aged 30-39 and, therefore, concluded "that family planning is used to limit family size rather than to space births...."

effect of the fact that most research focused on the southern region was that an overly optimistic view was provided in the 1975-84 period as to the potential for population change in Nigeria.

The Third Phase: 1985 to the Present

In the early part of the third period, which covers 1985 to the present, Nigeria engaged in a national discussion of its population trends, which was followed by the adoption of a national population policy in 1988 and subsequent expansion of government-sponsored family planning services. Not surprisingly, donor assistance for population programs increased in this period, focusing on strengthening national policy and program efforts through technical and financial assistance. The government objective, shared by donors, was to increase the use of modern contraceptives as a means of improving maternal and child health. As such, the federal government set about building and extending its maternal and child health services under which family planning would be one service component. Some donors, however, channelled their support largely to the family planning component of those services (e.g. for training family planning personnel, equipping health facilities, and supplying contraceptive commodities).

Donors also increased their support for operations and applied research during this period. For instance, studies were supported to improve understanding of: (a) barriers to effective family planning delivery (Aboderin 1986; Akintunde 1986; Coleman 1988; Masha 1986; NTA 1987; Rimon 1986); (b) contraceptive innovators and how their numbers could be increased (Oni 1986; Makinwa-Adebusoye 1991,1992); and (c) impediments to contraceptive acceptance and how those could be removed (Covington et.al. 1986; Makinwa-Adebusoye 1993). A number of clinic-based studies were undertaken as services expanded (e.g. Kim et.al. 1992). The impact of modernization in reducing the duration of postpartum abstinence, and on fertility was also emphasized (e.g. Aborampah 1987).

With the emergence of an official population policy and government support for family planning services, researchers aided the search for alternative strategies that would create broader awareness of and use of these services. This work was spearheaded by Dr. O.A. Ladipo at University College Hospital, University of Ibadan, and his colleague, Grace Delano. In Oyo State, two pilot projects in community-based distribution (CBD) were initiated to determine whether relatively unskilled personnel could be used in the service delivery process. After training agents, they were provided with a box of supplies that included some family planning commodities (pill, condoms, foam tablets) and simple health treatments, such as remedies for malaria and diarrhea. One project focused on rural areas and the second one on markets in the city of Ibadan. The rural CBD project recruited men and women from their own communities while the market CBD project recruited women traders to be agents. Eventually the market CBD project expanded to over 225 agents in 30 markets. With backup technical assistance from Columbia University, the CBD projects were evaluated by Ladipo and his colleagues (1987; also see UCH 1985); other findings were reported in the Proceedings of a conference on community-based distribution and alternative delivery systems in Africa, Harare, Zimbabwe, November 3-7, 1988. As population programs spread to other parts of Nigeria, the CBD project served as a model for reaching low-income sectors of the population.

Concern for adolescents generated large scale surveys in Ibadan and other urban centers to determine their attitudes toward, knowledge of, and practice of contraceptives. Those studies found that adolescents initiated sex at age 16, on average; were abysmally ignorant of human physiology; and seldom used a contraceptive method (Ladipo et.al.; Makinwa-Adebusoye 1991,

1992). Early initiation of sexual experience correlated with a high incidence of abortion, which was also of growing concern because of the risks associated with an illegal procedure. Nichols et.al. (1986) found that 17% of girls in secondary school had been pregnant and that 79% of them subsequently aborted or miscarried. Among university students, those rates increased to 25% pregnant of whom 97% aborted.

Findings from other studies cast additional light on adolescent sexual behavior. For instance, the Caldwell s also found relatively low rates of contraceptive use among teens in their CAFN study, but they noted that those rates were actually double those for married women. In other words, in a low contracepting society, teens were more likely than married women to be favorably disposed toward contraceptive use. That finding was reported in a 1992 article in which Caldwell, Orubuloye and Caldwell (pp. 5-7) argue that teens will be participants in Nigeria's fertility transtion, in contrast to patterns observed in other regions where teens are the last group to take up contraceptive use. (Also see Orubuloye, I.O., Caldwell, J.C., and Caldwell, P. 1991).

Research also expanded during the third period on specialized issues such as maternal mortality (Adetoro 1987; Chukwdebelu 1988; Okafor and Rizzuto 1994; and Okonofua 1992), abortion (Smith and Janowitz 1984), child health (Harrison, K.A. 1985; Scheer and Ebrahim 1985; Udjo 1987), and sexual practices and the spread of AIDS (Chikwem et.al. 1989; Ladipo et.al. 1984; Odebiyi 1992; Orubuloye et.al. 1991).

Although the vast majority of work during the third phase focused on the lines of research described above, another line of work examined a broader question,⁷ namely, what are the cultural props for high fertility and how can these be weakened and/or removed entirely (see several articles in van de Walle and Ebigbola 1987). In 1990, the Nigerian Demographic and Health Survey (Nigeria 1992) was carried out and provided further evidence that considerable differences exist across regions in contraceptive knowledge, attitudes, and practices (Adewuyi and Isuigo-Abanihe 1991; Makinwa-Adebusoye and Feyisetan 1994). The correlates of those differences, however, could not be identified because the DHS contains almost no information on women's status, ethnicity, or other cultural factors that might underly those regional differences. In order to shed light on the socio-cultural issues underlying regional differences in Nigerian fertility, a project on Status of Women and Fertility (SWAF) directed by the authors of this report was initiated in the early 1990s. The principal study objective was to examine the determinants of differentials in women's status across Nigerian ethnic groups and to evaluate the importance of those differences for reproductive processes. With the help of colleagues from six different Nigerian universities, Makinwa-Adebusoye and Kritz carried out a survey of husbands and wives in six ethnic groups -- the Hausa, Ibo, Ijaw, Kanuri, Tiv, and Yoruba. Findings from that survey are discussed in the next section since they are pertinent to the decision-making process.

Reproductive Decision Making

As noted earlier in this report, research on family planning decision making was ignored altogether in the pre-Bucharest phase but began to receive some research attention in the second

⁷ A division of labor between funding agencies emerged during this period. Bilateral and multilateral agencies focused their research funding largely on provision of family planning services and operations research while private foundations (e.g. Rockefeller and Ford) supported research that would clarify the root causes of high fertility and the context underlying population policies and programs.

period. Only in recent years, however, have scholars started looking carefully at the decision making process in Nigeria and how that affects service utilization. Two issues have dominated the work that has been done on decision making: who makes the decision to use contraceptives, men or their wives; and under what conditions are women more likely to be involved in that decision.

Regarding who makes reproductive decisions, a distinction needs to be made between who makes the decision on how many children to bear and who makes the decision on use of contraceptives. Based on the CAFN project, Caldwell (1987) advanced the argument that men and their lineages rule over reproduction and decide on matters of family size in Nigeria and elsewhere in Africa. Although no study has evaluated that hypothesis with empirical data, the view continues to persist that men are the dominant decision-makers on fertility matters in Africa (Isiugo-Abanihe 1994; Renne 1993). In recent years, some researchers have started gathering data that allows them to address the issue of the role of husbands in fertility and family planning decisions in Nigeria. Oni and McCarthy (1991), for instance, surveyed men in Ilorin and asked them whether they or their wives should decide about contraceptive use. Most men in that survey said they should decide and those numbers are highest among men who have no education or who only have primary education (60%). Hardly any men said the wife should decide and only men with postsecondary education favored the modern response, i.e. that both spouses should make the decision (57%).

The findings by Oni and McCarthy (1991) are somewhat inconsistent with those reported by Caldwell and Caldwell (1978) almost twenty years earlier based on the CAFN data. In the latter's study of demographic innovators, they also reported that husbands usually made the decision to limit family size (in just over half of the marriages) but they found a higher proportion of marriages in which the wife makes the decision (this was the case in about a third of all marriages). Oni and McCarthy (1991), however, report almost no incidence of wives taking the decision. Since both studies were carried out on the Yoruba, the discrepancy cannot be attributed to cultural context. A possible explanation, suggested by the Caldwells' study (1978), is that household decision-making does not follow the logic suggested by modernization theories, which hold that women become more involved in the decision-making process as modernization proceeds. In particular, the Caldwells found that marriages in which wives are more likely to make family size decisions tend to be traditional ones while husbands or both spouses are more likely to take joint decisions in modern marriages. They argued that this is consistent with the social organization of the traditional household in that women in polygynous households (e.g. in Yoruba society) are economically and emotionally autonomous from their husbands (Caldwell 1976). That autonomy, however, may be eroding as social change spreads the practice of the nuclear household. Thus, the Oni and McCarthy study (1991), which was carried out almost 20 years after the Caldwells' study, may have encountered fewer cases in which husbands think their wives should decide about use of contraceptives because that norm has now changed.

Other studies have looked at the decision-making process from the standpoint of the couple, based on data gathered from wives and their husbands. The first study of this type was carried out by Mott and Mott (1985) and found a high degree of couple agreement on use of family planning but significant disagreement on prospective fertility intentions. They concluded, however, that those differences are not important for fertility outcomes because they tend to cancel out at the aggregate level.

Kritz et.al. (1995) look at several dimensions of spousal agreement and find relatively high levels (a third or more) of spousal disagreement on desire for more children, spousal

communication on family planning in last year, and wife say on family size. Those levels, however, vary sharply across ethnic groups and appear to be related to women's status in their respective societies. For instance, spouses from groups in which women's status is lowest (e.g. the Kanuri and Hausa) have higher levels of disagreement on fertility desires than those who are members of ethnic groups in which women's status is higher (Yoruba, Ibo, and Ijaw). Moreover, they find higher levels of communication and joint decision making among the Yoruba, Ibo, and Ijaw. In contrast to the Kanuri and Hausa groups in which most husbands and wives (about 80%) agree that they never talk about family planning and that the wife has no say on family size, Kritz et.al. (1995) found that Yoruba, Ibo, and Ijaw spouses were much more likely to agree that they did talk about family planning in the past year (over a third of Ibo spouses and about 20% of Yoruba and Ijaw spouses say they talked) and that the wife has some say on matters of family size (40-60% agree that the wife has some say).

That study then addressed the question of whether agreement on fertility desires, communication on family planning, and wife say on family size could predict spousal agreement on use of family planning (Kritz et.al. 1995). That part of the analysis showed that spousal communication on family planning was the best predictor of contraceptive use but that even after controlling for spousal agreement on the three issues examined in the study (fertility desires, communication on family planning, wife say on family size) and spouses' socio-economic characteristics (e.g. education, work, etc.), Kanuri and Hausa wives are still significantly less likely to indicate that they use or will use family planning. They conclude that "efforts to increase contraceptive use in groups such as the Hausa and Kanuri will be ineffective unless concerted IEC work is first directed toward men and a message developed...that men themselves will benefit from smaller family size" (p.28).

Bankole (1995) also looked at the importance of spousal agreement for reproductive outcomes. In particular, he examined the effects of joint fertility desires on fertility using panel data from 1984 and 1986 surveys. He found that spousal agreement/disagreement is a significant determinant of subsequent fertility. In cases where the couple disagrees on desire for more children, his analysis shows that subsequent fertility falls between the fertility of spouses who agree they want more children and those who want to stop. Although he found that the desires of both spouses carry the same weight on subsequent fertility, when he disaggregated the analysis by the number of living children he found that the husband's desires are more important when the family size is small but that the wife's desires become more important when the number of living children is large. He interprets this finding using a life cycle argument, noting that in the Yoruba cultural context, women obtain increased autonomy and status within the household as they secure their position within their natal families.

Other recent work of interest indicates that maternal health and use of services is constrained by community perceptions and beliefs. For instance, Okafor and Rizzuto (1994) carried out 160 focus group discussions in four states (Akwa-Ibom, Enugu, Rivers, and Benue) and found that traditional birth attendants (TBAs) are "not only a significant source of misinformation, but may also, at times, be deliberately discouraging women from seeking higher levels of care" (356-7). They found, for example, that TBAs still hold superstitions regarding pregnancy and its complications that they pass along to women, do not recognize the signs and symptoms of pregnancy complications, and tend to have poor working relations with midwives in their communities, as well as with health care personnel at maternity centers and hospitals in their zones. Nonetheless, in the zones covered by the study, the TBAs are the most important providers of pregnancy service and attend most pregnant women in rural areas. Efforts by Askew

et.al. (1994) to identify indicators for measuring the quality of family planning services may assist the effort to improve maternal and child health services.

Summary

Based on our review of the Nigerian research literature since independence, it is clear that the volume of material being produced has increased considerably and that the research community is now focused on improving knowledge of specialized areas. On the other hand, our assessment of available research also indicates that the problem of unevenness of knowledge and capacity mentioned at the outset of this report remains a major problem. The literature search indicates that very little is known about population determinants in Northern Nigeria, where close to half of the population resides. Although the Nigerian WFS and DHS surveys provide information on basic demographic indicators and show growing differentials across regions in both fertility and health regimes, they have shed very little light on the determinants or consequences of regional differences in fertility regimes for women's lives and fertility transitions. As discussed in the decision making section, It is becoming increasingly clear that women's position in the family and community has an important bearing on fertility regimes in Nigeria but the implications for policies and programs remain unclear. The task for the research community in the years ahead is to address the issue of how women's position can be improved in societies that resist educating their daughters and allowing their women to work outside the home. The only course toward doing so may be to convince men in highly patriarchal societies that advancing the position of women will also advance their own economic and social status,

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Table 1: Literature on population dynamics in Nigeria^a

POPLINE Keywords ^b	pre-1975	1975-1984	1985-present	Total
(1) population (total Nigeria database)	283	1214	1806	3303
(2) fertility	119	418	588	1125
(3) family planning	163	471	812	1446
(3a) family planning services	44	185	430	659
(3b) family planning attitudes	23	58	87	168
(3c) family planning decision making	0	19	36	55
(4) reproductive health	0	20	77	97
(5) women's status	6	61	115	182
(5a) women's status & family planning	1	29	56	86
(5aa) women's status, family planning and attitudes	1	5	2	8
(5ab) women's status, family planning & decision making	0	3	7	10
(5b) women's status and reproductive health	0	0	20	20
(5ba) women's status, reproductive health & attitudes	0	0	1	1
(5bb) women's status, reproductive health & decision making	0	0	3	3
(5c) women's status & attitudes	1	10	6	17
(5d) women's status & decision making	2	4	17	23

^a October 1995

^b All literature counts are for Nigeria only.

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